Listening with Technology: An Everyday Ethnography

by

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Abstract

The question addressed in this dissertation is situated at the intersection of sound studies, media and technology research, and sensory ethnography of everyday practice: namely, how does attending to sound using a portable smart device allow people access to understanding and experiencing everyday life. Leveraging the history of recording and mediated listening, this work updates traditional models of communication technology by exploring the dynamics of mediated sensory experience in the context of a specific technological practice: using mobile smart devices. Adopting listening with technology as a unique perspective from which to problematize everyday experience, the study investigates the way in which technology mediates and frames understandings of urban everyday life. Based on a small case study involving two groups of four participants the dissertation presents the results and discussion of eight sonic auto-ethnographies of listening with technology. The methodological approach for the study borrows from ethnographies of everyday practice, as well as from past sonic ethnography projects that involve listening, soundwalking and audio recording. A multimodal analysis is applied to the interpretation of participant-produced media artefacts, serving as a foundation for identifying points of convergence among representations of urban sound, approaches to listening with technology and narratives about everyday life. The analysis discusses three outcomes: the relationship between participants' existing media use and the types of media artefacts created as part of the study; a typology of documentary approaches to the mediated representation of everyday experience; and a set of specific perceptual practices discussed in relation to listening as a form of mediated soundscape competence. Albeit preliminary work, this research suggests that there is a definite relationship between habitual media and technology use and approaches to documentation of everyday experience using smart devices; further, as perceptual processes such as listening become augmented by technological capabilities, including recording, photography and decibel measurements, mediation can be seen as a cultural process inseparable from perception. In sum, this work suggests that the sensory documenting or mediated *curating* of everyday life using mobile smart technology is a cultural practice nascent within the paradigm of new media participation.

Keywords: everyday ethnography; multimodal analysis; sound studies; media and technology, new media, sensory ethnography, curation, mobile technology, acoustic ecology, participatory culture, smartphones, listening, sonic ethnography

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Preface

> *Being 'literate' has always referred to having mastery over the processes by means of which culturally significant information is coded. S. De Castell & A. Luke, 1986*

I consider myself reasonably fluent in the use of digital technologies. In many ways I'm most literate in the ways of 'book culture' and what is now referred to as 'old media.' I am much less comfortable with what Henry Jenkins (2006b) identifies as the kind of new media literacies necessary for a participatory culture. I grew up with some TV and a lot of books, a vinyl record player and a vintage Russian rotary phone. I opened an email account in 1999 and purchased my first cell phone somewhere in the mid-2000s. My relationship to technology over the years has been continually fraught with contradictions. I've often found myself, for lack of a better word, 'young' enough to pick up new technological skills, yet always too 'old' to properly adapt these skills towards the cutting edge of emergent cultural production. It's a reflective relationship where I'm always carefully monitoring my own changing habits as new technologies enter (either by choice or necessity) into my routine. It is easy in these instances to recall McLuhan's insistence that media "work us over completely" (1964, p.26). While those we might label 'digital natives' exist seamlessly immersed in a new media ecology, I think many 'digital immigrants' such as myself frequently entertain concerns over our dependence on technology and digital communication, and the arguably addictive nature of social media and virtual worlds[1]. To evoke another of McLuhan's provocations, we "approach the new with the psychological conditioning and sensory responses of the old" (1964, p.94); in other words, we often find ourselves trying to address today's questions with yesterday's answers (p.9). So I would acknowledge here that the questions being asked in this work are very much wrought of my own experiences, bound up with my own self-perceived technological and cultural literacies, and as such, will be answered with a keen and reflexive eye to my own subjectivity.

[1] The terms 'digital native' and 'digital immigrant' are most notably associated with the work of Marc Prensky (2001) describing what he sees as dramatic and fundamental differences between generations of learners – those who grew up in a 'book culture' versus those who are growing up in the digital age. I am invoking these terms for illustrative purposes only and without generalizing to any specific demographics.

Chapter 1. Introduction

This work is about listening with technology. Listening has a way of grounding nebulous questions about culture and society into material reality. There is an intuitive subjectivity that comes with listening that helps orient theoretical explorations towards lived experience; a kind of 'sonic imagination' or frame of mind that enables attending to the audible (Sterne, 2012, p.9). I have been hearing for 33 years, but have been actively listening only for around 12 of them: an aptitude gained through my introduction to acoustic ecology (Schafer, 1977) and the practice of soundwalking (Westerkamp, 1974). I am still intrigued by the notion that the interaction between listener and sound is in some way mitigated by the surrounding soundscape in a way that frames and structures the communicational exchange (Truax, 1984). I have been listening and soundmaking with technology since the early 2000s: recording, manipulating and composing with field (environmental) recordings as well as designing informational sound displays for interactive spaces (Droumeva & Wakkary, 2006). I can trace shifts in my sensory practices as I move between acoustic and electroacoustic listening, as well as in my cultural practices, including treating sound and sound parameters as 'raw material' for other uses, and tuning my ears to search for aurally 'interesting' soundscapes. There is a shift in listening sensibility that occurs when one introduces technology into sensory perception – a different kind of culturally-framed sensory relationship is forged with the surrounding environment. As soundscape scholar and activist Hildegard Westerkamp (1994) puts it, recording sound entails hearing what the microphone hears. The recording stages a soundscape comprised of elements our ears have ignored and in this process technology flattens the differences in significance that we otherwise attach to different sounds. To Westerkamp, the microphone "…is a seductive tool: it can offer a fresh ear to both recordist and listener; it can offer access to a foreign place or serve as an ear-opener to the all-too-familiar; it is a way to capture and speak back to the unbearable" (1998, p.6). In other words, the acts of mechanical capture and reproduction constitute a different kind of sensory input imbued with archival significance that both

interplay with the moment of experiencing and constitute our relationship to sounds-as-objects (Sterne, 2003; Attali, 1985). The visual counterpart of this shift has been discussed as a kind of seeing with the 'eye' of the camera, which has long been theoretically and methodologically explored in visual ethnography (Collier & Collier, 1986; Pink, 2007). As sociologist Celia Lury notes, quoting Don Ihde (1995) on the significance of visual representation, "…[in anthropology] the photograph, more than merely representing, has taught us a way of seeing, and this way of seeing has transformed contemporary self-understandings" (1998, p.3). A similar argument can be traced back to the writings of Walter Benjamin (1968) for whom the aesthetic politics of radical film montage re-compose Western perceptual sensibilities towards new ways of accessing and understanding the world. More recently, Daisuke and Ito (2003) argue that improved photographic capabilities built into mobile phones redefine what 'picture worthy' means in everyday life.

Today, everyone with a smartphone has, at his or her fingertips, a Swiss-army knife of multimodal recording potential. What happens when this type of technology is part of our daily routine? What do we attend to with our re-mediated senses and how do we understand everyday life? This project is about tracing intersections between sensory experiences and technological mediation, between cultural practices and digital literacies, between materiality and epistemology, situated within a new media ecology and located in the soundscapes and landscapes of everyday life.

1.1. Technologies that mediate experience

> *...emergent technologies, shifting boundaries between the living and the nonliving, optional embodiments … the everyday world as a cyborg habitat … social systems that arise in phantasmic spaces enabled by and constituted through communication technologies. Alluquère Roseanne-Stone, 1996*

Visions of technology increasingly engulfing us into a cyborg existence of half-biological, half-technological materiality (Haraway, 1985, Stone, 1995, Dyson, 2009) have long furnished popular science fiction imaginings and fascinated scholars of the digital humanities. While sightings of Hamlet on the Holodeck (Murray, 1997) may as yet

remain fiction, it could be said that a much more subtle technological (r)-evolution is at work: one that is indeed re-configuring our bodies, senses, and surroundings, and is instrumental to our construction of meaning in the course of everyday life. Amidst the vast array of media forms to emerge over the last century, as well as the multitude of technological developments in communication and computing, the personal 'smart' device (or smartphone) represents a particular convergence of multimodal possibilities and a "crystallization of a set of operations and socially organized actions" (Sterne, 2003b, p.372). In less than a decade, the cell phone's transformation from a tool for mobile telephony into a multimodal, computational 'smart' media device has engendered a new kind of emplacement and ubiquity of technological mediation into the everyday landscapes, soundscapes and social settings of urban North American life. The smart device is, for many, simply always there, at-hand, in the places where daily life unfolds and we unfold along with it; infiltrating and moulding our cultural 'habitus' (Bourdieu, 1981; 1990a). This technological mediation is increasingly integrated into and co-constitutive of the very fabric of everyday experience ranging from sensorial encounters with physical space to the enactment of epistemological and social practices in the course of cultural participation.

1.1.1. Meanwhile in the social multiverse

According to an end-of-the-year Social Media Statistics report for 2012, published by the Huffington Post, there are 175 million tweets every day; 210,000 years' worth of music has been played on *Facebook* in 2012 alone; 1 hour of video is uploaded to *YouTube* every second; 5 million photos are uploaded on *Instagram* every hour; 250 million photos are uploaded on *Facebook* every day; 575 likes and 81 comments are posted on *Instagram* every second; the *Google+* button is used 5 million times a day; and 16 billion location-based tags and check-ins have been logged in 2012 (Honigman, 2012). According to Nielsen's 2012 Social Media Report, Americans have spent 121 billion minutes on social networking sites in 2012 adding up to a 37% increase from the previous year (Nielsen, 2012). Every minute, 10 hours of audio are uploaded on *Soundcloud* – one of the most popular audio-sharing web portals with 40 million registered users and over 200 million listeners contributing every month (Butcher, 2012). Dubbed 'the Twitter for Audio' the social networking community *Audioboo* has close to 8

million users across 220 countries for creating location-based personal podcasts (Audioboo.fm). *Audioboo* is connected not only to BBC itself but also to several major education initiatives such as a British Library public participation project (IMR, 2012), as well as classroom-based sound-mapping projects (Roche, 2011). Future trends for social media use in 2013 (Nielsen, 2012) include even more growth for user content-driven social sharing websites such as *Pintrest*, *Twitter* and *Instagram*, as well as a steady continued growth for *Facebook*, social gaming and mobile applications for capturing images, video and audio (Honigman, 2012). Together with *Twitter*'s newest subsidiary *Vine* (a 6-second video application), the trusty *Twitter pic* and the infamous 140-character word post complete the multimodal sensory toolbox for tweeting one's everyday experience in proverbial Technicolour.

Since so much of social media is accessed and utilized via mobile devices in the course of daily practices, adding smartphone usage statistics to this picture reveals further interesting trends. While 97% of 18-29 year olds in the US own smartphones, the highest smartphone penetration rate of 62% is actually at the age range of 25-34 (Go-globe.com) – both trendsetters and late-bloomers, likely a mixture of digitally native and immigrant generations[1]. According to media research reports compiled by Compendium, the Marketing Tech Blog and Exact target, the main usage patterns for smartphones include instant messaging, web browsing/skimming, email and gaming (Anson, 2013). Approximately 488 million people regularly use *Facebook* on personal mobile devices (Honigman, 2012). In the US alone, the amount of time spent on mobile web and mobile applications has gone up by an average of 80% between 2011 and 2012 (Nielsen, 2012). Particularly interesting is the fact that, despite being primarily 'mobile' devices, smartphones are actually used less on-the-go and more in a few select stationary settings such as one's home, school or work (Anson, 2013). There, the device serves as a *second screen*: a personalized portal of interaction with the social web while simultaneously consuming other more traditional screen-based media (McGarry, 2012).

[1] Prensky has been criticized for drawing too sharp a distinction between digital 'natives' and 'immigrants' predicated on equating age with digital literacy. For this work I adopt instead Henry Jenkins' (2006b) notion that regardless of age or technological ability we all exist and function in a media ecology that comprises both 'old' and 'new' media forms and communication.

These statistics represent, albeit in a limited way, the enormous significance that this changing digital-media-scape is likely having not only on the cultural production of knowledge, but on nearly every aspect of social life. It is safe to say that for many of us, the everyday is as much a material and embodied experience as it is an online cultural and social interaction, framed and captured through the multimedia artefact of image, video, tweet, music, status update. It is this process of capturing sensory experience as part of a cultural construction of everyday life that I aim to problematize in this project. The fleeting quality of the moments that are documented and archived simultaneously re-constructs the audio-visual materiality of the experience and fragments its temporality, resulting in what Barthes (1978) refers to in film theory as the 'still as quotation.' Moments of perceptual richness experienced both as instantaneous flow and as frozen-in-time can be thought of as part of a multisensorial new media grammar for making sense of and curating everyday experience (Burn, 2009, p.29). The act of capturing is, in the digital space, an authentic sensory currency. Whereas traditionally recordings and photographs maintain legitimacy as reliable archival references, the proliferation of portable smart technologies have transformed these media forms into the gold standard for authentically representing the *everyday*. My overarching question is then this: what is the role of smart technologies in mediating the construction of meaning that is part of our engagement with everyday sensory environments, and more broadly with everyday life?

1.2. The Research: context, questions and rationale

> *Big data is what happened when the cost of storing information became less than the cost of making the decision to throw it away. George Dyson, 2012*

In light of the generous preservation capacity of household digital technologies (not to mention Cloud storage), the question of capturing sensory experience as a cultural process is a novel take on a convergence of long-standing theoretical conversations concerning the development of writing and literacy (Ong, 1982; Havelock, 1963; Goody, 1977), as well as the history of recording and reproduction of knowledge (Schafer, 1977; Attali, 1985; Sterne, 2003a; Thompson, 2004). By asking the overarching question presented above, I aim to specifically problematize the sort of multimodal capturing of

the sensory substance of everyday life that personal smart devices make possible – the photos, videos, audio recordings and application-based manipulations that furnish the gallery of our virtual and physical lives. Addressing this question requires of course first identifying the discursive terrain that intersects themes about technology, everyday life and sensory experience. It also requires surveying conceptualizations of recording and archiving information both as particular modes of knowledge transmission different from phenomenal (oral) remembering (Goody, 1987; Havelock, 1986; Ong, 1970; Willinsky, 1984), and as socio-cultural phenomena that generate 'use' and 'exchange' value of preserved material (Attali, 1985; De Kerckhove, 1995; Benjamin, 1968). Whether sensory capturing is documentation, art, or mode of phenomenal experience (Sherk, 2012), addressing it entails bringing light to historical developments of recording technology particularly with regard to documenting the everyday. In this sense, any technology of preservation engenders shifts in the foundation of experience and the construction of meaning through relations of self, surrounding environment and culture. In the following paragraphs I'll attempt to bring these discursive traditions to the fore and identify some core themes as well as inherent biases that might hinder a culturally informed conceptualization of re-mediated sensory experience in the context of new media culture.

Given the centrality of communication to both the socio-cultural and epistemological dimensions of new media, any research with technology has to be situated in relation to discourses in communication studies. The theory of communication technology has been bound up for decades with assumptions tied to sensory metaphors that maintain a set of (in)direct relationships between social order, human consciousness and the particular sensorial modalities of communication technologies (McLuhan, 1964; Ong, 1982;). For instance, spoken language as a 'technology' is thought to characterize an era of 'orality;' writing and the alphabet are taken to signify 'literate' periods of human history; and 'secondary orality' is considered to be an operational modality for the world of electronic communication (Ong, 1982). Made perhaps most popular through the writing of Marshal McLuhan (1962; 1964) and subsequently Walter Ong (1982), the idea that electronic media have shifted the balance of our 'sensorium' from the eye to the ear presumes a direct correspondence between communication technologies and discrete channels of sensory perception, including an

implied hierarchy of the senses. This oral-literate-electronic thesis has pervaded media and communication studies for decades and as many have argued, has grandfathered a number of important assumptions about the properties of vision and hearing and their relationship to the history of socio-cultural dynamics (Sterne, 2003a, 2011; Feld, 1996; Classen, 1999; Pink, 2012). This 'audio-visual litany' so termed by Sterne, maintains a set of contrasting essentialized properties for orality and literacy based in a divide between sight and sound, and the processes of seeing and hearing. While some early communication theorists (Carpenter, 1972) and anthropologists (Mead, 1975; Stoller, 1997) attest to the fundamental connectedness of sensory channels and sensory-based cultural understandings, the audio-visual litany has nevertheless persisted as a dominant paradigm in communication discourse. This dualistic framework, however, positions the organization of consciousness as a direct consequence of sensory orientation, and technology as a vessel by which consciousness shifts (Sterne, 2003a). According to Sterne, it is only by freeing ourselves of the concept of orality as a counterpart to literacy and visualism that we may build a "richer and more robust deep history and global anthropology of communication" (2011, p.209). Taking Sterne's critique to heart then requires a re-positioning of the relationship between sensory modalities and technological practices as a nexus of complex inter-dependent processes that are at play on many levels of experience and cultural participation. Moving aside from the concept of orality calls for a fresh and unfettered look at the dynamics of sensory experience – in particular auditory experience – as enacted in the course of technological mediation (Sterne, 2012b; Ihde, 1976, Lacey, 2013). In place of applying 'orality' and especially 'secondary orality' as a blanket paradigm for media culture, we might instead focus on mediated aural practices in their multi-sensorial and embodied dimensions contextualized in specific cultural settings.

Delving into an exploration of embodied lived realities as they become increasingly populated with personal digital technologies clearly necessitates an ecological, situated approach to study. Attention to 'practices' rather than abstract social trends brings together the fields of media and cultural studies with those of sociology and anthropology. There is already a significant shift at play in cultural studies scholarship, away from the cataloguing of media effects, the 'logic' of cyberspace and consequences of technology (Buckingham, 2003; Katz & Aakhus, 2002; Manovich, 2001; Prensky,

2001); towards a focus on ethnographic understanding of cultural practices and social relations as they occur in everyday contexts of media and technology use (Jenkins, 2006b; Ito et al., 2010; Jenson & de Castell, 2011; Squire & Dikkers, 2001; Burn, 2009). This cultural studies shift precisely mirrors, as Brian Street (1988) posits, the move from autonomous to ideological models of literacy; a move that foreshadows contemporary conversations around the notions of media and digital literacies (New London Group, 2000). This theoretical and ethnographic work is thus grounded in social, material and physical worlds occupied by specific groups of people, engaging with specific digital tools and utilizing particular new media literacies and skill sets (Jenkins et al. 2006). Similar projects in anthropology and cultural studies bring a renewed attention to the 'everyday' as a unit of study (Pink, 2012) and to sensory practices in particular, understood not simply as *perceptual* but also profoundly *cultural* phenomena in need of study in conjunction with culture, not separate from it (Classen, 1999; Sterne, 2003a; Droumeva & Andrisani, 2011).

Given this call to study the cultural context of technology use at the very site of sensory experience (Pink 2007, 2012; Daisuke & Ito, 2003; Sterne 2003, 2012b) what is required in delimiting the pursuit of my overarching question concerning the technological mediation of sensory experience is a theoretical and ethnographic approach that combines sensory anthropology with cultural studies. Such an approach should have the capacity to engender an understanding at a more embodied and practical level about the dynamics of what is seen, heard, felt and communicated both with and through technology. Without this type of understanding we continue to focus on new media culture as a set of cultural rather than *also* perceptual techniques and literacies. An everyday sensory ethnography informed by a sound studies approach opens precisely this possibility. An inquiry focused on sound and listening offers a fresh uptake of the ‘oral-literate-electronic’ thesis (Sterne, 2011) by circumventing historical biases implicit in communication theory and challenging the dualism of the audio-visual litany (Sterne, 2003a). Instead of presuming that new media culture constitutes a state of ‘secondary orality’ or similar derivative paradigm, such a project would focus on ethnographic understanding of mediated aural practices and sensibilities as they occur in everyday cultural and technological contexts. A sound studies inquiry opens a unique space for exploring technological mediation along an important and less researched axis

of experience: sound and the sonic enviornment. It has significant potential for contributing towards the understanding of perception, sensory experience and technological mediation by way of an ethnographic model for researching with technology through a focus on listening and sound.

1.2.1. Research Questions

Fully addressing the interplay between sensory practices and the creation of meaning with portable smart technologies is outside the scope of this dissertation project. Given the theoretical and methodological work that still needs to be done in order to scaffold a thorough investigation, confining my inquiry to a particular modality, technology, and context of practice is essential for building theory, as well as for adapting and honing a suitable methodological framework for the study of mediated sensory practices. Between the call to re-conceptualize communications discourse with regard to the literacy-orality paradigm, and the relative scarcity of sonic methods for ethnographic research, turning attention to the dynamics of aural experience in the context of new media 'technoculture' presents a valuable and timely opportunity for a research contribution.

How, then, do people listen with technology, and in particular, *how does attending to sound using a portable smart device allow people access to understanding and experiencing everyday life?*

While everyday capturing of audio material is not quite as widespread a cultural practice as everyday photography is through the 'camera phone' phenomenon (Daisuke & Ito, 2003), current trends indicate a movement in the direction of increasingly multi-sensorial capturing and sharing (Hamburger, 2014). In the time since its release in January of 2013, the *Twitter* social video application *Vine*, which brings sound and moving image together, made news by topping the mobile app charts with 3.6 million new users in the first 2 months alone (Weissman, 2013). Its success margin recently precipitated Instagram – one of the fastest growing photography-based social media networks – to introduce its own video module featuring its iconic photo filters: since its release in June 2013, Instagram video has generated over 130 million users and according to

Neomobile Research (2013), projections based on current trends indicate that by the year 2017 two-thirds of all mobile data traffic will be video – that is, image *and sound*. At the same time, media analysts herald the race for an 'Instagram for audio' application that brings to the fore growing online social networks such as *Soundcloud* and *Audioboo*, as well as smaller communities such as *Radio Aporee*, *Digisocial*, *Whatsapp*, and Nokia's latest *Foundbite* (Bea, 2013). Given these trends towards multisensory capturing that include both 'seeing' and 'hearing' with portable digital technologies, the present moment affords a valuable and critically important opportunity to explore the dynamics of sensory practices with technology from an ethnographic standpoint and with a focus on everyday contexts. The focus on listening in my current project serves to simultaneously delimit the ethnographic entry point at the sensory level, as well as harness the unique phenomenological possibilities that listening opens up, and take advantage of a wealth of literature that explores the auditory dimension of history, culture and society (Erlmann, 2004; Bull & Back, 2003; Sterne, 2012b; Bijsterveld, 2013; Schwartz, 2011). A modality of perception frequently neglected both as an analytical focus in cultural studies and as a method of inquiry in ethnographic research (Pink, 2012, Ingold, 2000), the emphasis on listening presents an invaluable and fresh perspective from which to explore the interactions between technological form and sensory content in the context of participatory media culture.

In addressing the specific question posed above, my dissertation work presents the results and discussion of an ethnographic case study that I conducted with two groups of four participants over the course of several months (working with one group at a time). Each person was given an iPod Touch 4 for the duration of 2 weeks, and asked to use the device to capture multimedia content and daily audio journal entries in the process of attending to everyday soundscapes. In order to map intersections between listening, everyday life and technology, my analysis looks into the types of media artefacts participants created using the iPod; specifically, the ways in which sonic experience was framed and discussed with and through the recording device. In an overarching sense the project also presents a model of the kind of perceptual (soundscape) competence that is enacted in the course of mobile smart technology use.

1.2.2. Re-thinking technology and the senses

Critiques of technological determinism are hardly new and have been around for decades in the fields of digital humanities and cultural studies (Dyson, 2009; Jenkins et al., 2006; Bryson & de Castell, 1998). Yet as Sterne (2011) and others warn (Ito et al., 2010; Jenkins, Ford & Green, 2013), vestiges of deterministic thinking continue to persevere in communication and media studies, especially in times of technological 'growth spurts' such as, arguably, the emergence of portable smart devices in the last five to ten years. Between face recognition algorithms, answering the phone with a wave of a hand/foot, augmented reality gaming and a multitude of other exponentially 'Star Trek' smartphone features, it is tempting to succumb to either utopian celebrations of a cyborg future or techno-surveillance conspiracy theories about 'big data.' In terms of traditional communication studies discourse it is indeed rather enticing to declare portable smart devices 'audile-tactile' tools of communication that are hurtling us towards a "world of simultaneous relationships" as McLuhan projected several decades ago (1964, p.111).

As contemporary media scholars, however, we have a responsibility to actively counteract the powerful echoes of Silicon Valley mantras about technology 'changing our lives' and the looming business of social media advertising that manufactures technological determinism by the truckloads. Part of a resistance to the 'business model' of cultural participation involves setting aside the emphasis on what technologies can 'do,' and instead looking at what people are 'doing' with them, because the reality of new media participation, as Jenkins, Ford and Green suggest, is rather more messy and complex and resists essentialist or simplistic explanations (2013, p.3). In terms of our understanding of sensory practices, situated in relation to communication studies discourse, one way to avoid determinism is to re-visit and challenge historical biases that conceive of media as a 'tribal drum' operating in a multi-dimensional acoustic space of 'secondary orality' (McLuhan, 1964; Ong, 1982). Thinking of new perspectives, new interdisciplinary methodologies and new questions to ask when approaching the 'social drama' of media culture (McLuhan 1969, p.9) a focus on lived experience and contexts of use can offer an important starting point to better understand technological practices. What and how do we feel, see and hear with the kinds of ubiquitous technologies that

are part of our daily routine? By what means do we study technologically mediated sensory experiences outside the dominant modality-based metaphors still inherent in communication theory and discourse? Taking up sound and listening as a starting point includes questioning how mobile technologies extend, limit and transform our sonic experience as we listen to everyday life with and through the possibility of recording and sharing experience? Placing the focus on the material and sensory dimensions of using technology in everyday life entails recognizing that people exist in a complex network of interpersonal, cultural and societal relations co-constituted by technological mediation. A sensory ethnography approach, informed by sound studies, affords a unique and valuable opportunity to study these relations.

1.3. Methodological Approach: Sound Studies

This inquiry is situated within theoretical conversations about new media culture and digital literacies, sensory ethnography of everyday practice and sound studies. Methodologically, the project combines Sarah Pink's approach to sensory ethnography of domestic and everyday practice (2006, 2012) with Jonathan Sterne's (2012b) conceptualization of 'sound studies' as a methodology, set against Henry Jenkins' wider conception of participatory cultural practices characteristic of new media. My analysis takes advantage of emerging frameworks for multimodal analysis informed by social semiotics and multimedia ethnographies (Dicks, Soyinka & Coffey, 2006; Flewitt, 2011; Kress, 2011; Raab & Tänzler, 2005; Pink, 2007). This work is intended to contribute to each of these fields by providing a preliminary model and a broad theorization for doing research with technology that attends to the cultural and sensorial practices that are continually shaped by the digital tools we design and use. A focus on better understanding the kinds of meanings that are formed and communicated at the level of mediated phenomenal experience is a much needed counterpart to the breadth of contemporary media studies work that, at present, contributes to broad ethnographic understandings of primarily socio-cultural (rather than sensorial) aspects of media and technology use (Burn, 2009; Ito et al., 2010). An ethnography of listening informed by sound studies serves not only to address the relative absence of sensory-based ethnographic approaches in contemporary media studies research, but also to contribute

to a culturally-informed conceptualization of perception. The development of such a conception directly responds to calls for abandoning deterministic thinking in communication studies and in research with technology in favour of historically-grounded and critical ethnographic exploration. It is by studying listening in the context of technological mediation and in everyday settings, with reference to the broad strokes of participatory new media culture, that we may update deterministic conceptions of 'orality' and its implications to communication technology, culture and society.

1.3.1. Listening with Technology

> *…sound, rather than being a destination, has been a potent and necessary means for accessing and understanding the world; in effect, it leads away from itself. A very nebulous notion of methodology, but also something that kicks in before methodology. Douglas Kahn, 1999*

In order to address the question of how people listen with technology we have to first address the question of what listening is. In the realm of phenomenology, listening is a resonant state of being persistently and physically connected to the surrounding environment by way of sound's vibrations and movement (Ihde, 1976). In the field of psychoacoustics, listening is a mechanical signal transfer from environment to recipient – we hear a range of frequencies and sound pressure levels along a time domain and react through a series of pattern recognition and template matching cognitive functions (Cook, 1999; McAdams & Bigand, 1993). Across the larger disciplines of anthropology, cultural studies, history and communication, listening is recognized as a complex situational practice, shaped by culture, technology and environment. One of the earliest interdisciplinary approaches to studying the soundscape with a keen attention to modes of listening comes from the *World Soundscape Project* (1973) conducted as part of the then-emergent field of communication studies. Out of this pioneering ethnographic project developed the notion of a 'soundscape' as part of a conceptualization of (everyday) sonic relations as an acoustic ecology (Schafer, 1977; WSP 1973; FVS, 1977). Subsequently, the acoustic communication framework advanced by Truax (2001) positions the listener, sound and soundscape as an inter-connected system within a wider cultural context, historically situated in relation to developments in media and technology. This kind of broad multi-faceted conceptualization of listening as a historical, culturally and technologically-specific phenomenon is precisely the type of framing that I

would argue has to underlie an exploration of mediated aural practices in the context of everyday experience. Listening, in light of such contemporary theorizations, is a cultural activity that needs to be studied without a pre-existing notion of *ideal* practice, and as a subject with a history. There is no 'innocent' explanation or form of listening that needs to be recovered from the clutches of technological mediation. Rather, listening is an activity that reflects and is constructed by socio-cultural shifts and technological developments alike; it simultaneously shapes and expresses cultural paradigms (Ingold, 2000; Geurts, 2002; Classen, 1993).

The premise that studying listening is a unique and relevant way of studying culture is not a novel idea; indeed, it is reflected in a number of contemporary works on the organization and character of aural cultures and practices (Bull & Back, 2003; Erlmann, 2004; Labelle, 2010); histories of sound reproduction and audio technologies (Attali, 1985; Sterne, 2003a; Douglas 1999; Lacey, 2013; Erlmann 2010; Schwartz, 2011; Bijsterveld, 2008); sound design and architectural acoustics (Thompson, 2004); and soundscape studies (Järviluoma et al., 2010; Wagstaff, 2002), among others. Yet, as Jonathan Sterne notes, there is a level of disjunction in the literature at present that somewhat obscures important foundational discourses related to the history of communication technology, and hinders the development of a cohesive theoretical and methodological framework. As an overarching discursive trajectory, Sterne proposes we refer to the field as 'sound studies,' denoting an "inquiry in the human sciences that takes sound as an analytical point of departure or arrival" (2012b, p.2). The parameters for a sound studies inquiry include recognizing the interdisciplinarity of research problems; proceeding with reflexivity and an awareness of researcher partiality in relation to the studied context; remaining conscious of the historicity of knowledge and knowledge production; as well as mobilizing a fundamentally critical stance to research practice (Sterne 2012b, p.5). In the context of technologically mediated listening this necessitates exploring the history of audio documentation as a particular instance of listening with technology (Attali, 1985; Katz, 2004; Truax, 2001; Sterne 2006, 2012b); sonic interactions as part of artistic exploration (Dyson, 2009; Gardner, 2008; McCartney, 2005; Wershler, 2008); as well as the historical narratives around listening with mobile audio technologies contextualized in relation to new media culture (du Gay 1997; Bull, 2000; Katz & Aakhus, 2002; Ito, Okabe & Matsuda, 2005).

1.3.2. An Everyday Ethnography

> *The public domain of the 21st century is no longer defined simply by material structures such as streets and plazas. But nor is it defined solely by the virtual space of electronic media. Rather, the public domain now emerges in the complex interaction of material and immaterial spaces. Scott McQuire, 2006*

Taking as a point of departure a rejection of the audio-visual litany (Sterne, 2003a) with the resulting typologies of society based in an oral/literate divide (Feld, 1996), a sound studies approach focuses on the auditory precisely for the purpose of understanding the dynamics of aural experience, as they are inextricably linked to both the capabilities of communication technology and larger cultural paradigms. To that end, my project aims to attend to a plurality of human experience in its material, historical and cultural dimensions. Incorporating both the notion of 'habitus' developed by Bourdieu (1990a) with its emphasis on normative practices, and the idea of individual resistance embodied in de Certeau's (1984) problematic of the everyday, Sarah Pink's (2012) ethnography presents precisely that opportunity. Her proposal for a reflexive exploration of everyday practice recognizes that sensory experience and material representations alike are "embedded in fields of shifting relations and meanings" (p.34).

It is not that the everyday is a forgotten or understudied category - in fact that has long been the substance of anthropological and sociological research; however the everyday hasn't been systematically explored as a 'problematic' in cultural and media studies (p.12). The centrality of physical, sensory and material dimensions of everyday practice is largely absent from research into new media and participatory culture, so there is a great need to bring these two perspectives together and mobilize them towards understanding and investigating the interplay between technology, experience, meaning and cultural practices (Pink, 2012). The methodological direction nascent in this approach points towards attending to technological mediation with relationality, multi-sensoriality and a reflexive social semiotics in mind. This is echoed in contemporary developments in educationally-oriented research with media and technology that promote situated contextual study (Ito et al. 2010; Burn, 2009; Jenson & de Castell, 2011) and multimodal analysis (Dicks, Soyinka & Coffey, 2006; Flewitt, 2011; Taylor, de Castell & Jenson, 2007). These encouraging advances signify a powerful shift in

ethnographic methods from largely textual, observational and verbal data collection, to recognizing the relevance of the physical, sensorial and material environment, including the role of digital artefacts and spaces, social relationships, cross-modal literacies, technologies and routine practices. And while this study is not about re-discovering a lost aural perspective, what is still very much the case is that ethnographic research continues to be performed and conceived of in largely textual and visual terms (Farrington-Darby & Wilson, 2009; Iedema et al., 2006). The 'visual' turn in anthropology, which at present has a sizeable history, introduced the notion that text and language are in some ways and in some cases inadequate to grasp lived experience in an ethnographic sense, that sometimes 'a picture speaks a thousand words' where text leaves off (Pink, 2007). Visual methodologies legitimize photography and visual impressions as valid research tools, valid forms of intermediary analysis and irreplaceable modes of presentation of data. By extension, multimodal approaches recognize the potential for looking at sensory material in a more holistic and comprehensive way (Kress, 2011; Pink, 2012). The relative absence then of specifically *sonic* methodologies in ethnographic research with media leaves an opportunity to make an important methodological, conceptual and analytical contribution in media and cultural studies, as well as in the practice of everyday ethnography as a methodological paradigm. Just as the photograph is a form of 'staging' visual experience, an audio recording stages the soundscape by way of technological mediation and culturally informed perceptual sensibilities. As such, mediated aural practices need to be investigated in close relation to specific technologies and situated within the material, physical and cultural fabric of everyday life.

1.4. Scope of Research

In this first chapter I've presented a rationale and background for this work's primary research question, which asks how attending to sound with portable smart devices permits access to and mediates understanding of peoples' everyday lives. In light of rapid technological change, and particularly with the situatedness of smart portable devices in everyday life, there has been a necessity raised by Sterne (2003), Pink (2007, 2012) and others (Bijsterveld, 2013; Lacey, 2013) to study not only the kinds

of social relationships and cultural production engendered through the use of these technologies, but also to investigate the sorts of sensory conventions and practices that form alongside. There is a definite gap in media studies when it comes to systematically and ethnographically exploring sensory practices with technology as both perceptual and cultural phenomena (Sterne, 2012b). There is thus a need to better understand the dynamics of sensory perception situated in new media culture in which smart portable technologies are ubiquitous, multimodal and embody the convergence of a multitude of media forms and functions. Understanding how soundscapes are staged, experienced, captured and reproduced is critical to understanding culture (Bijsterveld, 2013). Given the rich and diverse theoretical lineage of sound studies research, focusing on listening as an everyday practice that is shaped and constituted through technological mediation forms, as I have argued, a relevant basis for this inquiry. Resisting the idea that portable digital technologies privilege a specific sense or sensorial practice, it is instead the aim of this project to explore technologically mediated sensory experience through the problematic of listening.

Finally, I've argued that an ethnographic study, particularly one that takes a sensory approach and is attentive to everyday experience, is particularly and uniquely suited for an exploration of listening with technology. There is a gap at present in the fields of sensory anthropology and ethnography of everyday practice when it comes to focusing on technology and making use of sonic methods of collection and analysis (aside from recording interviews). While there have been major advances in visual anthropology and an increasingly rich palette of visual methods in ethnography, there remain fewer attempts of employing, developing and adapting sonic methodologies in the exploration of everyday experience. The landscape of sound studies research, while rich in historical and theoretical accounts, doesn't yet offer a significant corpus of *ethnographic* exploration of everyday listening, much less of technologically-mediated listening in the context of new media culture. Similarly, there exists insufficient research from sensory ethnography focusing on technology and technologically-mediated sensory practices. It is precisely at the intersection of those two areas – sound studies and everyday ethnography – that I hope my project can make a contribution to media and cultural studies by modeling a research case study of everyday listening with technology situated in the context of new media culture.

1.5. Dissertation Outline

This work will take on the following structure: in Chapter 2, I will review in more detail the major discourses that have thus far contributed to the key theoretical domains from which this work both springs and responds to. Chapter 3 will begin by establishing a methodological conceptualization of portable smart technology and mediated aural practices as a key lens through which my research project is conceived and carried out. In the same chapter, I will present a case for the particular methodological approach taken and introduce a detailed review of key works in relevant methodological accounts. Following that, I'll introduce my study design in detail, including data collection procedures, recruitment of participants, and research protocol. Chapter 4 will start by laying out the analytical framework to be used in conjunction with the data collected as part of the study. The chapter will continue with a conceptual analysis and discussion of research findings in relation to several key aspects of the main research question towards synthesizing themes and patterns of significance in reference to the staging of everyday soundscapes using technology as a type of new media practice. Chapter 5 will conclude with a summary of the major themes of the thesis, discussion of research limitations, suggestions for future work and final discussion of the implications of this project towards the larger fields of media and technology studies, ethnography and sound studies.

Chapter 2. Literature Review

> *Instead of being something said once and for all … the statement, as it emerges in its materiality, appears with a status, enters various networks and various fields of use, is subjected to transferences or modifications, is integrated into operations and strategies in which its identity is maintained or effaced. Foucault, 1972*

In any inquiry, a significant part of addressing the research problematic at hand is situating it in a relevant discursive framework and providing a historical trajectory for key concepts that are often laden with decades of use and misuse. Approaching the question of how people listen with portable smart technologies in their everyday life in the context of new media culture requires bringing to light several important theoretical traditions that have served as paradigmatic models for the study of communication technology and mediated listening. In the first section of this chapter I begin by addressing some of the central historical conversations stemming from communication studies that encompass ways in which media and technology have been conceptualized. In the following section I address the phenomenology of sound in terms of the way aural experience has been discussed across different fields of study. The third section focuses on issues of technological mediation through a comprehensive survey of theory and research around sound recording and portable audio technology, specifically organized around notions of mediated listening. Finally, the last section sets up the problematic of audio recording with portable smart devices as a form of mediated listening situated in the technocultural context of (new) media. Needless to say, the questions raised in this work call for an interdisciplinary approach so it is the goal of this chapter to tie together what at times may be disparate discourses towards a conceptual foundation for the problematic of listening with technology. Ultimately I'll argue that the research questions I raise in this work are 'media culture' questions – they implicate cultural practices that are deeply connected with and can only be understood in relation to a new media context. By historicizing the notion of listening and tracing discursive traditions in communication and media studies I hope to situate my inquiry in the more contemporary

trajectory of sound studies research, which considers the auditory dimension not as an isolated modality of study but as a cultural phenomenon that uniquely reflects and mediates socio-cultural relationships, informs knowledge practices and shapes the design and use of communication technologies.

2.1. Communication Technologies: theoretical background

> *…we live in a society of mis-information because that is more stable and simple than information; electronic communication hearkens back to the ephemeral character of speech in primary orality - the ephemera of rumour, allegation, opinion, unchecked citation, info taken out of context. Samuel Delaney, 1998*

> *Much of the history of communication is still written in the shadow of an aging fable. Even as other grand narratives have faced elision or revision, this fable has endured as a stated and unstated backdrop for accounts of the long-term flow of communication history. The story of communication is staged as a play in three acts: orality, literacy, and electronic consciousness. Jonathan Sterne, 2003a*

The idea that electronic communication is acoustic in character and that media culture signals a return to a latter-day kind of orality is an all-too familiar refrain in the history of communication studies – and a discursive paradigm which remains pervasive well after the advent of modern communication technologies and an arguably 'new' media culture (McLuhan 1964; Ong 1982). Characterizations of electronic media such as the one quoted above (Fischer, 2003) can be found in contemporary works ranging from scholarly texts (Poster 1995; Kress 1997; De Kerckhove 1997; Roszak 1994) to media journalism blogs (Scannella 2008; Jorgina 2009; Pequini 2012). Qualities of social media such as the importance of emergent communal rules, the grapevine-like transfer of information and the quotidian significance of content shared are often connected to qualities of oral cultures reminiscent more of village life than of a global network. Characterizations of *Twitter* as a medium for secondary orality that fosters a 'hypertextual consciousness' (Jorgina, 2009) betray a lineage to early theories of communication technology. In the same vein, early writings about email communication frequently conceptualize it as "an emerging language centaur – part speech, part writing" (Baron, 2000, p.248), or more generally as 'written speech' with innately oral qualities

(Maynor, 1994). More contemporary accounts of social media continue the trend of characterizing the language of instant messaging and social network sites as a new type of electronic orality (Pérez-Sabater, 2012). Of course, in some ways the sentiment rings true: electronic communication, and particularly its contemporary incarnation in the spaces of social media, presents qualities, socialization patterns and modes of engagement markedly different than those we might ascribe to 'book culture.' However, characterizations of electronic communication such as these invoke a wealth of theoretical assumptions that necessitate a deeper examination. As Sterne (2003a) points out, much of the theoretical lineage of contemporary media studies has been founded on a dichotomy between literacy and orality with 'electronic consciousness' framed as a return to an 'oral state of mind' (Havelock 1963, p.41). A product of early Canadian communication theory (Ong 1970; McLuhan 1964; Innis 1951), the characterization of communication tools as 'technologies of thought' has served to scaffold much of the discourse around the relationship between sensory modalities and knowledge practices. In particular, the sensory characteristics of communication technologies – i.e. positioning writing as visual and speech as oral - have been theorized as constitutive of wider socio-cultural trends related to the production, dissemination and preservation of knowledge (Carpenter, 1972; Innis, 1951; McLuhan, 1967). Within this theoretical trajectory, eras of human history have been re-imagined through the sensory possibilities of different technologies for communication – oral, literate, electronic (Sterne, 2011).

In this discursive model, the term 'literacy' denotes an epistemological tradition that started with the invention of writing; a practice, which, it has been argued, fostered the emergence of analytical reason and the embrace of logic, spurring on the modernist paradigms of philosophical objectivism and empiricism (Goody, 1970; Havelock, 1963; Innis, 1951; McLuhan, 1964; Ihde, 1976). As Ong suggests, the practice of writing literally re-structured human thought allowing for the transition in Western culture from an oral consciousness to a literate one. 'Orality' on the other hand denotes a dialogical, participatory social organization that is characterized by an intimate connection between human experience and the surrounding environment alongside a less formalized paradigm of knowledge production (Willinsky, 1984; Malinowski, 1979; Lord, 1960; Ong, 1958; Havelock, 1963; Feld, 1993; Finnegan, 1988; Nuckolls, 2004). Consequently,

secondary orality heralds the media age as a return to an (albeit different) oral state of mind – an 'electronic consciousness' that is characterized by global interconnectedness, a technologically mediated unity of the senses and an epistemology shaped by multimodality (McLuhan 1964; Ong 1982). To McLuhan (1964), the multi-sensorial, post-literate media age epitomizes liberation from centuries of dogmatic textual consciousness towards a radically different sensorial orientation constitutive of a paradigmatic epistemological shift. Given the influence of the concept of secondary orality to the study of communication technology and media culture, the trappings of this theoretical legacy necessitate a careful reexamination. In order to understand the discursive context in which media culture has been referred to as 'acoustic' or post-literate, as well as evaluate the implications of adopting or rejecting the notions implicit in such a characterization, it is necessary to first trace the historical unfolding of ideas and discourses that underlie the oral-literate, as well as audio-visual distinctions.

2.1.1. Orality as a sound-based narrative

> *Most persons are surprised, and many distressed, to learn that essentially the same objections commonly urged today against computers were urged by Plato in the Phaedrus against writing. Writing, Plato has Socrates say, is inhuman, pretending to establish outside the mind what in reality can be only in the mind. It is a thing, a manufactured product. The same of course is said of computers. Walter Ong, 1982*

As perhaps most extensively articulated in the work of Walter Ong, the concept of 'orality' developed at the onset of the media age as part of an oral-literate dichotomy that ultimately serves to underlie explanations of what McLuhan termed 'electronic consciousness' and shed light on the effects of media on society (1962; 1967). The oral-literate-electronic framework can be conceived of as a project to describe the socio-cultural, political and environmental changes that were occurring in 20th century urban North America with the advent of media and electronic communication. With regard to sensory practices, the historical narrative of orality invokes important conceptualizations of sound as an epistemological and ontological paradigm. Based in a combination of

Classic studies[2], anthropology, hermeneutic philosophy and the emergent field of communication studies, the oral-literate theory (Jahanderie, 1999) is organized around the central notion that spoken and written communication are epistemologically different practices, with orality being characteristic of ancient Greek society, as well as of more contemporary pre-literate cultures (Lord, 1960; Parry, 1971; Goody, 1970; Havelock, 1963; Ong, 1958; Olson, 1977; De Kerckhove, 1997). Building on the work of Parry[3] (1971) and Lord (1960) Classicist Eric Havelock (1963) developed a sound-based paradigm of ancient Greek orality based around 'oral formulas' – repeatable fragments of poetry and poetic structure that arguably formed a common content base for scribes, bards and poets. Havelock's critical contribution to the oral-literate thesis is in articulating orality as not just a sensory modality of communication but also as a cognitive predisposition: "…the formulaic style characteristic of oral composition represented not merely certain verbal and metrical habits but also a cast of thought, or a mental condition" (Havelock 1963, p.x).

Inspired by McLuhan's theorizations of the media age and Havelock's characterization of orality as an epistemological system critically different from that of literacy, Ong (1982) mapped the discursive dichotomy of the oral-literate tradition onto distinctions between literate and electronic modes of communication. In order to conceptualize the characteristics of orality, Ong expanded on previously articulated hermeneutic and phenomenal qualities of sound, as well as structural properties of what he conceived of as 'oral consciousness.' In addition to a strong dependence on mnemonics, Ong's characteristics of orality include poetry and storytelling; the ability to convey paralinguistic and affective qualities in an immediate time-space; an inherent participatory relationality, an additive narrative style that employs redundancy and aggregation; and a dynamic and communal process of knowledge production and transfer (1982). Ong's basic argument around communication technologies, building on McLuhan, is that certain modes of sensing correspond to ways of knowing that tend to

[2]The central idea in Classic studies is credited to Milman Parry's work in addressing the Homeric question, namely, whether Homeric poetry had a single author or was comprised of 'oral formulas' passed on by a multitude of poets and bards – a characteristic of an 'oral' society.

[3] Due to Milman Parry's early death, his 1928 text *The Making of Homeric Verse* was published in English by his son Adam Parry in 1971.

organize the human sensorium in a manner that privileges one particular sense over others. This sensorial and epistemological orientation is then embedded and socialized into people's cultural consciousness as they make use of communication technologies. It is important to note, as Sterne (2011) has most vocally pointed out, that as a Jesuit priest, Ong's interest in orality was highly filtered through a concern over the 'technology of the word' – a hermeneutic exploration of the Bible and the permutations of its teachings over the ages (Ong, 1958). At the same time, the inquiry into oral consciousness was fuelled by anthropological research (Parry, 1971; Goody, 1977; Lord, 1970) into pre-literate cultures where 'savage' tribal societies were seen as either free from the clutches of textual dogmatism (McLuhan, 1964), or as socially and culturally marked by the absence of a literate consciousness (Goody 1977). In *Orality and Literacy: The Technologizing of the Word*, Ong (1982) presents a dense synthesis of the phenomenal, socio-cultural, and meta-cognitive qualities of the auditory – what he calls the 'psychodynamics of [primary] orality' – as a springboard for defining and characterizing the rise of secondary orality – a metaphor, in effect, for electronic communication. One of the foundational qualities of sound that Ong identifies is its *dialogical* nature, a property that invites a two-way exchange where meaning is rooted in the 'here and now' (1982, p.42). Ong (1967) specifically juxtaposes sound's dialogical aspects to what he critiques in the literate paradigm as abstract, analytical and objective imparting of ideas. His thesis is also strongly connected, taking after McLuhan's work, to the idea of the human sensorium as constitutive of thought, where notions of abstraction, formalization and idealism are tied to a continuum that maps the proximity of our senses with reference to the physical world. McLuhan's continuum suggests a progression of 'touch-taste-smell-hearing-sight' from the most proximal to the most distant sense (Marchessault, 2005). In conceptualizing media as possessing oral characteristics, the implication is that electronic media then bring us closer to the human lifeworld – closer than text in any case. Not surprisingly, Innis and McLuhan both share an admiration for orality and both see electronic media – radio and TV, preceded by the telephone and telegraph – as technological extensions of orality, bringing back a dialogical relationship to knowledge and re-structuring human consciousness towards an oral state (Jahanderie, 1999). Ong's own conceptualization of secondary orality qualifies media in ways strikingly similar to many contemporary articulations of cyberculture and microblogging, particularly evocative of 'hashtag' tweeting and memes:

> At the same time, with telephone, radio, television and various kinds of sound tape, electronic technology has brought us into the age of 'secondary orality'. This new orality has striking resemblances to the old in its participatory mystique, its fostering of a communal sense, its concentration on the present moment, and even its use of formulas (1982, p.133)

The narrative of orality as a deeply dialogical tradition is also evidenced in the work of developmental psychologist David Olson (1977). Based on his work with pre-literate and literate children, Olson worked to uncover material differences between orality and literacy as states of mind. His main concern was around the relationship of text and speech to the individual process of formulating meaning (1977). In an utterance event, he posits, meaning is constructed via a multitude of available cues – paralinguistic and contextual; there is an implied understanding of intention. In the case of text, which Olson calls 'autonomous' (as in, speaking for itself), meaning is considered to reside in the writing. Olson (1994) proposes that in oral communication the speaker has a responsibility to explain and make meaning known to the listener, whereas in textual and literate communication, it is the reader who is always tasked with understanding and deciphering the text. Oral meaning is also linked to contextual events and activities (p.261). Unlike the author-reader relationship characteristic of printed text, speech creates a dialogue, an open-ended, two-way exchange – something Ong (1958) laments has been lost in the textual dogmatism of modernity.

This upholding of the dialogical qualities of oral communication and a dichotomy between oral and literate qualities is particularly well represented in semiotics and hermeneutic philosophy in the works of de Saussure and Ricoeur (among others). As Ricoeur (1971) suggests in discussing the semiotic properties of 'speech acts', while meaning in spoken discourse is immediate given that intention and delivery overlap in real time, written discourse gives rise to three different permutations: the discourse of the author, the discourse of the reader, and the discourse of the interpretation (p.320). In terms of the particular dynamics of orality as a dialogical practice, Olson characterizes oral utterances as communicative acts that always require a private, referential context in order to be understood and interpreted correctly. The construction of meaning in oral exchanges is therefore naturally ambiguous – in contrast with a textual tradition aimed at being explicit and universal. Context and pre-existing knowledge, as well as paralanguage all combine to convey the speaker's intention (Olson, 1977, p.259).

Central to this dialogical nature of orality then is a communication of intention, requesting a reaction – a metaphor for feedback and resonance frequently found in phenomenologies of sound (Nancy, 2007; Ihde, 1976). Sound defies fixed meanings, whether in a spoken exchange or in the experience of a composite soundscape; ambiguity and dynamic interaction are seen as underlying principles of orality connected to a dialogical paradigm and a transparency of meaning and intent (Willinsky, 1984; Carter, 2004). In contrast to the silence of static text, sound beckons participation and action and epitomizes the dynamic process of primary communication (Ong, 1982). In that, orality is also frequently connected with the notion of *interactivity* – an important token of digital culture and the design of contemporary communication technologies (White, 2009). The process of inter-subjective expression and sharing that is often evoked in relation to social media evokes Ong's conceptualization of sound's inherent *interiority*. The concept of interiority is metaphysically important as it underlies Ong's critique of the 'media' model of communication in terms of the very structure that it uses to convey meaning:

> Human communication, verbal and other, differs from the 'medium' model most basically in that it demands anticipated feedback in order to take place at all. In the medium model, the message is moved from sender-position to receiver-position. In real human communication, the sender has to be not only in the sender position but also in the receiver position before he or she can send anything. (1982, p.172)

What makes these psychodynamics of orality an important discursive model for historicizing and understanding communication technology is precisely the fact that they have been (to various degrees) mapped onto qualities of media culture as well as a range of new media Web 2.0 phenomena (Roszak, 1994; Poster, 1995; Kress, 1997; Fischer, 2003; Karaganis, 2007). As such, these discursive models hold crucial implications for understanding more contemporary cultural practices engendered through social media participation as well as ambient, portable and personal digital technologies. What is at stake in the course of this theoretical transference is inheriting sensory values in relation to technology and mapping them onto cultural practices around technology use. In order to pry apart material qualities of aural experience from rhetorical frameworks of orality based in problematic dichotomies, the next section will elaborate on some of the central critiques of what Sterne (2003a) terms the audio-visual litany.

2.1.2. The Audio-Visual Litany

The invention of writing is certainly due some credit in propelling Western societies into new eras of cultural development, social structures and knowledge practices – shifts that were likely already unfolding as a result of a complex web of interconnected phenomena, including geographical, economic, political and environmental changes. The production and preservation of knowledge in pre-literate societies certainly relied heavily on oral exchanges and oral techniques of reproduction such as metered speech, dialogical communication and storytelling, making the shift to recording ideas in text a truly fundamental change. As Kate Lacey (2013) points out, the technology of writing "transformed the relations and practices of speaking and listening" (p.27) in that the rise of 'textuality' promoted the emergence of a new kind of public and a new relation to experience (p.29). With that said, contemporary media culture has likely precipitated yet another set of important cultural shifts in global communication and social organization, particularly through the possibility of recording and storing knowledge in multimodal form. However, as has long been posited (Goody, 1970; Street, 1988), the extent to which these technologies for communication have single-handedly changed history has been exaggerated. Specifically, as Sterne (2011) warns, there is a danger in abstracting certain properties out of historical and cultural context, and framing them as drivers of change – be it a dominant sense, or a set of knowledge practices associated with particular technologies for communication. Anthropologist Ruth Finnegan (1988), a contemporary of Goody, expresses a similar critique through what she terms a 'weaker' versus 'stronger' characterization of orality and literacy as cultural paradigms. Rejecting the determinism implied in the classic orality-literacy (often referred to as the 'great divide') theory, Finnegan proposes that it is more accurate to speak of oral and literate modes of communication as forces at play in the facilitation of social change rather than the drivers of particular socio-cultural conditions. For instance, in tracing the transition from oral to silent reading, Lacey demonstrates that the move to greater interiority did not necessarily occur at the invention of writing, but in fact took place over a long period of time alongside other socio-political changes, leaving a discernable historical lineage of reading as an 'auditory' practice (2013, p.28).

To briefly outline, some of the foundational implications in the oral-literate theoretical tradition, seeing as it underlies a number of contemporary discourses surrounding media and communication, include the notions that 1) eras of human development are characterized by dominant sensory orientations, which shape the epistemological and social organization of society (Havelock, 1963; Ong, 1967; Goody, 1970; Willinsky, 1984; McLuhan, 1964); 2) orality, literacy and electronic consciousness constitute paradigmatic shifts that alter not only the sensoriality of communication but the entire apparatus of cultural knowledge production (Ong, 1982; McLuhan, 1967); 3) each socio-political and epistemological paradigm is characterized by a dominant communication technology – language in the age of orality; writing in the age of literacy; and electronic technology in the media age; and finally 4) each communication technology evokes a dominant sensorial orientation that epitomizes a certain kind of socio-political organization, i.e. communal organization as opposed to modern industrial society (Ong, 1958; Goody, 1970; McLuhan, 1962; Innis, 1951). In setting out conceptions of orality and literacy, these theoretical traditions clearly employ assumptions about the qualities of acoustic experience, the characteristics of listening, and the epistemological leanings implicit in an auditory orientation.

With contemporary perspectives from sensory ethnography, media and cultural studies entering the conversation, the very ideas of a five-sense sensorium, perception along discrete sensory channels, and an organizational hierarchy of the senses have been critiqued as Western-centric and reductive (Sterne, 2003a; Classen, 1993; Pink, 2009; Howes, 2003). As Howes (2003) outlines in a survey of cultural anthropology work focused on sensory relations, a number of pre (or partially) literate cultures around the world reflect not only a rich and diverse set of sensory practices but also a multitude of ways in which sensory experience informs knowledge practices and social organization. Furthermore, people of different cultures “not only speak different languages but, what is possibly more important, inhabit different sensory worlds” (Hall, 1966, p.2). To that end, sensory anthropology studies as well as cultural histories of sound represent a critical mass of empirical as well as theoretical work that points to the idea that perception is not simply a physiological but a deeply cultural activity – and by extension listening is not just a perceptual but also a cultural act (Sterne, 2012b; Erlmann, 2004; Pink, 2012; Classen, 1993; Ingold, 2000; Feld, 1993). Moving away from the notion of orality as a

monolithic a-cultural sound-based paradigm, the discursive trajectory of sound as a way of *being* and a route to *knowing* features prominently in a number of anthropological works. One salient point that converges in many such anthropological accounts of 'aural' ways of defining being, identity, place and community, is that the ontological, phenomenological and epistemological characteristics of aural experience are profoundly culturally specific (Nuckolls, 2004; Feld, 1993; Howes, 2003). In fact, the very implication that pre-literate cultures are necessarily oral has been challenged by a number of anthropologists as a Western assumption (Mead, 1975; Carpenter, 1972; Classen, 1999). Backed by years of situated and emplaced studies, Classen makes several important points that are echoed in the works of fellow sensory anthropologists Ingold (2000), Howes (2005) and Pink (2009) regarding anthropology's methodological and theoretical legacy with regard to the senses. Firstly, Classen proposes that the ways in which the senses are used in a given culture – the sensory modalities and particular symbolic orientations – can only be understood in the context of that culture and its characteristics. In other words – there is no such thing as universal literacy, visualism or orality. Secondly, the sense most symbolically expressed by a culture (or of most symbolic significance) is not necessarily the one of most *prima facie* practical importance. For instance, while ethnomusicology typically focuses on singing and dance as some of the most ritualized forms of (sonic) cultural expression, tactility and smell are often found to feature more prominently in everyday transactions (Howes, 2005; Classen, 1999). Finally, the notion of a 5-sense sensorium, which is a Western idea conceptually absent in other cultures, has contributed to recognizing only one type of orality – that of 'tribal', pre-literate cultures; and only one type of visualism that epitomizes literacy, analytical reason and detached observation. With regard to visual experience, Classen points out that to equate visualism with dogma, reason and empiricism based on theoretical assumptions is to disregard all alternative dynamics of visual experience (1993, p.6).

This is precisely the spirit in which Sterne (2003a) critiques the notion of orality in as much as it remains part of a dated dualism between vision and hearing, and the properties of sight and sound. Sterne does so in part by reminding us that Carpenter's original perspective (1972), much as Classen's anthropological work, maintain sensory experience as synesthetic rather than isolated in channels of perception. The

implications for exploring listening then involve acknowledgement that aural experience is connected to a myriad of other senses at the site of perception and that it may only be understood with reference to a specific cultural context, situated in a local soundscape, and in relation to wider technological and epistemological practices. This kind of inquiry necessitates a move away from normative ideas about listening and deterministic notions of communication technology, towards a situated, contextual, multimodal study of sound. There, technological, sensory and cultural forces co-construct each other in a dynamic interplay staged inside a complex web of social, cultural, economic, political and environmental factors. An important note here is that a departure from any permutation of the audio-visual litany is not meant to erase either the unique character of auditory experience, or the fact that there is a real need to do sound studies research. If there is an underlying assumption in this study with regard to sensory characteristics, it is more of an acknowledgement of the multi-sensoriality of any communication technology and related system of knowledge. As both Carpenter (1972) and Innis (1951) point out in characterizing oral discourse, communication involves "a concert or orchestration in which the ear sees, the eye hears, one smells-tastes colour, and all the senses engage in every experience" (Carpenter, 1972, p.52). So along with a conceptualization of listening as both a cultural and perceptual practice, the exploration in this work remains attentive to the interplay of multi-sensorial phenomena in everyday experience. The next section addresses some of the phenomenological aspects of listening and sound by tracing ways in which calls for attending to the auditory dimension have been theorized as 'responses' to a visually dominant tradition. The themes elicited through this survey play an important role in the way 'second wave' (Kennedy, 2013) sounds studies research conceptualizes sonic practices around media and technology leading up to notions of mediated listening with portable smart devices.

2.2. Auditory Experience: the phenomenology of sound

To listen, offers phenomenologist Jean Luc Nancy, is to be always on the verge of understanding: "to hear is to understand the 'sense'… to listen is to be straining towards a possible meaning" (2007, p.6). Understanding the ontology of sonic phenomena requires asking questions about the interactions between sound and the physical world,

as well as about the dynamics of auditory perception and the relation of listening to wider aspects of experience. Implicit in many of the central discourses surrounding the history of communication technology, particularly those that perpetuate an oral-literate-electronic model of communication technology, is a juxtaposition of the modernist era seen as profoundly textual, analytical and visual to other stages of human development that are framed as *versions* of orality (Sterne, 2003a). Along with ascribing acoustic properties to a (post-modern) media age, this equation of modernist thought with visualism is important because it has historically provided the impetus for turning to the auditory dimension as a way of recovering lost historical narratives towards an alternative 'archeology of knowledge' (Smith, 2004).

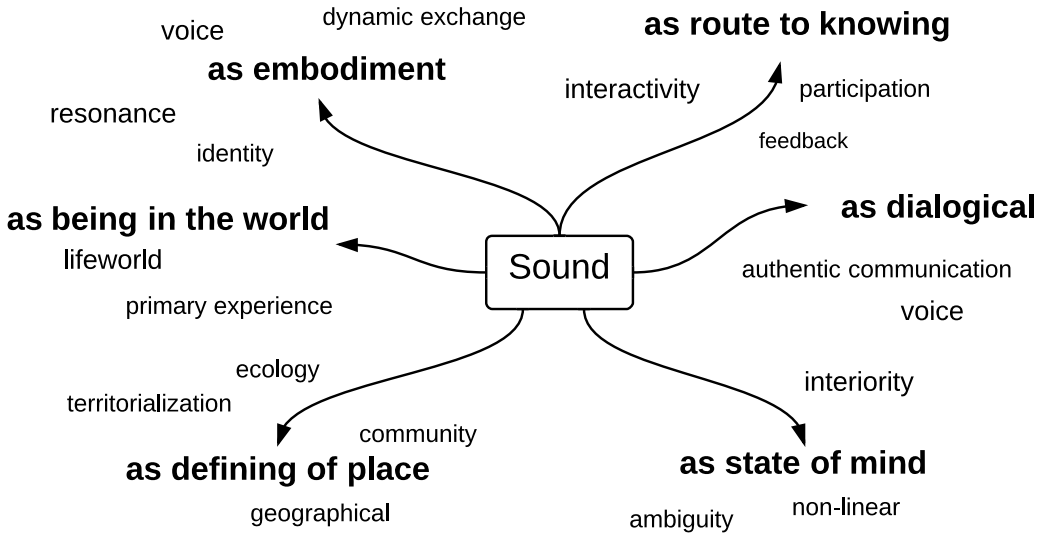


Figure 1. Sound-based paradigms and related theoretical associations

In these sound-based critiques of modernity, vision is equated with reason, logic, textual discourse, empiricism and detached observation; sound, on the other hand, is equated with experiential knowledge, deeply dialogical and non-hierarchical properties, and participatory exchange (Ihde, 1976). Every time we, as sound studies scholars, issue calls for studying sound, we invoke this discursive tradition and along with it – this 'auditory' critique of modernity. In the following paragraphs I'll trace several discursive tenets that invoke historical narratives of sound as an ontological entity in order to pry apart underlying themes of sound's phenomenology from links to the theoretical trappings of the audio-visual litany and the oral-literate-electronic model of

communication technology. Among the multitude of discursive characterizations of sound (see Figure 1), some of which have already been introduced, I want to focus on three main narratives: sound as a way of being and a route to knowing (Feld, 1993; Nancy, 2007; Ong, 1967; Goody, 1970; Ihde, 1976); orality as inherently dialogical (Ihde, 1976; Ong, 1982; McLuhan, 1962); and sound as quintessential to the experience of place (Classen, 1993; Feld, 1993; Schafer, 1977).

2.2.1. Sound as being and knowing

While the narrative of orality as a state of mind centres around ideas of non-linearity, interiority and ambiguity (McLuhan, 1964; Ong, 1967; Carter, 2004), the notion of an 'aural' way of being in the world mobilizes ideas of primary experience, the human lifeworld, the horizon of experience, resonance and dialogue. Don Ihde's classic text on the phenomenology of sound conceptualizes the importance of examining the auditory dimension as an epistemological and experiential tradition radically different from the visual ontology framed as characteristic of modernity:

> A turn to the auditory dimension is thus potentially more than a simple changing of variables. It begins as a deliberate de-centreing of a dominant tradition in order to discover what may be missing as a result of the traditional double reduction of vision as the main variable and metaphor. This deliberate change of emphasis from the visual to the auditory dimension at first symbolizes a hope to find material for a recovery of the richness of primary experience that is now forgotten or covered over in the too tightly interpreted visualist traditions. (1976, p. 13)

Through an auditory phenomenology, Ihde traces the history of philosophical thought and its influence on the conceptualization of material experience over the ages. Starting with Locke's empirical atomism and the movement of reductionism and objectivism in the philosophy of science, Ihde proposes that the problem isn't mere visualism, but an overarching reduction of phenomenal experience as a source of and a relation to knowledge: "Not only are sounds, in the metaphysical tradition, secondary - but the inattention to the sounding of things has led to the gradual loss of understanding whole ranges of phenomena that are there to be noted" (1976, p.13). This sentiment hearkens back to what both McLuhan and Ong posit as a critique of modernity embodied in one central opposition: the disharmony between eye and ear; the profound fragmentation of the senses (Marchessault, 2005, p.124). For McLuhan, since "non-

linearity was used to understand the structures of oral cultures, linear thought became a shorthand for book culture, the product of literacy," and more importantly, a symbol of modernity (Marchessault, 2005, p. 91). A response to such a critique of modernity, for McLuhan, entails a re-synthesis of the senses, an entry into an audile-tactile dimension, an end of Euclidean space - continuous, uniform and infinite space – and the rebirth of a sound-based ontological paradigm made possible by electronic media (Marchessault, p. 119). In *The Skin of Culture* (1995), De Kerckhove echoes similar concerns over the critical importance of shifting away from the visual bias of modernity: "The frontal view afforded by the eyes supports and encourages a specialization of attention that tends to eliminate any other perception" (p.102). Drawing on Ong's epistemological distinctions between orality and literacy, De Kerckhove extends this idea to listening, framing it in terms of 'oral' and 'literate' listening; the former being global and comprehensive while the latter specialized and selective (p.104). This account of sound almost positions it as the quintessential multimodal form of perception in contrast with the specialization of the eye. In that, the narrative of sound as a route to knowing implicates the idea of *listening* as central to epistemological questions about the senses. De Kerckhove (1995) proposes that one of the main ways in which literacy has influenced human consciousness and contributed to a cognitive shift, is in altering the dynamics of mental representation from a situational to a purely conceptual model of understanding and experiencing. This point connects both with McLuhan's vehement proclamations that the dominance of the eye is giving way to the orality of the electric age, and Ong's delimitation of secondary orality as being co-constructed by literacy. Similarly, Ihde frames the shift from visual dominance to a convergence of sensations as a profound epistemological transformation:

> It is not merely that the world has suddenly become noisier, or that we can hear farther, or even that sound is somehow demandingly pervasive in a technological culture. It is rather that by living with electronic instruments our experience of listening itself is being transformed, and included in this transformation are the ideas we have about the world and ourselves. (1976, p.5)

Ihde's unique contribution however, in contrast to Ong and McLuhan's largely hermeneutic and dialectical ruminations on orality, is the development of a rich inventory of characteristics of auditory experience organized into a phenomenal ontology. Inspired by both Heidegger's and Merleau-Ponty's work on the phenomenology of perception,

Ihde frames the epistemological dimensions of listening as an awareness of the ubiquity of existing beliefs and an openness towards the primacy of hearing 'things themselves' – a kind of metaphorical rendition of the concepts of *resonance* and *echo* conceived of as deeply dialogical (1976, p.49). A very similar sentiment is found in Kate Lacey's (2013) study of the emergence of the *modern* listening public. Through the metaphor of 'listening out' Lacey discuses the responsibilities of media citizenship through the context of a sound-based paradigm of plurality and openness:

> Listening out is the practice of being open to the multiplicity of texts and voices and thinking of texts in the context of and in relation to a difference and how they resonate across time and in different spaces. But at the same time, it is the practice and experience of living in a media age that produces and heightens the requirement, the context, the responsibilities and the possibilities of listening out. (p.198)

2.2.2. Voice and embodiment

A particular instance of the narrative of sound as a route to knowing, the notion of *voice* is examined in a number of works ranging from semiotics (Derrida, 1973; Barthes, 1978) to cultural studies (Dyson, 2010; Zakharine, 2013; Chion, 1999; Carter, 1992; Sterne, 2012; Drobnick, 2004) and phenomenology (Ihde, 1976; Nancy, 2007; Augoyard & Torgue, 2006). As an embodiment of listening and soundmaking, *voice* problematizes sound as both a metaphysical and material phenomenon. One connection that can be drawn between the oral-literate model and Ihde's (1976) ontology of the auditory is precisely in his discussion of voice as a metaphor for the profound embodiment of existence, knowledge and self. According to Ihde, "...all sounds are in a broad sense voices, the voices of things, of others, of the world" (p.147). If we take those voices as entities that are always and everywhere in conversation with human voices – with us – then hermeneutic qualities ascribed to orality gain a new perspective: if we are no longer in dialogue with our environment, how can we have a dialogical relationship to it as part of a multimodal paradigm of mediated communication? Considering the role of the electrified voice in media, Truax describes the transition from orality to a 'neo-orality' as one from dialogical interaction (conversation) to symbolic inscription and association (sound-bites and other recognizable electroacoustic artefacts) whereby voice represents a cultural rather than an interior memory (Truax, 2012, p.70). With regard to oral communication, Ong (1958) similarly laments that institutionalization renders knowledge

"…less as a wisdom transmissible only in a context of personal relationships, than as a commodity" (p.152). The preservation of communication is thus highlighted as a problematic central to orality as relational inter-subjectivity. The manner of storing knowledge is thereby positioned as one of the critical points of divergence between oral and literate modes of communication – a point that gains new salience when considered in relation to audio recording and reproduction. While Ong (1967) and Havelock (1988) share concerns over the taming of the 'winged word' through writing, Goody (1970) highlights the importance of *recording* knowledge as a critical stage in the epistemological relationships formed around sound:

> Culture, after all, is a series of communicative acts, and differences in the mode of communication are often as important as differences in the mode of production, for they involve developments in the storing, analysis and creation of human knowledge, as well as the relationships between the individuals involved. (p.37)

Preservation of communication in this sense becomes the antithesis of voice – where the sounding voice is dialogical, the recorded word is objectified and removed from the experiential realm of phenomenal knowing. In terms of a historical progression, the embodied voice is symbolically and materially transformed through the technological mediation first of speech, then of writing and subsequently through the intervention of audio recording (Dyson, 2010). As Lacey points out, however, writing – particularly phonetic systems such as the Greek alphabet – actually *stored* sound (2013, p.27). Ihde's (1976) own conceptualization of voice frames reason as a kind of voice-less tyranny and disembodied presence (p.168). A reaffirming of the importance of voice entails a reaffirming of inter-subjectivity and a recognition of polyphony as an 'existential position of humanity' (p.178).

The conceptualization of reason as disembodied tyranny invokes McLuhan's critique of textual consciousness as dogmatic and affirms a notion of orality as constitutive of a dialogical relationality positioned against textual autonomy (Olson, 1985). Yet it is *embodiment* rather than orality's dialogical nature that is central to the notion of voice as authentic inter-subjectivity. Maintaining the philosophical trajectory established by Merleau-Ponty, both Ihde (1976) and Nancy (2007) conceptualize sound as fundamentally embodied; a physical process of oscillation; a tangible horizon of experience that connects our bodies with the external sonic environment. The narrative

of sound as *embodiment* mobilizes phenomena such as *resonance*, *reverberation* and *echo* as representations of essentially dialogical notions of conversation, participation and dynamic exchange (Ihde, 1976; Nancy, 2007; Carter, 2004; Doyle, 2005). This focus on embodiment illuminates both the physical and metaphysical aspects of sound as vibration: a process that cannot exist without a source, a medium of propagation and a receiving subject. In that, the embodiment of sound is profoundly *interactional* – it is the physics of space and of our bodies that renders sound audible. For instance, the phenomenon of *echo* is often framed as the ethereal voice of the surrounding environment, at once a repetition of the original utterance and a unique occurrence in its own right (Ihde, 1976; Nancy, 2007; Labelle, 2010; Carter, 2004). Echo is both a metaphor for feedback and for response; at the same time it is a manifestation of illusion, a phantom occurrence that serves as a reminder of our own necessity for communication (Nancy, 2007; Labelle, 2010). The rhetorical framework of sound-as-embodiment points to the idea that sonic experience is a foundational element of embodiment and that auditory phenomena reflect and inform dialogical exchange in unique and materially grounded ways. This kind of dialogue extends not only to the inter-subjectivity of human actors and individual aural experiences but also to their interplay and interaction with a wider auditory environment.

The dynamism and character of the soundscape, and the manner in which it configures aural experience is deeply local and culturally specific (Classen, 1993). Sound not only fluctuates from moment to moment, but also, and perhaps more significantly, takes on an entirely distinct character in different spatial and socio-cultural contexts, engendering different patterns of listening and soundmaking in the process (Classen, 1999; Feld, 1996). In this sense, the recording or preservation of soundscapes has been prominently theorized as a dis-placement of the locality of sound and its superimposition onto different contexts, ones that support arguably different acoustic ecologies (Westerkamp, 1990; Truax, 2001). Discourse around the preservation of sonic knowledge is therefore fraught with the sense of loss and transformation of sound's embodied, contextual character; a quality intimately bound up with the relationship between sound and place.

2.2.3. Sound as defining of place

While the spatiality of sound as a physical process has been addressed through many of the accounts of embodiment, these perspectives tend to lack a situated cultural perspective as a lens for understanding and analyzing aural experience. In contrast to the a-historical and a-cultural dimensions of phenomenological explorations, ethnographic accounts of listening approach the problematic of space through the narrative of *emplacement* – positioning sound as quintessentially a sense of place (Feld, 1993; Howes, 2003; Erlmann, 2004; Bull & Back, 2003). As Westerkamp, McCartney and Norman point out in their respective soundwalking practices, aural experience is always culturally and physically situated both in space and in place (Westerkamp, 1974; Norman, 2011; McCartney, 2012). To Westerkamp (1974), one of the extensions of active listening, which characterizes the practice of soundwalking, is a dialogue with the environment, with place and with other people. Similarly, in her 2011 keynote on the emplaced tradition[4] of 'beating the bounds' Katharine Norman explores ordinary listening as a fundamentally geo-spatial activity that connects movement, place and socio-cultural relationships. To her, beating the bounds is an "example of a mapping activity—one that, quite literally, binds the creation of place to the traces of human activity in the physical environment" (2011, p.4). Aural experience as part of that activity is thus central to the constitution of place.

In anthropological and ethnographic works on sound, acoustemologies (Feld, 1993) are almost always primarily associated with the experience and sense of place, reflecting a larger narrative of sound as constitutive of community (WSP, 1977; Feld, 1993; Kittay, 2008; Rice, 2002; Atkinson, 2007). For instance, in his longitudinal studies with Kaluli culture, Steven Feld describes how sounds become a 'path' in the Bosavi rainforest, intimately linked to the cultural geography of place. In contemporary acoustemologies, sound and listening are positioned as powerful forces that shape the way people locate themselves in place, both materially and culturally (Rice, 2002, p.7). Local soundscapes are also highlighted as constitutive of identity and institutional relations (Kittay, 2008). In an exploration of the geographical patterns of urban noise,

[4] Beating the bounds is an old English-Welsh custom that involves mapping out the boundaries of a parish by annually walking the community through it.

Rowland Atkinson (2007) positions the role of city soundscapes as central to the experience of community and ecology. Urban experience is constructed as an "ordered ecology of spaces with acoustic qualities that affect patterns of socialization." Temporal and geographic qualities of the soundscape contribute to an active constitution of experience, activity and communication (2007, p.8). Similarly, in a contemporary phenomenology of mediated sound Augoyard and Torgue (2008) discuss the interplay of material and cultural interactions between people and spaces through the rubric of unfolding sonic effects. Sound is framed as the voicing of place, which shapes not only ranges of possible meanings but also possible cultural realities:

> …the environment can be considered as a reservoir of sound possibilities, an instrumentarium used to give substance and shape to human relations and the everyday management of urban space." (Augoyard & Torgue, 2008, p.8)

Extending a place-based sound metaphor, Brandon Labelle's poetic treatment of everyday urban sound culture is grounded in the notion of *acoustic territorialization* (2010, p.xxiii). Starting from the material qualities of *local* place and linking them to archetypal soundscapes and sonic properties, Labelle's exploration aims at problematizing social, cultural, political, geographic and ecological aspects of urban life through the lens of sonic relations. For instance, he links the structure of underground spaces, including the type of activities that occur there, with the experience and function of *echo* – not only because undergrounds are reverberant spaces but also in the sense that they reflect an orchestration of call-and-response through the rhythmic soundscapes of transportation processes. The soundscape of the street, Labelle suggests, is equally characterized by the dynamics of sound vibrations as it is by the tension between public and private soundscapes staged at the unfolding of everyday urban life. By oscillating between descriptions of typical urban places and qualities of sound in relation to space and architecture, Labelle creates an interplay of both metaphorical and material dimensions of sound culture:

> The underground then is a secret, a fold, a crack, and an echo beating out from unknown cavities, which might suddenly fill up with bodies, forces, or cultures, to refigure terrestrial relations. Going down, further, into the darkness, the murmur rises, increasing in volume to become reverberating noise; energies that collect into a mass of sudden physicality, and then collapse or dissipate. (2010, p.37)

2.2.4. Sonic relations as ecology

In the context of Canadian scholarship, the idea of an inter-dependent relationship between sound, listener and soundscape is most notably reflected in the acoustic communication model proposed by Barry Truax, building on R.M. Schafer's earlier articulations of acoustic ecology. In critiquing scientific notions of auditory perception as an 'energy transfer model' and listening as a stimulus-response process, Truax affirms the contextual nature of both soundscape and aural experience as a communicative exchange mediated through the dynamism of sound events:

> The communicational significance of any sound can only be judged within its complete context in the broadest environmental, social and cultural sense. In fact, it is through context that we understand how a sound functions. (2001, p12)

To that end, the work done as part of the *World Soundscape Project* (WSP) in the early 1970s is one of the most important early explorations of everyday soundscapes and everyday listening set in a contemporary Western context. The collected works contained in the *Five Village Soundscapes* study (1977) and the *Vancouver Soundscape Project* (1978) revolve around narratives of sound and place, identity community, soundscapes and listening. They feature detailed ethnographic explorations of local sound cultures by combining audio documentation with thick descriptions and local resident interviews. These studies speak to sound's territoriality and relationship to place by focusing specifically on archetypal everyday sounds that define the acoustic and cultural character of local communities. As part of this initiative, R.M. Schafer's (1977) instantiation of the field of acoustic ecology presents a yet differently motivated critique of modernity, less a reaction to a visual world and more a response to an all-too-noisy one. Schafer's work is a unique intersection of communication studies, experimental music composition and a keen environmental sensibility. In the midst of a new electrified age of media, at the height of industrial urban development, and contemporary to McLuhan's media theory, Schafer's work mobilizes emergent notions of ecology towards understanding the sonic environment. Schafer's project aims at describing and preserving the immediacy of sonic experiences that are in danger of being engulfed by a society of mass reproduction. As such, the *World Soundscape Project* (1973) entails a recovering of a more 'authentic' mode of engaged or active (rather than passive) listening and a conception of the soundscape as an ecology of sonic elements whose

balance has been disturbed by an increasingly machine-and-technology driven urban North American way of life (Schafer, 1977). Schafer's method for re-awakening to the aural world literally involves a re-training of the ear, a physical re-positioning of perceptual attention onto the 'forgotten' soundscape, which we so frequently tune out. Unlike Ong and McLuhan, Schafer does not necessarily welcome the media age as a wave of secondary orality; instead he views it as a harbinger of a diminished, distracted and media-conditioned listening. For him, the major shift is not so much one from literacy to orality, but from a competent, open and discerning listening to a dulled, distanced and limited aural sensibility. Aside from the implicit normativity in this work – a legacy that has influenced decades of soundscape research – acoustic ecology brings to the fore the relationship between technology use and media culture on one hand, and the changing soundscape on the other, so that listening may be understood in relation to a wider phenomenal and technological reality. In qualifying soundscapes as hi-fi and lo-fi – vestiges of the 'fidelity' culture that characterized the audio technology industry – Schafer is perhaps most often critiqued for employing the idea of acoustic balance to position natural (wildlife) soundscapes as optimally balanced, in contrast with urban soundscapes, which are conceived of as unbalanced, chaotic and noisy (1977; 1993). To Schafer, the industrial age and subsequently the media age, contribute to the informational and material pollution of urban habitats, resulting in a significant restructuring of sonic communities and of acoustic place.

The point of convergence for many of the historical trajectories presented here is a kind of archeology of sonic experience as a response to the dominant visual regime of modernity. In these 'sonic' narratives, communication technologies represent physical manifestations of perceived shifts in sensory dynamics. The relevance of these theoretical conversations to an exploration of listening with technology is in helping to qualify this particular call to study sound. Rather than an attempt to use sound to right the wrongs of a visually dominant tradition, my project aims to investigate and bring to the fore a deeper understanding of what is already a multimodal media practice – listening with and through technology. To that end, listening is a particular problematic of new media culture that has to be explored without preconceived notions about the sensory characteristics of technology *or* the 'innate' qualities of orality. Instead, a sound-based inquiry can open the way to a unique understanding of mediated aural

experience, and make a contribution to the study of new media culture. To Ihde (1976), a phenomenology of listening amounts to an epistemology of experience - a critique of analytic philosophy; a point that need not involve a dualism between vision and hearing as essential properties of contrasting systems of thought and consciousness. To Sterne, shedding the essentialist baggage of orality is precisely the way towards a new historicity of knowledge, as well, I would argue, as a culturally-informed understanding of aural experience.

As both Sterne (2012b) and Erlmann (2010) suggest, it is not that a focus on sound tells a different story of modernity and the history of human knowledge, it is precisely that the story of listening tells the same tale, but in a unique way, different from visually-based (and biased) narratives. An exploration of cultural practices around digital technology that takes listening as a foreground problematic is not an attempt to tell a different story of new media culture. Rather, the aim is to add to the existing conversations in a distinctive way – by situating a study of listening in the context of everyday experience which is always already historical, cultural, material and sensorial. Unlike the psycho-dynamics of a literate-versus-oral state of mind, Schafer's and subsequently Truax's works draw attention to the actual soundscapes that surround us, and the technological and cultural forces that bring them into being. With respect to technologically mediated listening, the acoustic communication framework takes as a core proposition the idea that cultural practices formed around the use of specific technologies play a critical role in shaping sensory experiences; in turn, sensory practices formed around technology shape cultural experiences. In other words, a rejection of the audio-visual litany and its discursive implications entails that we learn to ask new questions about listening, technology and culture (Sterne, 2012b). Given that one of the most salient aspects of my present inquiry involves technological mediation, the next section will trace some of the central historical conversations about recording technologies, mediated listening and cultural practices with portable audio.

2.3. Technologically mediated listening

> *[technology] co-shapes the ways in which humans can be present in their world and the ways in which reality can be present in humans. Peter-Paul Verbeek, 2005*

> *…listening imparts meaningful experiences through a fluctuation of focus that brings one in and around the mass and verve of so much sonic materiality, of otherness. Brandon Labelle, 2010*

In one sense, any listening is mediated: the shapes and structures, even temperature of the environment affect the natural propagation of sound; our subjective experience of sound is mediated by the unique physical specifications of our bodies, and filtered through the nexus of memories, patterns and associations that is our consciousness. So any listening is a transformation through the medium of physical form (design) and that of identity (personal experience). With the additional layers of mediation introduced by (digital) technology, sorting out the dynamics of technologically-augmented listening can easily morph into a discussion of technological mediation as 'levels of remove' (Ihde, 1990). To borrow Latour's (1994) notion of technology as a black box, our own bodies and memories constitute a black box of evolution and genetics. Digital technology, on the other hand, represents the opacity of technological mediation concealing within itself a history of decision making about the actions, experiences, values and aesthetics of what *is or should* be possible – a "labyrinth of concealing multitudes" (Latour, 1994, p. 46). For the purposes of this work I'll take the more conventional definition of technologically mediated listening and consider as unmediated the sort of acoustic listening we do in much of everyday life – using our ears to receive and interpret the sonic signals of our environment. I also want to distinguish between mediated sound and mediated listening – unmediated sound by a conventional definition would be sound that has an acoustic co-located source, rather than the electrified version of a recording. Listening via headphones or other individualized audio prosthesis constitutes mediated listening; in a more general sense listening to electroacoustic sound (sound that has already been mediated through technology) may itself be considered a form of mediated listening. At a basic level, mediated or

electroacoustic sound would be any sound that has undergone a transduction[5] process, whether synchronous (as in live amplification) or asynchronous (as in recording and playback). As Bijsterveld (2008), Thompson (2004) and Sterne (2003) suggest, echoing Walter Benjamin and Theodor Adorno, "the problem of mechanical reproduction is central to understanding the changing shape of communication in the late nineteenth and early twentieth centuries" – a period formative of the discursive climate of communication technology theory today (Sterne 2003a, p. 6). Both mediated sound and mediated listening shed light on the inquiry at hand, because of the way in which technological mediation has been positioned with regard to listening experience as well as practices characteristic of new media culture. In both cases, the implication is that technological mediation produces aural experiences – and therefore sonic relations – fundamentally different than those engendered by acoustic listening (Truax, 2001; Ihde, 1976). Troubling the visualist definition of modernity in this sense means turning attention to the dynamics of mechanical reproduction, measurement and scientific rationality outside an audio-visual divide; tracing instead how listening experience and the discursive articulation of sound maintain the cultural narrative of modernity rather than defy it. Sterne highlights this through a larger cultural discussion of modernity's trend to offload distinctly human activities onto machines through what he terms 'audile techniques,' in a culturally learned performance of listening to and with technology:

> Through techniques of listening, people harnessed, modified and shaped their powers of auditory perception in the service of rationality […] a story where sound, hearing and listening are central to the cultural life of modernity [and] foundational to modern modes of knowledge, culture and social organization. (Sterne, 2003a, p.2)

In the following sections I briefly outline some of the dominant discourses surrounding mediated sound, including the technology of recording and the implications it holds for a number of cultural practices related to listening. I propose that much of the work generated around the concept and practice of sound recording occupy one of (at least) three narratives: a narrative of *displacement*, as in Schafer's (1977) concept of schizophonia; a narrative of *commodification*, as in Attali's (1985) political economy of

[5] The process of audio transduction entails converting acoustic energy (the sound input) into electric energy for analysis or manipulation and then back into acoustic energy (the sound output).

music; and a narrative of *articulation*, as in Sterne's (2003a) historical exploration of sound technologies. Each of these approaches to framing, exploring and positioning the technological mediation of sound reveals important underlying assumptions, ideologies and perspectives about the dynamics of listening and mediated aural experience.

2.3.1. Narratives of sound reproduction

Situated in a discursive tradition of acoustic ecology, Schafer's project of 'ear-cleaning' is informed by both a composer's aesthetic sensibility of soundscape appreciation (an extension of music appreciation), and a motivation to document and preserve local sonic heritage – the typical, characteristic sounds of acoustic communities that epitomize not only a place, but certain historical points in time. To that end, Schafer is concerned with the unity of emplaced experience, listening and soundscape. His term 'schizophonia' therefore signals the ultimate displacement of sound from source: a separation of soundmaking from context, and place from time. It is the sort of schism that occurs when a sound is recorded and then played back in another context. Not unlike Pierre Schaeffer's (1967) notion of 'acousmatic' listening – a kind of listening to an isolated sound object – schizophonia implies that sound reproduction is responsible for the practice of hearing sounds without a source. Schizophonia, to Schafer, epitomizes the problem of technology in the media age as a disruption of a natural ecology and continuity – both cultural and sonic. Not surprisingly, Schafer characterizes it in almost clinical terms – as a nervousness resulting from the temporal and ontological displacement of sound. Initially articulated as a problem, given the loss of fidelity of holistic aural experience due to the separation of phenomenal unity, the term *schizophonia* has persisted discursively, both in critiques and uptake of acoustic ecology, further mobilizing critical analyses of media soundscapes, sound design and the staging of mediated sound (Jordan, 2007; Bijsterveld, 2013; Drobnick, 2004). With regard to listening practices, schizophonia is indicative of a critical shift that Schafer ascribes to a transition from attending solely to one's sound environment to engaging with a myriad of surrogate electroacoustic environments transposed into everyday settings. The importing of surrogate soundscapes into any environment fostered, in Schafer's view, the prevalence of dense lo-fi soundscapes, which in turn encourage distracted and background listening (Truax, 1984). Echoing Schafer's conceptualizations

and concerns epitomized in the notion of schizophonia, Ursula Franklin's (1994) text *Silence and the Notion of the Commons*, invokes the technology of sound reproduction as a culprit in the disappearing spaces for silence; silence being "the enabling condition for unprogrammed and unprogrammable events to take place" (p.6). While she does not explicitly engage the logistics and ideologies of programmed background music, its significance marks another important chapter in the story of sound reproduction and mediated listening.

The ability to record sound, and in particular music, it has been argued, creates a kind of objectification of sound and by extension, a commercialization of the listening experience that demands attention. In his political economy of music, Jacques Attali (1985) embarks on an ambitious project tracing the history of music as a prophetic tool for shedding light on the economic, political and socio-cultural transformations of 20th century Western Europe. Poetic and transdisciplinary – as Attali himself calls it, a project of 'theoretical indiscipline' – the book presents a curious perspective of social organization with "an ear to sound matter as the herald of society" (p.5) where themes of separation, displacement and especially commodification of music intersect in an exploration that addresses at once culture and ideology as well as embodiment, economics and the organization of modern life:

> Fetishized as a commodity, music is illustrative of the evolution of our entire society: de-ritualize a social form, repress an activity of the body, specialize its practice, sell it as a spectacle, generalize its consumption, then see to it that it is stockpiled until it loses its meaning. (1985, p.5)

Attali's passionate narrative engages familiar themes of an ontologically 'natural' (normative) place and role for music and other forms of structured soundmaking; music is constructed as ritual, as connected to the body and as a democratized practice. In contrast, Western capitalism engenders a move towards the displacement of musical order from its cultural roots that ultimately leads to an objectification and devaluing of musical expression as well as the experience of listening to music. Naturally, technology plays a central part in this narrative: "Every code of music is rooted in the ideologies and technologies of its age, and at the same time produces them" (Attali, 1985, p.19). The recording of music, to Attali, signals the age of a society defined by mass production with the themes of repetition, stockpiling, representation and commodification (p.88). Just as

writing tamed the 'winged word' for Havelock, recording technology demystified musical expression to Attali, trapping a temporal medium into a physical object for storage, thereafter reducing the meaningful ephemerality and embodiment of music as a cultural practice of soundmaking:

> Reproduction, in a certain sense, is the death of the original, the triumph of the copy, and the forgetting of the represented foundation: in mass production, the mold has almost no importance or value in itself; it is no longer anything more than one of the factors in production, one of the aspects of its usage, and is very largely determined by the production technology. (p.89)

The dichotomy of original and copy constitutes one of the central trajectories of not only 'first wave' sound studies scholarship (Kennedy, 2013) but the wider field of cultural studies and political economy, often serving as a vehicle to critique consumer culture. Notions such as Schaeffer's 'acousmatic sound' emphasize the objecthood of sound made possible by techniques of recording and reproduction that ultimately render *aurality* a phenomenon that may be knowable through a prosthetic ear (Dyson, 2010, p.58). While earlier work on sound reproduction and media sound focus on the ideological dimensions of reproduction, authenticity and fidelity, 'second wave' sound studies explore the socio-historical conditions that have brought the original-copy distinction into existence as a cultural problematic (Kennedy, 2013, p.511). The central characterization in Attali's discursive trajectory is ultimately the fragmentation of meaning and value of musical experience – the transition from use-value to exchange-object and use-object (1985, p.97). In that, he all but implicates the phenomenon of music-as-background that composer Eric Satie provocatively called 'furniture music' in the 1920s as indicative of a definition of musical form as well as of a mode of listening: a background rather than foreground attention.

Spanning from early writings on 'accompaniment' media soundscapes (Mendelsohn, 1964), the notion of programmed ambient music has been linked most prominently to discussions about the commercialization of listening experience (Westerkamp, 1990; Sterne, 1997). The favourite subject here is the background music of shopping malls: Muzak, named after the iconic corporation that pioneered mass production of commercial music background systems. It is a quintessential example of schizophonia gone wild: a triumph of psycho-emotional programming intended for a background listening experience and a subliminal drive to consumption. In her classic

work *Listening and Soundmaking: A Study of Music-As-Environment* (1990), Westerkamp suggests that recorded music becomes an environment that seamlessly accompanies the activities of daily life, forming a dominant voice that throws the "relationship between listening and soundmaking off balance" (p.227). Balance, to Westerkamp, plays into the tradition of acoustic ecology as a state of active possibility for both listening and soundmaking; however, the presence of a ubiquitous musical score that helps script socio-economic relations drastically reduces the opportunities for human participation. Music-as-environment is thus a core aspect of consumer culture, silencing the potential for dialogue between people and place, and setting the agenda for the boundaries of sonic relations. Background music, itself a commodity dating back to work factories in the Second World War (Sterne, 1997), later appropriated by the Muzak corporation in the US as a staple of department store ambience, "channels a basic cultural need in us for active participation in music and soundmaking into the activity of commodity exchange" (p.228). For Schafer, and subsequently Westerkamp and Truax, the commodification of background music is intimately connected to the phenomenon of the distracted listener – a culturally learned pattern of attending to programmed technologically mediated soundscapes with a faint, split or otherwise surface-level listening attention (Westerkamp, 1990, p.233; Truax, 1984, p.147). This type of listening is often positioned within the acoustic ecology as the antithesis of 'active' listening.

As historically and discursively significant as they are, the narratives of *displacement* and *commodification* provide for a somewhat normative role of technologically mediated sound, and by extension of mediated listening. The premise of phenomenological unity of sound and source – of time, place and listener – results in a view of technology as a disruption of a previously natural and holistic process. As Sterne (2003a) suggests, such theorizations often present a conceptualization of mediated listening as a diminished version of acoustic listening – a formulation based on discursive rather than empirical (or even historical) interpretations. An alternative to looking at the *effects* of sound reproduction on society and modes of listening through the narratives of displacement and commodification, is a critical historical approach of looking at the *conditions* that gave rise to such technologies and facilitated the evolution of specific listening practices. *Articulation* involves elaborating on and mapping of dynamically shifting relations between entities – cultural and individual, physical and

metaphorical, historical and phenomenological, that together help better define complex cultural processes (Hall, 1986; Slack, 1996). With regard to sound reproduction, Sterne positions technological mediation as not simply an instrumental but in fact a substantive aspect of the cultural history of communication technology through modernity (2003, p.21). Only by looking at transduction (and any sound technology to follow) as a cultural and not simply a mechanical process may we begin to understand and theorize sound reproduction in relation to cultural practices (Sterne, 2003a, p.46). To that end, articulation engenders a discursive foundation that informs a more reflexive and critical understanding of the dynamics of technologically mediated listening.

In her book *The Soundscape of Modernity* (2002) Emily Thompson recounts the history of the concert hall at an important transition between acoustic and electroacoustic reproduction. Tracing the formation of a listening audience first through architectural interventions and then through the transformation of the loudspeaker, Thompson builds a layered and complex narrative of technologically-mediated listening through the period of modernity. Fuelled by a scientific ideology and a drive for control and measurement, acoustic architecture becomes in that period, a technology for the mediation of sound. While Wallace Sabine's reverberation formula solved the age-old 'mysteries of the acoustic' (Thompson, 2002, p.233), the loudspeaker, in conjunction with the recording and manipulation of sound, presented a new way of controlling sound and the previously dramatic effects of space on sound's acoustic character. In that, the introduction of electroacoustic amplification in concert halls served as a harbinger of a re-configuration of the listening public towards conscious application of a particular mediated aestheticization. Concert hall architecture on the other hand, had to compete with the type of sound experiences that were "beginning to be heard via electroacoustic technologies in the home" (p.251). Part of the emerging race for fidelity in sound reproduction, the next iteration of sonic space – the recording studio – emerged as an epitome of both architectural and technological conquest of sound; there, sound may be produced, modulated, preserved and objectified (p.269). This sanitization of space and spatial character from the experience of mediated listening ultimately signals another situation of displacement. However, instead of recorded sound displacing the unity of 'authentic' aural experience, it is the mediation of the studio and studio recording techniques that displace the original character of the recording into a sterile acoustically

'dead' sonic object. Ironically, it is reverberation – one of the quintessential phenomenal qualities of sound – that the studio deconstructs and reconstructs through technological augmentation: "There was no debate about optimum reverberation for a soundstage; the goal was to eliminate it entirely" (Thompson, 2002, p.269).

As both Thompson and Sterne argue, the history of modern sound is vitally important for understanding mediated sound in the context of a (postmodern) new media culture precisely because the audile techniques (Sterne, 2003a) that emerged during this period laid some of the foundations for mediated listening as we know it today. The concept of the modern listener marks a transition between pre-technological listening and a learned technique of attending to sound that was recorded and reproduced under highly artificial circumstances. The listener of today, regardless of age, arrives at the stage of mediated listening after decades of highly specialized techniques for the recording, manipulation and construction of medial sound objects (Bijsterveld, 2013). Listening modes resulting from the cultural construction of sound across different media genres have entered our vocabulary of audile techniques and continue to act as a filter through which we approach new listening situations – both acoustic and mediated.

2.3.2. Modes of Mediated Listening

If we consider the cultural dimensions of listening as a set of dynamically inter-dependent ‘inherited auditory values’ (Schafer, 1977) in conjunction with technology-specific ‘audile techniques’ (Sterne, 2003a), a historical look at discourses around media sound serves as an important conceptual backdrop to understanding mediated aural practices with portable smart devices. Auditory values and techniques, as both Sterne (2003) and Dyson (2010) suggest, can be understood as culturally ingrained practices for attending to certain aspects of individual sounds, as well as particular ways of relating to the wider soundscape (and media-scape). Telephone listening, for instance, is an example of habitual attending to a low-bandwidth voice signal while ignoring line static and other sonic interferences; that activity alone implicates both perceptual and culturally-specific practices of attending to sound. Picking out auditory notifications from one’s mobile phone amidst dense, noisy environments is an example of another, more contemporary, listening strategy – an *audile technique* adapted to a networked new

media culture. There is, of recent, an abundance of frameworks and cultural analyses for understanding medial sound and technologically-mediated listening (Weis & Belton, 1985; Altman, 1992; Chion, 1994; Grimshaw, 2010; Dyson, 2010; Bijsterveld, 2013; Sterne, 2012; Drobnick, 2004; Lacey, 2013; Katz, 2004; du Gay, 1997; Bull, 2000). Surveying these characterizations can help form a starting point towards an exploration of listening with portable audio in the context of new media culture. Each account of listening to surface across different sound studies projects adds to a palette of terminology that helps nuance understandings of mediated aural experience. At the same time, each set of listening modes or categories reflects the rhetorical framework of the respective field of study, in particular, the implicit relationships between the intentionality of different media conventions and the corresponding listening strategies that arguably evolve around them.

A common point of convergence across multiple theories of mediated listening is rooted in a juxtaposition of 'active' versus 'passive' auditory attention (Schafer, 1977; Truax, 1984; Chion, 1994; Bull, 2000; Schaeffer, 1967). Within the rhetorical framework of acoustic ecology and acoustic communication, active and passive listening are mobilized towards characterizing and understanding a highly layered and typically electroacoustic (rather than acoustic) soundscape. Where background sound fosters passive attention or a 'tuning out' (Schafer, 1970), background music forms a culturally specific instance of *distracted* listening (Truax, 2001) that is ideologically connected to other tropes of consumer culture. The relationalities surrounding distracted listening have been explored in a number of contexts ranging from Muzak in shopping malls (Sterne, 1997; Westerkamp, 1990; Labelle, 2010) to the continuous programming of radio and television soundscapes (Truax, 2001; Mendelsohn, 1964; Douglas, 1999; Birdsall, 2012). In the context of acoustic communication, the notions of *analytical* and *distracted* listening direct as much attention to the conditions of media use as to the properties of technology itself. *Distracted* listening, which is more passive, entails a directed choice of background sonic accompaniment – a product of mass media consumer programming (Truax, 2001, p.167). Conversely, *analytical* listening is made possible by the very process of sound reproduction which "allows the sound to enter a kind of laboratory of perception, where it may be dissected" (p.165) through repetition and manipulation and by way of deliberate listening.

One of the earliest models of listening that serves as foundation for many subsequent conceptualizations of mediated aural experience is found in Pierre Schaeffer's (1967) conception of acousmatic music. Acousmatic listening, to Schaeffer, involves a kind of attending strictly to the qualities of sound as opposed to their meaning; it is made possible precisely through the processes of recording and reproduction that render sound into an enduring object. Schaeffer's model of listening involves two sets of oppositions – abstract/concrete and subjective/objective. The objective modes of listening involve a process of identification of the sound source (abstract) and then attributing meaning to it (concrete). The subjective modes constitute either passive reception – a hearing that does not seek to understand or identify (abstract) – or a selective attention to specific sounds or sound qualities (concrete). The intersection of acousmatic sound with sound reproduction technology is reflected in Schaeffer's concept of *reduced listening* – a musical-analytical listening which draws us into relation with the sound itself, its sonic characteristics and qualities outside the necessity to attribute meaning or cultural interpretation – a purely aesthetic listening experience. There are two issues of note in this conceptualization of technologically mediated listening: first, the identification of source and meaning are juxtaposed to the perception of sonic characteristics; secondly, once again, passive attention is juxtaposed to an active process of interpretation. The problem lies in that neither of these juxtapositions is necessarily mutually exclusive in terms of the materiality of aural experience or the nexus of interpretive strategies involved. It is important to remember that as composers, both Schaeffer and Schafer approach the question of listening from the standpoint of musical sensibility: while Schaeffer (1967) considers recorded sound to afford a special kind of aesthetic appreciation of sonic properties, Schafer (1977) would like to see listeners apply a composer's ear to the experience of everyday (acoustic) soundscapes. In each case, the dichotomy of active-passive attention is evoked in relating the aestheticization of sound and listening attentiveness.

In exploring the relationship between sound and moving image in film, Michel Chion (1994) organizes modes of listening as a continuum of information-seeking behaviour from more informational to more associative, from active to passive attention, delineated by what he terms *causal*, *semantic* and *reduced* listening. Building on Schaeffer's categories, causal listening in film concerns identifying the cause or source

of the sound on screen; semantic listening is applied in the process of interpretation and narrative association of the sonic content; reduced listening is, per Schaeffer, a listening to the object of sound itself. As a way of transcending a duality between active and passive attention, Chion highlights the constant interplay between the three modes that a listener would cycle through in the course of cinematic experience (1994, p.29). Chion's account of reduced listening further supplements Schaeffer's original definition by emphasizing the role of technological reproduction of sound to the process of attending to sound-in-itself. Reduced listening is achieved through a repetition of the sound object and a fixation on its qualities and characteristics (p.29). As such, it opens the possibility for new relationships with sound content as mediated by technology – similarly to Truax's concept of analytical listening:

> Reduced listening is an enterprise that is new, fruitful, and hardly natural. It disrupts established lazy habits and opens up a world of previously unimagined questions for those who try it. (Chion, 1994, p.30)

Chion's categories of *diegesis,* position film sound ontologically in relation to the visual field: whether the sound source is contained in the cinematic frame or not. While the source of a diegetic sound appears on screen, extra-diegetic sounds originate outside the frame (e.g. footsteps in the distance), or even outside the narrative world of filmic events (e.g. musical score). In a familiar invocation of the sound-source *displacement* narrative, this definition of film sound holds an assumption of unity between image and sound as per the original goal of synchronization. In contrast, the presence of extra-diegetic sound significantly shifts the relationality established between the cinematic fictional world and the real-world listener. Ironically, over the last decades, film sound has become increasingly extra-diegetic with the vast majority of sounds in the final soundtrack being recorded and re-mixed outside the original video recording (Jordan, 2007). Many of the tropes of film sound – particularly sound effects – owe their existence and characteristics to radio drama (Metz, 1985). As an audio-only medium, radio drama pioneered the evocative use of sound towards narrative development by way of culturally significant 'aural objects' that have persisted into the filmic tradition of present times (Metz, 1985). Without a doubt, the phenomenon of synchronization of moving image and audio marks one of the greatest cultural shifts in mediated aural experience (Thompson, 2004). What is important to note, however, is that silent film co-existed with radio drama for a number of decades as a separate cultural genre. It was in fact the

expansion of the telephone companies that fuelled research and development of synchronization techniques for image and sound, and inevitably led to the decline of radio drama and other audio-only forms in the cultural repertoire of the North American media-scape (Sterne, 2003a).

Alongside film, mass media such as radio and television constitute another immensely important paradigm in mediated listening practices that has been a subject of great interest among sound studies scholars (Sterne, 2003a; Truax, 2001; Birdsall, 2012; Altman, 1985). The emergence of media for mass communication in Western societies represents not only a decentralized and technologically-mediated dialogical relationship to sound, but also a kind of persistent sonic accompaniment to daily life (Mendelsohn, 1964). In a cultural and historical account of radio and the American imagination in the 20th century, Susan Douglas (1999) investigates the emergence of collective listening patterns directly related to the early days of mass media. Based around the *medial* (Sterne, 2012b) properties of radio and its content at the time, Douglas articulates three distinctive modes of listening that may be applied to various types of radio content: *informational*, *dimensional* and *associational*. Informational listening is an active attentiveness to potentially important content; dimensional and associational listening on the other hand reflect the ability of radio sound to metaphorically transport us to different places and evoke the narrative materiality of events and emotions (Douglas, 1999, p.33). One of the central tenets of the book is the notion that the disembodied voice of audio-based programming encourages a certain expansion of people's auditory imagination. Initially thought of as a supernatural phenomenon with mysterious properties, listening to radio soon became, according to Douglas, an integral part of American cultural life over the last century: "radio has taught us, socialized us how to listen to different things, and how to feel during different modes of listening" (1999, p.26). In that, Douglas evokes a view of listening as integral to national and individual identity, a practice of cultural memory embodied in an auditory medium. In a related account of radio as constitutive of cultural identity and nationalism, Carolyn Birdsall's (2012) book on Nazi soundscapes extends an analysis of media sound as a tool for state control and propaganda in Germany during the historical period leading up to the Second World War. Through establishing a relationality between sound technology and socio-cultural context, she argues for examining *distracted* rather than

active listening as the culprit in the success of the Nazi regime's anti-Semitic propaganda. Aside from the sonic icon of Hitler's shouting voice as emblematic of Nazi soundscapes, Birdsall affirms the importance of the rather background presence of radio in conjunction with the culturally prominent place of cinematic soundscapes as tools for constructing nationalist identity (2012, p.14). Distracted listening is thus positioned not as habitual succumbing to passive listening attention but as an active form of participation in a dominant cultural ideology. Historicizing mediated listening is in this sense a form of excavating cultural memory and understanding the wider context of social life in particular historical settings. The relationship between aural experience and memory, or the idea of listening *as* memory implies a view of mediated aural experience as a process of drawing on a repository of culturally significant aural signs, and attending to them in learned culturally-specific ways. Building on the notion of media sound as cultural memory, Karin Bijsterveld's (2013) most recent book *Soundscapes of the Urban Past* offers an 'intermedial historiography' of mediated sound – specifically, soundscapes designed for popular media content such as film and radio. The book takes up the conceptual metaphor of 'staging' of sound across media as a way of comparing the characteristics of the staging process to actual archival documentation of everyday soundscapes. In that, Bijsterveld problematizes the dramatization of soundscapes in both archival documentation and fictional media forms. The argument necessarily implicates the question of listening modes – both those that are traditionally applied to the consumption of media content, and those that are associated with informational, documentary reception.

A similar discursive thread that focuses on mediated listening and takes up Chion (1994) and Altman's (1995) conceptualizations of film sound deals with the phenomenon of game audio. Mark Grimshaw's (2008) extensive text *The Acoustic Ecology of First Person Shooters* positions listening to game sound less as a form of media listening and more as a kind of everyday listening in a medial context. In exploring the dynamics of gameplay in first-person shooters, Grimshaw observes that the highly spatialized design of sonic cues forms an ecology that necessitates active listener attention and an informational stance towards the soundscape. Kristine Jorgenson's (2006) work on the intentionality of game sound design offers a framework of categories for game sound that essentially support gaming functions – *action-based, atmospheric, orienting, control-*

related and identifying. These game functions connect with the most salient aspects of gameplay by way of the game's soundtrack – creating a sense of space; providing confirmatory feedback for interactive controls; providing in-game signals for narrative developments; sonifying player actions; and creating an emotive atmosphere through genre-specific background sound. One of Jorgensen's (2011) innovations is the concept of *trans-diegetic* sounds (building on Chion's notion of *diegesis*) as a phenomenon specific to the interactive medium of games. Trans-diegetic sounds are not necessary off-screen but are unrelated to the narrative world of the game: e.g. sonic icons on the main menu or inventory, etc. These types of functional ontologies of game sound (Jorgensen, 2006) reflect a fairly logistical view of what mediated listening entails, retaining the importance of diegesis as the base element of relationality between sound and screen, in this case – sound, screen and interaction. The implied mode of listening is an intersection of information-seeking (active), spatial, aesthetic and contextual (passive) processes. Through attentiveness to the cultural dimensions of mediated listening, my own contribution to game sound scholarship explores the listening practices that have historically formed around video gameplay in conjunction with other types of medial listening (Droumeva, 2011). Focusing specifically on the construction of 'realism' in gameplay, the listening modes I articulate (*imaginative, nostalgic, disjunctive, naïve, conditioned and inter-textual)* aim to address both the technical-logistical properties of game soundscapes and the cultural conditioning that a player would bring to the gaming experience. Rather than types of attention, this set of categories embodies layers of cultural engagement with a variety of media forms through the experience of listening to a game soundscape.

In addition to the active-passive distinction that often underlies traditional characterizations of listening, another important dichotomy that can be traced across many articulations of mediated aural experience involves the notions of everyday listening juxtaposed against musical listening as well as other kinds of 'specialized' attention to sound including analytical, archival and documentary listening. In building a model towards the kind of emplaced, everyday technologically mediated listening that characterizes the use of portable smart devices, the notion of everyday listening demands particular attention with regard to its discursive and epistemological positioning. Building on prior work on listening to environmental sounds, Gaver

developed the notion of everyday listening as listening "to events rather than to sounds" (1993, p.1) whereby we attend to our surrounding environment with an ear to avoid danger or jump to action; essentially responding to auditory events. Gaver juxtaposes this type of listening to musical listening where the latter would be evocative, focused on aesthetic evaluation and appreciation. While most accounts of mediated listening presented here encompass both information-seeking and semantic dimensions – hearing and interpreting sound – everyday listening, particularly with regard to technological mediation, has been an elusive concept often equated with acoustic listening. Katharine Norman describes as 'ordinary' the type of listening that occurs in everyday life as part of our unconscious habitual routine of sensory encounters with the "unattended margins of experience" (2011, p.1). To Norman, ordinary listening is a useful concept in that it de-normalizes routine experience and opens the possibility of bracketing and exploring extraordinary moments within daily life:

> While the bulk of attention is focused on the functionally important activity - turning off the overly loud alarm clock and reluctantly getting out of bed, for instance - other things are going on at the edges - the swish of sheets, emerging thoughts on the day ahead, the sounds of morning birds and cars, the vestiges of a fast departing dream. These differing intermingled thoughts and perceptions are all part of ordinary experience. (Norman, 2011, p.1)

Everyday listening here is conceptualized as a complex interplay of a multitude of sensory attentions and semantic interpretations set against a backdrop of ingrained cultural values with regard to sound, all converging at the site of everyday experience. Given the complexity and dynamism of everyday listening, it is therefore rhetorically significant that everyday listening has traditionally been contrasted to different types of 'specialized' attention – most notably, musical listening. In documenting modes of subjectivity in listening practices, Ruth Herbert (2012) suggests that the idea of 'autonomous' listening – in depth or heavily involved type of listening directed to music (to the exclusion of other sounds) – is a cultural construction of modernity and the Western classical music tradition. Herbert aptly points out that separating listening into everyday and musical brings with it a set of tacit assumptions about the primacy of foreground rather than background attention and active versus distracted auditory perception. Music listening, prior to the onset of Romanticism, was primarily "multimodal and iconic" rather than directive, singular and attentive (Herbert, 2012). As Herbert further qualifies, invoking Dibben (2001, p.162), everyday and musical listening are likely

two modes of auditory perception that occur simultaneously, however, are afforded different levels of attention depending on the listener's situation and needs. In fact, extrinsic elements of listening such as internal associations, memory, imagination and value judgements are not features of specialized listening modes but intrinsic features of everyday listening (Dibben, 2001; Herbert, 2012). The same, I'll argue, may be said of technologically mediated everyday listening – rather than being entirely a product of media culture, it likely entails a cycling between ordinary acoustic listening strategies and the 'auditory values' inherent in technologies for audio reproduction and mass communication. If historicizing listening had taught us anything, it is that listening modes are both a property of technological mediation, including its use and design, and at the same time an embodiment of media culture in their wider socio-cultural, ideological and geo-political implications.

One of the more substantive histories of sound reproduction that addresses the question of mediated listening is without a doubt Jonathan Sterne's (2003a) *The Audible Past.* In this collection of historical case studies Sterne constructs modernity – a historical period that is undoubtedly of great importance in setting the stage for contemporary understanding of communication technology – as a shift towards measurement, fragmentation, experimentation and delegation of sensory experience to machines (2003). To invoke Latour (1994) again, modernity signifies decades of 'black-box'-ing decisions and assumptions about hearing, listening and soundmaking into the intricate mechanisms of increasingly complex devices. In the case of technologies for sound visualization, encoding/recording, and playback, the processes of reproduction follow a 'tympanic' model – an imitation of the mechanisms of the human ear, rendering 'hearing' an abstract entity that can be isolated from the physical and cultural body for analysis and replication (Sterne, 2003a, p.35). The implications for the dynamics of listening here are equally telling – listening and hearing are very much equated under a rather scientific and perceptually-oriented umbrella. Much of the sound technologies to emerge in the period of modernity, Sterne suggests, involve a delegation of our listening experience to machines that hear for us (2003, p.41). The notion of 'audile techniques' describes mediated listening practices that directly reflect the offloading of human functions onto machines, technologies, and ultimately algorithms. Audile techniques are the ways in which listeners learn to hear the artefacts produced by technology and make

choices for both listening and technological design based on this new acuity – e.g. learning to ignore the hiss of analogue tape, the crackle and scratch of vinyl records and even listen through static for the radio broadcast. Following the same trajectory of reflexive historicization to the phenomenon of digital audio, Sterne's (2012a) latest book explores sound in the digital age through the metaphor of 'transcoding' by tracing the creation of the MP3 as a compression format and a perceptual standard for consumer audio. The MP3 is not simply a space-saving file type (as most of us would likely conceive of it) – it is a cultural artefact, "a crystallized set of social and material relations" that embodies within its design "a host of people, ideologies, technologies, and other social and material elements" (Sterne, 2006, p.826). Borrowing from Mumford, Sterne describes the MP3 as a 'container technology' for sound recordings and at the same time an apparatus that transforms their contents[6] and ultimately transforms the listening practices of their recipients (Sterne, 2006, p.828). The MP3 then is a digital rather than physical 'black box' of logistics, ideologies, as well as an array of technocultural decision-making. As such, there is little doubt that the MP3 format has engendered a new listening problematic at the very least with regard to fidelity – in effect, most people experience MP3s as recordings of higher (perceived) quality than uncompressed audio. Effectively, not only the technology of MP3 but also the practice of listening to MP3s, are cultural constructions, historically grounded in decades of shifting ideologies of sound and layers of technological elaboration of processes and assumptions about the dynamics of listening. Given that listening to portable audio is often synonymous with listening to MP3s, this historical and discursive trajectory is very relevant to a discussion of listening practices with portable smart devices. In the next section I'll trace some of the key discussions related specifically to portable audio devices and the kinds of listening practices that they implicate.

2.3.3. Portable audio listening

> *Do you own a 'personal stereo'? Do you know anyone who does? Even if you do not, I am sure you know what a Sony Walkman is and what it is used for. You have probably seen someone listening to one, or pictures of*

[6] Audio compression works by analyzing and removing parts of the dynamic range and frequency spectrum of the recorded sound in order to minimize file size and facilitate storage.

people using one, in magazines, advertisements or on television. It has entered into, and made a considerable impact on, our culture. It has become part of our cultural universe. Paul du Gay, 1997

The story of portable audio engenders a double narrative of displacement – first, the recorded sound is separated from its original context and time; second, the listening experience itself is dislocated from a fixed setting, allowing for a dynamically shifting relationship and a multitude of possible meanings invoked by the convergence of emplacement and surrogate soundscape. The way in which different authors have approached formulating these meanings reflects much about the positioning of the listening subject with relation to the cultural practices surrounding communication technology. Perhaps echoing Adorno's concerns (Bull, 2000, p.129) over media consumption becoming a substitute for social interaction and impoverishing 'authentic' relationships, both Schafer and Truax qualify personal stereos as a phenomenon of urban alienation, a tuning out from the world and retreating to a personalized soundscape populated by commercially mass-produced music (1977, p.119; 2001, p.135). The loss here is that of active foreground listening, an ecological awareness and relation to the surrounding soundscape. In contrast, telephony – and by extension, mobile telephony – has been heralded as a collapse of the spatial frontier, foregrounding the intimacy of the voice through a semblance of sonic embodiment that has arguably been lost in textual communication (Fischer, 1992; Goggin, 2006). The story of mobile telephony as a specific instance of mobile listening is inextricably related to the cultural formation of public and private space as mobility allows the voices of the absent to invade the soundscapes of the present, injecting a particular kind of detachment from the surrounding environment while placing rapt auditory attention on the conversation at hand (Goggin, 2006; Richardson, 2009; Bull, 2004). It is precisely in the tensions between portable audio listening and mobile telephony that we can look to understand portable smart technology as a cultural artefact and uncover the kinds of mediated listening techniques that characterize it.

In *Doing Cultural Studies: The Story of the Sony Walkman* (1997), Paul du Gay sets the stage for a long tradition of theorizing the role, function and implications of the personal audio device in the context of media culture. Some of the properties of the Walkman that du Gay heralds as critically important in establishing a distinct new culture

of listening (p.10) include personal choice, technological fidelity, music consumption, mobility and a redefinition of public/private social relationships – all emblematic of a post-industrial, modern society constitutive of an entire way of life (1997, p.14). To du Gay, the distinct cultural meanings and practices engendered by the infusion of the Walkman into daily life constitute a phenomenon deeply connected to, if not defined by, commodity relations: "Consumption is becoming more of a personal act of 'production' in its own right" (p.21). By using (and listening to) portable audio people are re-producing the ideology of a new-liberal capitalist society. du Gay directly links the conditions that give rise to mobile listening to the effects of sound reproduction: borrowing from Walter Benjamin, he problematizes the loss of uniqueness of artistic work and the aesthetic experience that may now be packaged in a portable device and taken anywhere for the enjoyment of the individual consumer. Following the 'cultural circuit' (p.85) of technology, du Gay analyses the nexus of cultural practices around the use of the Walkman with persistent reference to advertising discourse. Advertising works on the premise that products fulfill needs, however, as du Gay notes, *needs* in a consumer society are cultural rather than natural constructions (1997, p.91). In that, advertising discourse speaks directly to the manufactured cultural need for a personal Walkman – a personal soundscape. A look at Sony's own framing of the portable audio device gives us a glimpse into the dominant forms of listening that were at least imagined, if not fostered, by industry. Sony's market research identifies two main types of uses for the Walkman – *escape* and *enhancement* – mobilizing both a form of *distracted* listening and a direct engagement with musical content (du Gay, 1997, p.93) analogous to Truax's *analytical* media listening and Chion's *reduced* listening.

There is, unfortunately, very little in du Gay's work that touches on the actual sensory experience of listening to the Walkman, aside from acknowledging mobile listening as an inherently socio-cultural practice: "…Walkman use is still a social practice because, while one's listening may be private, the codes that inform that listening are inherently social" (p.94). In order to describe the interplay between an acoustic or everyday soundscape and the private soundtrack delivered via headphones, du Gay introduces the idea of 'soundscapes of the mind' as a counterpart to the 'actual' soundscape. This conceptualization of mediated listening invokes a quasi-material, quasi-imaginary process situated in the phantom centre channel that the headphones

create (Dyson, 1996) – neither on the surface of reality, nor completely in the mind. Through subsequent accounts of mobile listening, the notion of 'soundscapes of the mind' has morphed into a cinematic model of listening whereby mobile (musical) accompaniment is perceived as a 'soundtrack to life' (Biggs, 2008; Bull, 2007).

In one of the most comprehensive theorizations of 'iPod[7] culture,' Michael Bull's now classic text *Sounding out the City: Personal Stereos and the Management of Everyday Life* (2000) presents "a critical phenomenology of urban experience through an analysis of personal stereo use" (p.3). Framed around urban aesthetics, sociology, phenomenology and everyday studies, Bull describes the iPod as a device for managing daily life in urban environments, particularly critical to the negotiation of space, place and interpersonal experience (p.9). He critiques du Gay and other cultural theorists interested in the phenomenon of personal stereos for their textually-biased approaches, 'reading' the meaning of artefacts through advertising discourse alone (p.4). Instead, Bull offers an ethnographic account of the various motivations that people present for engaging in the practice of mobile listening. Some of the key characteristics of personal stereos articulated in his work include the connection to place, the possibility of individualizing a private sound world, the management of emotional and aesthetic continuity through time and space, and the transformation of relationships between listener and content:

> Personal stereo use represents a way of 'being in the world' in which technology constitutes an accompaniment to and mediator of the mundane everyday construction of social experience (Bull, 2000, p.149)

Along with a recognition that such a "technologized form of management has not arisen in a social and cultural vacuum," Bull's categories of portable listening strategies invoke de Certeau's (1984) concept of 'tactics' – an individualized form of resistance to the normativity of everyday life. Contrary to positioning personal stereos as "paradoxically enhancing and increasingly constituting that impoverishment which […] contributes to the dependency of the user/listener" (2000, p.129), Bull instead positions iPod use as a

[7] In his later book that specifically discusses iPod culture (2007) Bull adopts the term 'iPod' to refer to any brand of portable audio, acknowledging the cultural importance of the Apple iPod series as a cultural icon of the phenomenon of mobile listening. I will proceed using it as analogous to the terms 'personal stereo device', "mobile audio' and 'portable audio device.'

strategy for reclaiming personal autonomy and control over one's immediate spatial, emotional and social experience, including managing time, mood and emotional enhancement, work productivity, personal space, ameliorating noisy surroundings, counteracting loneliness and (for women in particular) ensuring safety (DeNora, 2000). Bull particularly emphasizes the cognitive dimension of autonomy and choice as deeply related to the aestheticization of urban experience. The following excerpt once again reiterates the notion that iPod culture is not necessarily a product or an effect of the technology of personal stereos, but rather a crystallization of a set of pre-existing socio-cultural conditions that the iPod corresponds to in particularly characteristic ways:

> Non-mediated experience creates a sense of vulnerability in many users. This sense of vulnerability refers to the perceived uncontrollable nature of their own stream of consciousness and the cognitive states associated with it. Cognitive control comes with technological mediation in iPod culture. IPod use permits users to saturate periods of 'non-communication' with their own intimate, familiar and comforting sounds. (2010, p.58)

The habituation to background ambient messages from continuous broadcasting media such as radio and television is another pre-existing cultural condition that Bull argues transforms the site of experience and moulds our sensory expectations (2000, p.175). In that, iPod culture (and by extension – smartphone culture) arrives to a context of sensory conditioning that is adapted to decades of background music in shopping malls, a continuous stream of beeps and buzzes in most public and commercial spaces, an ever-increasing urban noise pollution, and an erosion of public/private distinctions. The 'habitual desire to aestheticize' urban experience then is both a vestige of consumer culture and a response to many of its ecological consequences, a hybrid approach that engages both everyday and musical listening (2000, p.175).

The question of why people listen to personal stereos has been addressed through a variety of studies over the relatively short time that the technology has been with us since the introduction of the Walkman in 1979. While Michael Bull's work, which dates back to 1993, adopts a sociological and culturally-informed theoretical approach, there have been a number of direct survey studies reporting on the 'sentiment' associated with mobile listening. Typically, such studies involve a framing of musical listening as an enhancement or augmentation of daily life (Sloboda, O'Neill & Ivaldi, 2001; Kallinen & Ravaja, 2007) related to behaviour, mood, cognition and socialization; an escape (RAB,

2006) as well as agency (DeNora, 2000), emphasizing music's role as a resource for self-regulation, construction of identity, emotional wellbeing and health (DeNora, 2000, 2005). A number of sociological surveys on portable listening find that people listen to music on-the-go primarily to pass the time, for enjoyment or to accentuate an emotion of their choosing[8] (North et al., 2004; Heye & Lamont, 2010). Mobilizing the concepts of absorption, dissociation and 'trancing,' Ruth Herbert (2011) argues that the inner world created at the site of mobile listening is a "hypnotic-like involvement in daily life," part of a self-regulatory process that operates at the level of unconscious awareness and is deeply participatory. She argues that the kind of multi-distributed attention prevalent in much of contemporary (mediated) listening is not necessarily indicative of superficial engagement, but is rather a practical strategy that utilizes music as a mediator of experience. In a more recent work on iPod listening, Bull (2007) builds on his prior work on personal stereos by focusing specifically on the activity of movement and travel in the context of urban life. One of his central suggestions is that cultural practices around portable audio are largely defined by a desire for intentional and designed *continuity* between spaces, times, routines, emotional states and aesthetic experiences in urban environments (2010, p.57).

The idea that travelling with an iPod engenders a reorientation and a re-spatialization of experience (Bull, 2005, p.348) is another key concept in the general discursive framework of mobile listening. Bull's own notion of the 'auditory bubble' exists in constant tension and contradiction with the sense of deep connection and harmonization with the surrounding environment that individuals procure precisely by using iPods as strategies for managing urban life (Heye & Lamont, 2010, p.97; Herbert, 2011). Several early texts on the culture of portable audio emphasize the significance of considering the listening experience as an intersection of audio content, movement and setting – in other words, a listening experience that is not only situated in but also co-constituted by the emplacement and embodiment of movement (Hokosawa, 1984). The idea of mobile listening being a movement-based paradigm has been developed in many more contemporary cultural studies works as well as sonic art projects (Thibaud, 2003,

[8] I am compelled to add here that these three reasons are literally the most common reasons my students bring up, year after year, in describing why they listen to iPods.

2011; Gardner, 2008; Wershler, 2008; Becker, 2010; Thulin, 2013; Bull, 2007; Beer, 2007). One of the central notions around the experience of mobile listening is that it engenders new meanings at the intersection of movement, urban space, events and actions set against the aestheticized experience of a personal soundtrack. Similarly to Bull, DeNora and others, Thibaud (2003) positions mobile listening as an ostensibly urban phenomenon – a cultural practice that in fact co-constitutes urban experience as 'sonic, built and visual' whereby temporal and spatial realities intersect, interrupt and coalesce (p.335). Thibaud argues that in using a portable audio device, city dwellers are continuously "decomposing the territorial structure of the city and recomposing it through spatio-phonic behaviours" (2003, p.329). By enhancing and filtering the events that make places meaningful "…the walking listener makes the 'in-between' an essential category of structuring urban territory" (p.335). Invoking themes such as private and public space, perception, action and movement, as well as visible and audible horizons of experience, Thibaud argues that mobile listening constitutes a cultural tactic for engaging with urban life, forging a relationship with the surrounding environment on one's own terms:

> Whatever the tactic applied, the Walkman user is situated within two simultaneous sonic worlds. We are referring in this case to an interphonic knot – in other words, the point of convergence between two sonic spaces of a different nature – that of the walking listener and that of the street. (p.335)

The framework of 'tactics' once again evokes de Certeau's (1984) notions of everyday resistance and as such signifies a slightly different discursive trajectory of portable audio listening – one that situates the technological artefact as an possibility for reconnecting with the surrounding sensory environment, not as a disconnection from it. In fact, Beer (2007) actively challenges Bull's conceptualization of iPod listening as providing seamless auditory continuity. He points out, similarly to Thibaud, that the actuality of mobile listening (be it aesthetic, informational or telephonic) involves constant interruptions by external signals, which either interfere with the 'auditory bubble' or necessitate the user's active attention. As Richardson (2009) points out, "the mobile phone is experientially discontinuous, 'puncturing' time and space via the sporadic and unpredictable contingency of unexpected calls and text messages" (p.1218). This re-orienting of the discourse on mobile listening towards a participatory rather than escapist practice reflects the changes in technological possibilities that have, over time, spurred

on emergent socio-cultural practices. Art initiatives are some of the earliest harbingers of active engagement with place, culture, meaning and community using increasingly ubiquitous convergent technology. As Samuel Thulin (2013) describes in a recent article on augmented reality apps for mobile smart devices, there is already a wealth of artistic engagement with mobile listening experience, with the smartphone bringing another level of possibilities for sensory engagement, cultural production and augmented experience. Long-standing artistic initiatives engaging mobile audio technology in relationality with space, place and movement include Janet Cardiff's (2005) *audio walks* that take listeners on guided tours through select urban soundscapes; Terri Rueb's (2007) GPS-based sound walks that superimpose audio content from one place onto another; Christina Kubisch's (2004) 'electrical walks' series that transform magnetic fields from the environment into audible sound; and Layla Gaye's (2003) *Sonic City* project, which takes the idea of city-as-interface and allows interaction with it through movement. In *Sonic City* in particular, movement is an interactive form of musical composition that transforms everyday experience into aesthetic practice: "Encounters, events, architecture, weather, gesture, (mis)-behaviours – all become means of interacting with, appropriating, or playing the city" (Gaye et al., 2003, p. 109).

The theme of *space* is a central one for many mobile sonic art projects, whereby space is a political and ideological concept, and technological artefacts are potential agents of democratizing transformation – an unfolding of possibilities "to represent, identify, present, agitate, create, craft movements, and, as well, demand new structures and forums for justice" (Gardner, 2008, p.197). In this sense, mobile audio technologies rather than constitutive of cultural practices are seen as defining of cultural spaces. Building on the concept and history of telephony, the [murmur] project (Wershler, 2008) utilizes a set of pre-recorded personal audio narratives available via a phone number posted in random places across several countries. By invoking the dreaded 'displaced' listening of recorded sound and juxtaposing the intimacy of audio narratives with the public quality of communal space, the project seeks to trouble the public-private dimension of listening experience so frequently associated with both the iPod, the cell phone and the portable smart device (p.410). As Paula Gardner (2008) notes in an exploration of technology and activism, the difference between virtual (internet) space and mobile (physical) space recedes in the context of mobile technology:

> Where a differentiated and evolving subjectivity is possible on the Internet, mobile spaces engage subjects in an ongoing negotiation of and play with the false dichotomies of public/private; inside/outside; narrowcast/broadcast; active/passive; linear/non-linear; self/other; material/virtual; analog/digital; art/design; empiricism/creation. (p.197)

Connected with the conceptualization of portable audio listening as a re-territorialisation of urban experience, another contemporary phenomenon that has experienced significant popularity in the last decade across both artistic fields and participatory media culture is the practice of soundmapping. Typically involving a smart device for the creation of geo-tagged audio recordings, sound maps are (virtual) geographic collections of individual sonic impressions of place. Projects such as *Urban Tapestries* (Lane et al., 2005), *Radio Aporee*'s global participatory online audio contribution map, and *HASTAC*'s international collaboration of regional sound maps (Ceraso, 2010), are manifestations of this increasingly globalized and networked new media practice. The growing interest in what Théberge (2005) discusses as 'cybercartography' reflects a wider set of sound studies issues that intersect listening, sound and place and inform cultural, aesthetic and geographic dimensions of new media ecology closely linked to the dynamics of portable smart technology. As a result of new technological features, as well as the cultural context of their use, mobile smart devices diverge from dominant conceptions of mobile music listening as means of disconnection and retreat into one's own private world. Instead, apps for smart devices are being conceptualized as fostering active participation with the surrounding environment through making use of locative media and real-time measurements of movement, speed and other external parameters. These types of possibilities arguably amount to a shift in technologically mediated listening from a primarily receptive to interactive and participatory modes of engagement. Such mobile listening practices exist in a cultural space of digital sociality and a new hybrid public sphere defined by both material structures and physical environments, as well as by virtual spaces and electronic media (McQuire, 2006). Lev Manovich (2003) frames mobile media as enabling a "poetics of augmented space" whereby the listening subject moves through "physical space plus layers of data" – a site of both collision and harmony between lived experience and a secondary layer of (technologically) aestheticized environmental content.

Another ideological construction that is often problematized in mobile listening is the tension between public and private space, as well as the cultural construction of public and private technologies. These tensions are especially relevant in discourses around mobile telephony (Richardson, 2009; Goggin, 2006). Between discussions of cell phone etiquette (Dvorak, 2012; Lasar, 2010) and the portability of voice (Goggin, 2006), cell phones, akin to sound reproduction technologies, engender yet another narrative of displacement – a multiplicity of presence, intimacy and listening attentions localized in micro-acoustic ecologies. As Richardson suggests in discussing the concept of tele-presence with regard to mobile phones:

> …the locus of our perception is distributed between the 'here' and 'there', such that we can know different times and spaces simultaneously, an effect which shifts the boundaries of what 'immediacy' is, and how it is defined and experienced. (2009, p.1219)

As such, mobile phone listening is instrumental to the construction of a new public sphere, one that encompasses a range of cultural activities related to connectivity, sociality, portability, interaction and customization. As Goggin argues, alongside Ito and Jenkins' larger conceptualizations of new media practices, cell phones recast existing communication technologies into a culture of 'networked' sociality (2006, p.16) at the same time as establishing themselves as 'technologies of everyday living' (p.10). Arguably, one of the major shifts that mobile telephony brings to the stage of mediated listening at present is *interactivity* (Beer, 2007). Predominantly, artistic and educational projects that capitalize on aspects of mobile listening are aimed at reversing the 'aural solipsism' (Bull, 2004, p. 278) of disengagement from everyday soundscapes as a form of managing urban life. Such initiatives attempt to invite the mobile listener to re-engage with spaces, communities, technology and material experience (Thulin, 2013). The reason why these projects hold relevance for an exploration of listening with technology is not so much in their capacity as 'past work' or 'examples' of technological use. Rather, these works constitute a discursive domain that has historically moulded and shaped our definitions and understandings of mobile communication technologies, including listening practices, auditory values, and spheres of ideological, geographical and epistemological significance. Yet, more often than not, we find little discussion or attention to the dynamics of sensory experiences that precipitate in the course of engagement with experimental mobile installations, art projects, games and workshops. As Frances Dyson

(2010) points out in her recent text *Sounding Out: New Media*, the discursive tradition of new media aesthetics suffers from a chronic neglect of the aural dimension. By historicising the rhetorical framework of new media through discourses of cyberculture, Dyson suggests that while aurality has played (and continues to play) a significant part in constructing the tropes of new media art, its indebtedness to sound is often understated: "sound is simultaneously neglected and appropriated by the rhetoric of immersion and embodiment that have inaugurated new media discourse and have announced new media as new" (Dyson, 2010, p.6). Exploring listening with technology then, entails situating the problematic of listening within a historical lineage of other mediated sonic practices and within a cultural context of new media, with the recognition that listening both constitutes and is constituted by the tropes, discourses and practices of new media culture. As Kate Lacey (2013) observes in relation to the politics of listening in the media age, the interplay of expressive and receptive attitudes that scaffold the formation of a public sphere set against the 'everydayness' of technologically mediated practices can be expressed through the notions of listening *in* and listening *out*:

> Listening then, metaphorically, and in practice, goes to the very heart of questions to do with the politics and experience of living and communicating in the media age. The experience of listening among media audiences has shaped media technologies, aesthetics and communicative practices. The re-sounding of the public sphere and the alignment of a listening public alongside a reading public has brought with it new dimensions of embodiedness, affect, inter-subjectivity and plurality. (2013, p.199)

Some of the new practices made possible by the development of new media technology, in this case, the convergence of portable stereo, cell phone and mobile computer into one super device – the smartphone – bring with them entirely new relationships to mediated listening, space, movement and urban experience. In a re-take of McLuhan's idea that the sensory modes of technology alter our consciousness, Richardson (2009) posits that mobile technologies redefine our schemata of being-in-the-world and engender alternative involvements with presence, identity and embodiment (p.121). While mobile listening has been overwhelmingly defined in relation to the iPod, the portable smart device is, in contemporary scholarship, discursively developed as an extension of the cell phone (Goggin, 2006); even though it is a much closer relative of the personal computer. The cell phone is construed as a mediational technology that transforms inter-subjectivities and forms social relations specific to particular socio-

cultural settings (Kavoori & Arcenaux, 2006; Katz & Aakhus, 2002; Ito, Okabe & Matsuda, 2005; Plant, 2002). The smartphone, in turn, is theorized primarily in terms of networked sociality, as a technology for identity construction (Ito, Okabe & Matsuda, 2005), and as a tool for musical engagement (Thulin, 2013). More recently, smartphones have gained traction in the fields of education and media studies as potentially transformative tools for learning through activities such as podcasting, microblogging, media production and social networking (Shilston & Lund, 2009; Cochrane & Bateman, 2010). Still, work on the dynamics of mediated aural experience through exploration of specifically *sonic* practices with portable smart technologies remains scarce. Within the lineage of portable audio listening, mobile telephony and smart technologies occupy a discursive space that includes both the disruption of a public-private divide and a redefinition of tele-presence, as well as a potential for interactivity, social participation and media production.

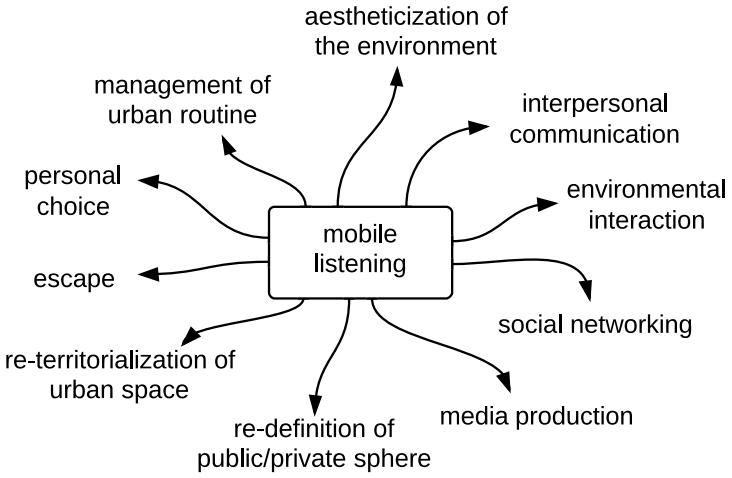


Figure 2. Prominent discourses of portable audio listening and mobile telephony

Narratives of mobile audio listening as an 'escape,' 'urban alienation' or 'withdrawal' from the world have, over time, given way to narratives of 'urban territoriality', 'movement' and 'management of everyday life' – a shift that puts a new interpretive lens on the way meaning is invoked in the course of technological use and how it connects with constructions of technologically mediated listening (Figure 2). As a testament to the discursive gap between some of the first conceptualizations of portable stereos and the possibilities opened up by contemporary mobile technology, the following note made by

Paul du Gay about the Walkman reflects a dominant cultural positioning of the personal stereo in terms of its limitations as a generative cultural artefact:

> You can play the actual Walkman but you can't think with it, or speak or write with it. Meanings bridge the gap between the material world and the 'world' in which language, thinking and communication take place – the 'symbolic' world. (1993, p.10)

While meanings still bridge the gap between the material and the symbolic world, it can be argued that the convergent possibilities of the smart portable device actually invite the continuous re-materialization of phenomenal experience through multimodal representation. Aestheticizing the urban environment in the context of smart mobile technology takes on the form of sampling, recording and sharing the materialities of (inter)-personal history, which brings a different kind of artistic sensibility to the stage of social media participation. My project aims to begin to unravel some of the new cultural practices that involve mediated listening with portable smart technologies; practices that are already at play and are situated within a new media culture and informed by social media participation and mobile communication (Thulin, 2013; Lacey, 2013; Waldock, 2011; Pennock & Clark, 2011; Ceraso, 2010; Théberge, 2005; Bass, 2011). The process of capturing and using sound recordings constitutes, I argue, a particular new media practice of mediated listening, one that bridges the gap between the user-as-audience, characterized by receptive listening to individualized audio content, and the cultural sphere of the 'pro-sumer' and 'prod-user' whereby aestheticization and documentation of everyday life are recast in the context of participatory listening (Lacey, 2013, p.186). As Walter Benjamin (1967) eloquently articulates, the aesthetic politics of working with recorded and reproduced material has the potential, even in a wider context of consumerism and cultural acquiescence, to engender creative resistance. In sonic terms, this kind of conceptualization of audio reproduction aligns much more directly with the context of my study – that of participatory culture; a culture of re-mix, recording and technologically mediated communication. The question is, what are the dynamics of listening with technology that define the recording of sound as a creative and participatory cultural practice? The answer, I suggest, entails disarticulating 'receptive' paradigms of sound reproduction and mediated listening from 'productive,' creatively-oriented uses of technology and respectively 'engaged' authorial approaches to listening.

2.3.4. Recording as a mediated listening practice

> *Recording is a form of exteriority: it does not preserve a pre-existing sonic event as it happens so much as it creates and organizes sonic events for the possibility of preservation and repetition. Jonathan Sterne, 2003a*

It might seem that this work ought to be called 'recording with technology' rather than 'listening with technology' because the project involves asking people to record their everyday soundscapes and not simply listen to them. While listening is only recording in the most intangible of ways - inasmuch the 'aura' of sonic experience imprints on our imaginations and memory, recording almost always entails a mode of listening, especially when the recordist monitors the recording using headphones. A recording with even the smallest of intentions involves a multitude of ideas about the dynamics of sound, the manner of its representation or 'staging', the use-value and purpose of the recording, and ultimately – the audience. If not directly present, listening is always implicated; if one listens and records at the same time that mode of listening could be said to be a hybrid of the conditions of acoustic experience and electroacoustic mediation. As Westerkamp (1998) describes, listening through a microphone engenders an aural experience quite distinct from both un-mediated listening and listening to media soundscapes:

> ...the whole experience feels to the recordist as if he or she is more intensely inside the soundscape, because the sound is closer to the ear and usually amplified. But in fact, the recordist is separated from the original direct aural contact with the soundscape, especially from the spatial realities of closeness and distance. (p.7)

The questions involved in recording everyday soundscapes with portable smart devices (which typically don't not involve an external microphone) include, how has mediation historically shaped the forms and functions of listening and recording with technology; how has the practice of recording historically converged with modes of listening; and how have recording subjectivities shifted over time. The distinction between sound recordings as art or as documentation can be transformed, for the purposes of this survey, into two dominant narratives that can be traced across existing work in cultural studies, anthropology and music – recording as *preservation* of sounds, and recording as *aestheticization* of the sound environment. From the earliest recordings of music and voice, to early audio recordings in anthropology, the possibility of capturing sound has

been an important way of archiving significant cultural events and artefacts as part of a larger culture of preservation (Sterne, 2003a, p.292). In situating the practice of preservation within a larger narrative of modernity's 'fear of decay,' Sterne points out that the ideal of audio recording was less about preserving sound (or voice) in its original than about preserving it in a form that best serves an appropriate social function: musical appreciation, cultural heritage, object of study, commercial artefact or formal documentation (p.297). Much of the rhetoric of early anthropologists who engaged in audio recording of indigenous and native cultures – capturing voices and musical rituals specifically – was motivated by a misguided campaign to "preserve the voice of dying cultures" (Sterne, 2003a, p.311; Makagon & Neumann, 2009). Songs and stories deemed significant by Western researchers have since become – preserved in their auditory format – the *de facto* cultural heritage of today's indigenous peoples across North America (Sterne, 2003a).

Given this ideologically charged history of audio recording as documentation, moving forward it is important to problematize the idea of *staging* sonic content and the construction of its symbolic significance. A case in point is the culturally defined distinction between 'special' and 'everyday' sounds and soundscapes. While the recording of music and voice has a long history, interest in recording the soundscapes of everyday life is a more recent phenomenon. The fact that the first wildlife recording of a bird's call was made by Ludwig Koch in 1889 (Lane & Carlyle, 2013) actually invokes another dominant theme of preservation – that of decaying nature and animal life. It has taken many decades for anthropology to embrace the everyday sounds of cities, routines and in general *ordinary* human activities (Ingold, 2000; Pink, 2009). That movement is itself an ideological and methodological response to the largely hermeneutic and visual turn that characterized ethnography in the 1970s onwards (Howes, 2003, p.46). Interest in sensory anthropology has been renewed relatively recently, and with it attempts to re-capture the multimodality of everyday life by adding audio recording to the ethnographer's toolbox (Pink, 2009). To that end, the practice of field recording has a particular history, separate from, yet intertwined with narratives of sound reproduction (Lane & Carlyle, 2013). In one sense, field recording – the act of recording in a natural rather than controlled environment – carries with it an element of resistance to commercial audio culture in that it captures sounds that don't necessarily

have consumer appeal and might not otherwise be recorded (Petrusich, 2007). Field recordings are utilized in a diverse field of practices including art and composition, journalism, archival science, environmentalism, education, geography, urban studies and anthropology (Lane & Carlyle, 2013). As forms of documentation, field recordings also carry with them the implication of aural voyeurism – peeking into the internal experiences of others and preserving them on tape (Petrusich, 2007). The shift from recording 'special' events, people and registers of soundmaking, to recording the minutiae of everyday life is a particularly significant transition in the construction of field recording as a cultural (and methodological) practice.

As a disciplinary perspective, *historicity* marks an epistemological moment through a shift of knowledge legitimation away from focus on the extraordinary towards a focus on the ordinary (Murphy, Marontate & Truax, 2011). Research into the everyday introduces a separation between ourselves and everyday life reflected in the exteriority of the recorded past and audio documentation; it is an act meaningful equally for ourselves and yet inevitably focused outwards, intended for the other (Sterne, 2003a). The cultural enactment and mobilization of memory is thus one of the most significant aspects of the recording process. According to Sterne, audio recordings are not so much memory artefacts but mnemonic devices that serve the function of symbolically externalizing cultural significance. Similarly to taking a photograph, an audio recording of everyday life is a way of demarcating significant moments through the vivid embodiment of 'sound souvenirs' (Benschop, 2009; Bijsterveld, 2009). Similarly to the lens of the camera, the microphone 'frames' the audible contours of a soundscape. To borrow the advertising logo from a popular brand of notebooks: "I'm not recording to remember it later, I'm recording to remember it now" (fieldnotesbrand.com).

A now classic staple of historical soundscape documentation, the *World Soundscape Project* (1973) and related soundscape documentation initiatives led by Schafer retain the axiology of preservation of dying cultures – in this case the cataloguing of 'disappearing' sounds and threatened acoustic communities, particularly the sounds of nature and pastoral life. However, these projects also celebrate and validate the everydayness of 'ordinary' sounds, whose significance isn't necessarily institutionally legitimized; rather they gain meaning in inter-personal, relational and

routine occurrences (Schafer, 1977; 1986). Over the years, the WSP has come under critique for a number of important reasons, some of which involve the subjective and ideological selection of the documented soundscapes[9] and the specialized approach taken to field recordings (McCartney, 2005) – through the use of pro-level equipment, microphones and controlled recording conditions over several decades of project iterations, e.g. in the case of the *Vancouver Soundscape Project* (1973-2013). The recordings present soundscapes as what Imbert Orchard (1974) terms 'documents in sound' and implicate a mode of attentive listening unfettered by the presence and subjectivity of the recordist; the staging of this kind of audio documentation implies an 'authentic' account of sounds 'as they really are' (McCartney, 2010). The fact that WSP recordings are produced by a research team rather than by 'ordinary' listeners in turn raises questions of subjectivity with regard to location and archival choices that involve not only each researcher's sensibility, but also the overall institutionalized agenda of the study (Murphy, Marontate & Truax, 2011; McCartney, 2012). The same critique can be raised, of course, about a plethora of similar soundscape studies (Kautonen & Koivumäki, 2010; Järviluoma et al, 2006; Wagstaff, 2002; Uimonen, 2010; Järviluoma et al, 2009). As Westerkamp emphasizes in reflecting on subjectivity, the physical, psychological, political and cultural aspects shape each act of recording and listening: "... this particular microphone, this particular recording presents only one truth about the environment" (1994, p.89-90).

Interest in the acoustic environment as recording material is undoubtedly one of the defining characteristics of the legacy of the WSP. One of the sonic art practices to emerge out of engagement with the ideas of acoustic ecology is the electroacoustic form of soundscape composition. Soundscape composition involves the use of field recordings as creative material typically in conjunction with electroacoustic manipulation and re-composition (Truax, 2013). Often utilizing natural or otherwise 'everyday' sounds, soundscape composition aims to both blur the boundaries between the manipulated and the real, and at the same time to profoundly aestheticize the inherent characteristics of the original recordings. In that respect, soundscape composition is somewhat antithetical

[9] While the name of the WSP reflects intentions to document many more of the world's soundscapes, the project focused on five relatively rural Western European villages.

to Schaeffer's ideal of acousmatic music where all reference to a source or meaning are obliterated in place of pure musical appreciation. Soundscape composition strives to actively connect listeners to the sound referent and invite them to experience the meanings and associations that familiar sound brings up (Truax, 1984). The historical lineage of aestheticizing everyday sound can be traced back to a number of avant-garde composers of the 20th century such as Xenakis, Satie and Cage. In the realm of early tape music Luc Ferrari's *Presque Rien*[10] series stand out as a turning point for the re-definition of musical work and the status of artist or producer in relation to the practice of field recording. Working against the 'bourgeois myth of the composer' Ferrari's pieces make use of recording technology to "capture a slice of life and thereby transform it into an object of aesthetic contemplation" (Drott, 2009, p.145). By presenting an unmediated, non-manipulated soundscape as musical work, Ferrari stretches the definition of composition and yet democratizes the domain of music through the use of consumer technology that defies music's narrative of specialization (Drott, 2009, p.152). In line with cultural developments around field recording as a practice that involves both artistic and archival qualities, Ferrari's continued work on the *Presque Rien* series reflects an increasingly ethnographic ear combined with a composer's aesthetic sensibility:

> …these things, which I call 'The Presque Riens' because they are lacking development and completely static, because really almost nothing happens musically, are more reproductions than productions: electroacoustic nature photographs – a beach landscape in the morning mists, a winter day in the mountaintops. (Ferrari, cited by Drott, p.158)

Just like the story of photography, which started as a highly specialized practice requiring heavy, expensive equipment and special training, audio recording has experienced a transition from a highly specialized form of technologized documentation, aimed at a limited array of subjects and purposes, to a genre of 'middlebrow' art (Bourdieu, 1990b) at the height of modernity, and more recently – to a participatory cultural practice, part of new media's arsenal of 'technologies of the self.' As a populist phenomenon, appreciation of both photographs and audio recordings of everyday things requires no more than a reference to the schemata of everyday experience – something

[10] As an example, *Presque Rien* No.1 (fr), which means "almost nothing," is an unretouched recording of an early morning soundscape at a fishing village on the Black Sea.

Kant terms a 'vulgar' form of aesthetic interpretation (Drott, 2009, p.156). With the spread of cheap and easy-to use cameras as early as the 60s, Ferrari and others saw the potential for audio recording to become the next frontier of amateur art practice – the emergence of what he called 'anecdotal music'. Released in 1982, the *Walkman Professional* lifted the aura of technological complexity from the practice of audio recording with a commercial mass-audience product that featured recording capabilities on-the-go (Brooks, 2012). For the first time, audio recording of personal life events became possible outside the home. More importantly, for the first time, recording decisions became the purview of a non-specialist general public. And once again, the story of audio recording as an everyday practice lines up with (albeit slightly behind) contemporary developments in consumer photography through explorations of the camera phone (Goggin, 2006; Ito, Okabe & Matsuda, 2005; Gye, 2007; Hjorth, 2007; Daisuke & Ito, 2003). While not entirely analogous to *phonographic* experience, works exploring cultural practices around the camera phone provide an invaluable model for thinking about sound recording with mobile devices.

One of the central notions in the history of everyday photography is that the desire to photograph (analogous to the desire to record) is culturally constructed and woven into a larger fabric of 'private' technological practices (Bourdieu, 1990b; Gye, 2007). Questions of identity and memory are discursively positioned as central to visual preservation – similarly to how we might theorize the practice of audio recording. As Gye points out, the rise in popularity of personal photography signals an "emergence of a correlation in the public imagination between photographic practice and private memorialization" (2007, p.230). While photography has a long and rich history, the particular cultural possibilities of the camera phone work to actively re-configure the act of photography and the experience of *seeing* (Ito, Okabe & Matsuda, 2005; Goggin, 2006). As Daisuke and Ito point out (2003), it is the camera phone (and not simply the portable camera) that has most significantly redefined what is 'picture-worthy' in the course of everyday life. By extension, the practice of mobile sound recording can be problematized in terms of the way it shifts our relationship to the soundscape, as well as our experience of listening, presence, intimacy and embodiment (Bull, 2007; Gye, 2007; Richardson, 2009).

In a cultural space where old and new media coexist (Jenkins, 2006b), smartphones are theorized as bringing about new hybrid material, sensory and social dimensions to the narratives of convergence culture and new media participation (Goggin, 2006; Squire & Dikkers, 2012; Ito, Okabe & Matsuda, 2005). Analogous to patterns of camera phone use, smartphone audio recordings can be seen as instrumental factors in the re-making of place, context, memory, as well as the construction and communication of identity. Strongly characterized by the 'power of now', photographic and phonographic practices with mobile devices redefine not only aesthetic expression but also temporality (Goggin, 2006, p.141). While portable audio recorders have been around for several decades prior to mobile telephony, it is precisely the convergence of possibilities for the consumption and production of media, as well as its position as a ubiquitous personal device that renders the smartphone an incubator for new media practices and a mechanism for emergent audile techniques. As Kate Crawford (2009) suggests in staging 'listening' as a metaphor for social media presence, mediated practices engendered by new technologies are often precipitated by paradigm shifts in material experience, social relations and subjectivity (p.88). In arguing for an auditory epistemology of everyday mobility, Bull emphasizes that "the very meaning of what it is to 'look' or 'hear' is irredeemably media linked" (p.4) – just as the experience of mediation, in the words of Kate Lacey (2013), has become "increasingly difficult to think about as somehow separate from 'authentic' experience." (p.193).

In a cultural ecology of social media participation the smartphone has transformed the art of field recording into an everyday practice of mixed-reality listening just as the camera phone has transformed photographic practice into a form of mobile social communication. In that, smart devices have the potential to be tools for experiencing outward as well as turning inward – a technologically mediated way of re-engaging the senses after decades of receptive mobile listening to both telephonic voices and surrogate media soundscapes in the context of urban everyday life. As the availability of audio and video recording of sufficient quality gain popularity in the cultural purview of smartphone use, the practice of recording is arguably already reconfiguring what is 'record-worthy' through the staging of everyday soundscapes in new media formats. Between remix culture, digital citizenship and social networks, the story of new media is already one of engagement and participation in a 'networked publics' (Ito et al., 2010).

What I hope to contribute with my project is a better understanding of the dimensions of sensory experience that characterize the use of mobile technologies as agents of cultural participation. Rather than adopting a symbolic view of listening as a metaphor for engagement in the media age (Lacey, 2013; Crawford, 2009), I aim to problematize listening as a *perceptual* and *cultural* process, with audio recording being a form of media practice that engenders particular dynamics of aural experience. Whether mediated through personal headphones, the microphone or the stereo system, listening patterns both affect and are affected by the configurations of dominant technocultural practices. In the context of new media culture, the problematic of recording as a form of mediated listening mobilizes larger themes of cultural participation, our relationship to the mediated and non-mediated soundscape, the aestheticization and documentation of sensory experience, and aspects of technological literacy, or 'technicity' (Dovey & Kennedy, 2014). The kinds of environments created by media and technology that Penley and Ross (1991) term *technoculture* can be conceived of as a stage for the unfolding of the story of listening in a new media context; the environment in which we listen, with technologies that are increasingly 'second nature.'

2.4. A technocultural problematic

> *We do not see media or technology as determining or impacting society, culture or individuals as an external force with its own internal logic, but rather as an embodiment of social and cultural relationships that in turn shape and structure our possibilities for social action and cultural expression. Mizuko Ito et al., 2010*

So far in this chapter I have traced a number of important discourses around the construction of sound and listening as phenomenological practices as well as sensory dimensions of communication technologies. By historicizing the conception of media as acoustic – a vestige of early communication theory – I hope to demonstrate the implications of that discursive tradition for understanding mediated sound in the context of contemporary digital technology. While accounts based on an oral-literate-electronic premise can essentialize important aspects of sound and listening, historical explorations informed by cultural studies (Sterne, 2003a; Thompson, 2002; Lacey, 2013; Bijsterveld, 2013) take up the phenomenon of sound reproduction and mediated

listening as cultural processes deeply bound up with material, social and cultural realities. As I've attempted to demonstrate leading up to an exploration of recording with portable smart devices, the story of mediated listening is predicated on several important narratives: the dynamics of mediated listening as intricately connected to the emergence of sound reproduction and the staging of sound across media; the construction of 'mobile listening' in relation to the technology of the portable stereo player; the 'democratization' of sound recording from a specialized to an everyday practice; and finally, the context of new media culture as a backdrop to the intersection of listening, technology and everyday life. Ultimately, the question of how people construct meaning through recording their everyday soundscapes using portable smart technologies is as much a sound studies question as it is a technocultural question. The manner in which themes of convergence, participation and interaction intersect everyday practices of mediated listening links aural experience in profound ways with the tropes of new media as a prominent cultural paradigm. Vestiges of receptive medial listening that characterize so much of late 20th century audio technology now co-exist with, and in a sense have given way to, a model of engaged digital citizenship alongside social networking and participatory practices that involve multimodal interaction and media production. Similarly to taking photographs with the camera phone – a phenomenon that has been at least to some degree historicized and theorized – sound recordings with mobile smart devices embody the history of both 'old' media listening typically characterized as 'receptive' and 'new' media listening that arguably involves interactivity and participation. Sound recordings in this sense are a form of mediated communication that both represents and defines everyday (multimodal) experience.

Aside from its many problems and caveats, the transition from a consumer to a 'pro-sumer' culture with the proliferation of affordable convergence media technology (Jenkins, Ford & Green, 2013), positions the listener as also a producer of sound, a sound designer of sorts. Even casual 'sharing' of a recording on social media networks renders one (if in a minimal and indirect way), potentially a musician, a scientist, a journalist. The act of generating a media artefact stages everyday life as content, an extension of both identity and memory (Bijsterveld, 2009). In so doing it reconfigures place and context (Gye, 2007) and frames patterns of mediated communication and dialogue (Gunkel, 2008). The possibilities of recording, manipulating, measuring, re-

mixing and broadcasting sound that are part of the technological design of smart devices arguably engender a set of audile techniques characteristic of new media culture. Such audile techniques are likely to be constituted both by listening to everyday environments through a device also used for telephonic communication, as well as contending with sound quality analogous to that of the MP3 compression format (or worse). Through recording, sharing and audio-blogging, users enact the kinds of new media competencies that Jenkins et al. (2006) outline as part of a conceptualization of participatory *convergence* culture. The research objective in my study thus circumvents exploring the dynamics of mediated listening as a *receptive* process, and focuses on exploring the practice of recording everyday sound as a form of *participation* and cultural production, a 'listening out' to the surrounding soundscape (Lacey, 2013). To do that requires looking into how users of technology stage their own mediated renditions of everyday aural experience and what sorts of assumptions about listening and soundmaking underlie this form of cultural engagement. In the next chapter I'll explore in more depth the methodological framework aimed at addressing these questions.

Chapter 3. Methodology

This work brings an ethnographic perspective to the exploration of sensory experience situated in the sphere of everyday life – the ordinary 'praxis' of inhabiting a cultural space. Inhabiting a cultural space, in turn, implies constant reference not only to contemporary technological and medial practices but also to their historical articulation as 'crystallizations of social relations' and learned sensory techniques (Bourdieu, 1981; Sterne, 2003b). Regardless of whether or not they form the personal history of each participant in my study, the foundations of mediated listening, as presented in the previous chapter, constitute a collective cultural memory, a matrix of inter-subjectivities and practices that have evolved historically around media and communication technologies in urban Western societies.

When doing ethnographic work in the context of new media culture, the use of technology is particularly critical to researching questions about listening and everyday experience. To that end, I borrow extensively from Sarah Pink's (2012) model for doing sensory ethnography including conceptualizations of everyday practice, methods for attending to the senses, and guidelines for the production and use of media representations as part of ethnographic research. On one hand, ethnographic tools must be able to address the multimodal and multi-sensorial qualities of portable technology use; on the other hand, they should be able to provide a base for interpretive analysis beyond textual representation: using modes and formats that express the richness of phenomenal (both mediated and unmediated) experience. In this chapter I introduce in more detail the methodological approach for my study, including questions around research tools and technologies, as well as new media culture as a wider research context. Following that, I outline several specific sound-based ethnographic methods and approaches that inform my project. Finally I describe the study design and research procedure for my fieldwork with participants.

3.1. Technologies for research

> *Equipment […] is the medium through which logos is transformed into ethos. Foucault, 1982*

While Vincent Crapanzano argues that all ethnography is a provisional attempt at translating the language of culture and society, Steven Tyler's post-modern ethnography posits the notion of 'mimesis' – one language imitating another – to describe the work of producing ethnographic knowledge (Pink, 2009, p.51). If ethnographic interpretation is a type of language for representing cultural reality, then the tools we use to translate between 'languages' are not mere instruments for interpretation but also agents for constructing knowledge (Latour, 2005). Just as technologies for communication have historically shaped the material and cultural conditions of modernity, technologies for research – tools for documentation and data collection – shape the ways in which we generate ethnographic knowledge about the cultural contexts we study and inhabit. As many contemporary ethnographers and cultural theorists have pointed out, the modernist paradigm of cultural anthropology has been overwhelmingly textual and impassive: focused on 'reading' reality as a text (Collier & Collier, 1986; Rabinow, 2003; Clifford & Markus, 1986; Pink 2007) and combining these readings with technologies that aim to represent objectively a body of fieldwork 'data' (Pink, 2012; Sheringham, 2006). This focus on unfettered and cleanly interpreted images of data has, in large part, contributed to a privileging of ocularcentric research techniques and technologies, as well as an overarching visual hermeneutic in conceptualizing social relations. Studying (mobile) media culture within the paradigm of a textually-oriented ethnographic tradition essentially reduces multimodal phenomena to 'literate' forms of collection, analysis and discursive articulation (Pink, 2007, 2010; Makagon & Neumann, 2009). One response to these textually-oriented methodologies has been the advancement of visual research approaches in ethnographic practice, in particular the use of photography (Collier & Collier, 1986; Griffiths, 2002), videography (Pink, 2007; MacDougal, 2001) and in the case of mobile cultures – the cameraphone (Ito, Okabe & Matsuda, 2005, Gye, 2007; Hjorth, 2007). The field of visual ethnography, as well as the more modest area of sonic ethnography (Makagon & Neumann, 2009; Lane & Carlyle, 2013; Kittler, 1999) represent a historical shift and a re-positioning of ethnography from textual to 'modal' interpretation of culture facilitated by recording technology. Yet, while visual ethnography is at this

point a well-established methodology with a history of theoretical articulation and practical approaches to fieldwork, sonic ethnography is utilized, in the larger landscape of cultural anthropology, primarily as a mode for documenting ethnographic data towards discursive or otherwise textual analysis (i.e. interviews, researcher memos). Work that takes up aural experience as an object for study and/or conceptually adopts sonic methodologies towards researching culture remains scarce. This is precisely one of the gaps that I hope to address with my project by modeling sound-based techniques for doing media studies research that can at the same time support the aims of everyday sensory ethnography.

In historicizing anthropology's treatment of the senses as objects for study, David Howes (2003) credits the 1970s crisis of representation and the subsequent 'interpretive turn' in ethnography for the discipline's entrenchment in textual representations and discursive constructions of knowledge. According to Howes (2003, p.46), the widespread interest in the sensory dimension of culture that characterized early 20th century anthropology (e.g. in the works of Malinowski, Boas and Mead, cited in his article) was replaced by a greater reflexivity in situating the role of the researcher as part of a larger interpretive hermeneutic (Haraway, 1988). Only in the last decade or so have the practices and ideas of sensory anthropology gained renewed theoretical and methodological attention. Unlike Howes, however, Pink (2007) and others (Stoller, 1997) see the crisis of representation as a point of departure for modern sensory anthropology and subsequent advances in multimodal data collection. Two of the main trajectories that account for the role of the senses in studying culture are *multimodal research* (Dicks et al., 2006; 2011; Kress, 2011) and (everyday) *sensory ethnography* (Pink, 2009; Howes, 2003; Ingold, 2001). Multimodal research refers to the use of multiple media forms aside from text for capturing ethnographic information. Following the work of Durkheim, the recognition that social contexts provide "crucially important parameters for the production of meaning" has informed a social semiotics approach to multimodality as an analytical framework for constructing ethnographic knowledge using different modes of data collection (Dicks et al., 2011). As a contemporary articulation of ethnographic practice, multimodality represents a commitment to doing research through multiple media forms, while ensuring that the analytical framework used incorporates multimodal representations and artefacts as part of research interpretation (Dicks et al., 2006; 2011;

Kress, 2011; Flewitt, 2011). Sensory ethnography on the other hand, is founded on attentiveness to the multi-sensoriality of emplaced, lived experience through researcher immersion in the phenomenal world of her participants (Ingold, 2001; Classen, 1993; Pink, 2009). Sarah Pink identifies two dimensions of sensory ethnography – one that may be addressed through an "exploration of practice that is multi-sensorial and emplaced" (2009, p.2), and one that looks at how different sense modalities could be engaged in and attended to in the ethnographic process. According to Pink, the difference between multimodal approaches to research and sensory ethnography is that in more traditional ethnographic practice, the multimedia representations captured are 'read' as just another form of text; in contrast, the goal of sensory ethnography is to understand the way participants engage with everyday experience at a phenomenological level:

> To understand everyday life...I argue that we need to comprehend it from within - rather than by seeking to extract data about it to analyse somewhere else, to read it as if it were text or to try to read it from texts. It is through a theory of practice that we can comprehend the material, social, sensory and mediated environments of which everyday life [is a part]. (Pink, 2012, p.12)

In my study, I wanted to adopt an ethnographic perspective towards listening with technology that borrows from both sensory and multimodal methodologies. In both cases, contemporary ethnographers underscore the importance of multi-sensorial interplay and reject 'modality scholarship' (Kennedy, 2013) in favor of drawing connections between and among different modes of experience and modalities of perception. Rather than simply adopting a special attentiveness to multi-sensoriality into an otherwise traditional ethnographic practice, Pink (2009), Howes (2003) and Ingold (2001) frame sensory ethnography as a much more significant epistemological and methodological shift away from interpreting culture through text and language to understanding and representing culture through a broader and phenomenologically-inspired palette of multimodal tools and techniques. The question of research technologies thus comes to the fore as instrumental to both the collection and analysis of ethnographic data, as well as to the discursive framing of ethnographic knowledge about technology and media culture. The relative absence of sound-based methods and techniques from the practice of contemporary ethnography – including sensory ethnography – signals an opportunity for an epistemological intervention. To reiterate,

adopting a sound studies perspective towards doing ethnography does not necessarily de-emphasize other registers of experience – on the contrary, it is in the interplay of listening, seeing and material experience that the problematic of sound has the potential to bring a unique contribution to understanding everyday practices in the context of (mobile) new media culture. In the next section I'll trace some of the existing practices and theorizations of sonic ethnography in order to situate my methodological approach with respect to the use of recording technology and the role of listening as part of this ethnographic project.

3.2. Audio Recording in Ethnography

Field recording, sometimes referred to as *phonography* (Drever, 2002), involves capturing of 'found' soundscapes and other ambient research setting that may include but are not entirely focused on language the way, for instance, audiotaping interviews is a well-established form of collecting ethnographic data (Lane & Carlyle, 2013; Makagon & Neumann, 2009; Kittler, 1999). Early cultural anthropologists such as Malinowski (1979) and Stoller (1997) routinely used audio recording technologies to document ethnographic observations in the field (Makagon & Neumann, 2009; Sterne, 2003a). Two of the more significant works in the history of sonic ethnography, that have already been discussed to some degree, include Steven Feld's (1993, 1996) exploration of the Bosavi forest and the more substantive *World Soundscape Project* (1973) including the *Five Village Soundscapes* (1977) and the *Vancouver Soundscape Project* (1978). Steven Feld's ethnomusicology in particular offers a rich model for adopting sonic ethnography as an articulated methodology beyond its being an alternative form of data collection. Feld describes his practice of ethnomusicology as an ethnography whereby a researcher could maintain "a creative and analytic relationship to both the materiality and the sociality of sound" (p.462). In conceptualizing the notion of an 'ethnographic listener' Feld (2004) reflects on using and talking about audio recordings as a way of tracing the acoustemologies of place while remaining mindful of the habitus of listening that is historical as well as culturally-defined. It is specifically the ethical and cultural negotiation of sound recording that highlights the methodological directions for an anthropology of sound, as demonstrated in Feld's recollections of his initial encounter with the Kaluli:

> And the first day I was there, within two hours of arriving in the village, we heard sung weeping. Somebody had died. They said, ‘‘Get your tape recorder.’’ I didn’t understand the language. I didn’t know anything! So here I am, wham! with big Nagra [tape recorder] and headphones and microphone sitting among all these people who were weeping. I just sort of closed my eyes and listened and realized that I could easily spend a year trying to figure out the first sounds I was hearing. So much was going on with the sound and social patterning, in the relationship between emotion and sonic form and structure and organization. (2004, p.464)

Here Feld shares a (sadly) rare attentiveness, especially at the outskirts of a modernist paradigm, to the importance of acoustic listening to *place* before one engages the ‘ears’ of recording equipment. His work highlights the almost existential significance of being present in a particular physical and cultural domain prior to making sense of it in ethnographic terms, including capturing it as ‘data’. Feld’s approach to ethnographic audio recording in the service of understanding the listening culture of Kaluli people includes a form of ‘dialogical editing’ and co-listening; a method that does not necessarily require high fidelity sound, but rather, focuses on the shared listening experience where mediated sound is a tool for cross-cultural communication, and mediated listening is a form of dialogical exchange (Feld & Brennis, 2004). For Feld, doing ethnography-as-tape-recording/editing includes literally inviting participants to listen to his recordings, to re-mix sounds and provide input on the material captured in a process of ‘ethno-aesthetic negotiation’ (p.467). In his later academic practice, Feld describes using field recordings as a pedagogical tool that has the potential to engage students in a “sensuous, affecting, feelingful relationship with voice and place by listening” (2004, p.468).

The importance of listening to and being present in place, in conjunction with using recording equipment, is a significant aspect of another important sound-based initiative that I’ve already introduced in this work – R.M. Schafer’s (1973) *World Soundscape Project* (WSP). As one of the most influential ethnographies of sound, the WSP shares similarities with Feld’s work in that the ideas of acoustic ecology emerged out of the researchers’ lived experience listening to the urban sound environment, their professional training (as engineers, musicians, artists) as well as academic research interests fine-tuned through an attentiveness to sound. In terms of mobilizing audio recording, both Feld’s anthropology of sound and the WSP’s approach to exploring place and culture sonically reflect the tensions between mobilizing research technology

towards an objectivist, empirical science, and using recordings as means for intuitive understanding, creative work, participatory methodologies and activism. One of the reasons for using recording technology in early anthropological fieldwork was the ability to document the 'real' rather than inscribing (or translating) it through language (Svec, 2013). Modernist narratives about the properties of recording equipment position the medial capturing of culture as a scientific, 'objective' act (Filene, 2000; Kittler, 1999). 'Sound photographs' (Filene, 2000) and 'documents in sound' (Orchard, 1974) recast sonic material as 'data' that fits into a wider research paradigm of preserving sonic realities as information, as static archive, rather than as living, dynamic systems. Audio recording in the work of modern folklorists, as Filene describes, was considered to be an 'incontrovertible source of truth' as a recording cannot 'lie' (2000, p.16). In contrast, following the interpretive turn in ethnographic practice, visual (and sonic) methodologies were re-invented as an "intuitive and reflexive genre" (Pink, 2007) that conveys the aesthetic and emotional context of research. Similarly to the way photo essays and ethnographic photography emerged as a hybrid between research, activism and artistic practice strongly oriented towards interventionist ethnography (Wang & Burris, 1997), audio documentary established itself as "an alternative form of inventive storytelling based in the practices of fieldwork" (Makagon & Neumann, 2009, p.viii). While oral histories remain an influential trope of critical cultural ethnographies, giving voice to the voiceless and preserving important institutional as well as personal narratives, environmental recordings occupy a much less prominent role in the practice of ethnography and are rarely considered instrumental to the formation of research questions and outcomes (Feld & Brennis, 2004).

One important consideration relevant to the use of field recording in ethnography is the way technology increasingly mediates the shifting relationship between 'reality' and its interpretation in the tenuous space between researcher and subject(s). The novelty of sound equipment made early anthropologists and ethnomusicologists acutely aware of recording as a mediated form of interpretive inscription, almost as if technology had a mind of its own (Svec, 2013). On the other hand, the ease of use and ubiquity of consumer-grade equipment invites contemporary researchers to see recording as a representation of 'authentic' experience – an assumption that is replicated in everyday practices of media capture. As technology comes to embody more of the social and

mechanical actions previously necessary to operating it, the roles of both recordist and device recede as we increasingly accept our recordings as authentic records of everyday life. Of course this phenomenon also signals habituation to technological mediation to the point where it 'goes without saying' – in the course of everyday use, recordings of phenomenal experience are just as good as the 'original' in terms of communicating personal significance, emotion and meaning. In the same trajectory, I want to mobilize Sterne's concept of 'vanishing mediation' towards putting the act of mobile recording in the context of new media culture. A direct outcome of advertising rhetoric surrounding 'hi-fidelity' audiophile culture, vanishing mediation refers to the idea that a recording can be so 'faithful' to its 'original' that the equipment used to make the recording vanishes from our perception[11]. Consequently, the *audile techniques* used when listening to high fidelity recordings become indistinguishable from 'natural' auditory perception. Sterne (2012a) uses the term as a foundation for a critique of the audiophile axiology, particularly through a discussion of MP3 culture where perceptual formatting has driven an entire generation to ignore audio compression as indistinguishable from higher quality (uncompressed) recordings. Given this habituation to compressed audio formats, in conjunction with the ubiquity and ease-of-use of recording technology and mobile media, the notion of *vanishing mediation* could be employed here to describe the assumed transparency of technology in mediating everyday experience.

Whether the mediation 'vanishes' or becomes unimportant relative to the use and function of everyday recordings, there is a sense that they are authentic 'versions' rather than copies of our experiential realities. Already, MP3s, streaming *YouTube* videos, camera phones and mobile phone recordings are becoming part of a media researcher's arsenal for capturing, framing and communicating ethnographic knowledge through multimodal snippets of phenomenal experience. In a context where portable smart technologies are ubiquitous and commonplace (Goggin, 2006) a sound studies approach problematizes mediated listening with technology precisely as a 'second nature' phenomenon, one that amounts to an integral part of everyday experience (Lacey, 2013). The methodological contributions of focusing on sound are thus threefold:

[11] Truax (2001) similarly refers to this phenomenon as a 'black-box model' of listening.

1. Audio-based research methodologies are still lacking from contemporary media ethnographies and cultural studies, which limits the scope of material and phenomenal experience that contributes to analysis and interpretation.
2. The historical dominance of visual approaches and their relatively advanced development as methodologies for doing cultural ethnography results in an overarching visual formulation of media culture.
3. As portable smart devices become more ubiquitous there is a need to account for the way people communicate, construct meaning and produce media artefacts by enlisting the same everyday technologies as ethnographic research tools.

This is a salient departure from existing work that addresses media production and mobile cultures – specifically smartphones – as devices for cultural participation, as such work still relies primarily on researcher observation, memos and interview data, in conjunction with photography and videography (Squire & Dikkers, 2012; Klopfer & Squire, 2008; Ito, Okabe & Matsuda, 2005). Even in cases where visual and multimodal approaches outweigh textual representation, the focus on collecting, reporting and analysis leans heavily on visual and linguistic material. A growing number of media studies projects centre on the use of texting and camera phones in relation to learning, socialization and identity construction (Gye, 2007; Hjorth, 2007; Daisuke & Ito, 2003). This focus on the social dimensions of mobile devices has resulted in their conceptualization as largely visual tools for interpersonal communication and self-expression, and new media culture being 'read' through visual perspectives and conceived of in sociological terms. In that, the research landscape at the intersection of new media culture and portable smart technologies ignores the considerable auditory dimensions of mobile devices, both as convergent multimodal tools, and as technologies for the construction of meaning through mediated multi-sensory experience. A focus on sound and listening, as well as on the mobilization of sonic research methodologies can thus illuminate new connections between different modalities of cultural production and the multi-layered registers of experience using technology as part of everyday practice.

3.3. Studying everyday life

> *Human beings are always already immersed in the world, in producing what it means to be human in relationships with each other and with objects. […] If you start talking to people about how they cook their dinner or what kind of language they use to describe trouble in a marriage, you're very likely to get notions of tape loops, communication breakdown, noise and signal — amazing stuff. Donna Haraway, 1991*

Doing 'everyday life research' is not a new idea; sociology and anthropology already study everyday life and are typically located in everyday settings. However, as Sarah Pink (2012) suggests, the everyday hasn't been explored and theorized as a 'problematic' until relatively recently, for instance in the works of de Certeau (1984) and Schatzki (1996), as well as the critical sociology of Dorothy Smith (1987). Exploring everyday life has been theorized in terms of three ethnographic and discursive trajectories that frame the conducting ethnographic research and the construction of knowledge (Pink, 2012): the 'sensory turn' (attentiveness to sensory experience and to phenomenological forms of knowledge), the 'practice turn' (a focus on everyday practices and the adoption of everyday life as a problematic) and the 'spatial turn' (a recognition of the centrality of emplacement, space and movement to the practice of doing urban ethnography). The 'practice turn' is associated with the work of Schatzki (1996) and several other ethnographers and theorists (Shove et al., 2001; Sheringham, 2006), and builds on two influential theories that inform a lot of contemporary work focused on everyday practice - the anthropology of Michel de Certeau (1984) and the cultural theory of Pierre Bourdieu (1990a). While de Certeau's exploration of everyday practice acclaims everyday life as a site for resistance and appropriation understood through a juxtaposition between 'tactics' and 'strategies,' Bourdieu adopts the notion of the 'habitus' as a way of underscoring the maintenance of normativity in everyday life through practices that operate "from within agents who internalize external structures" (Pink, 2012, p.17). There have been critiques of both perspectives in terms of their ideological conception of everyday life and by extension, of agency. As Pink notes, while de Certeau sees strategies and tactis as potentially resistive, Bourdieu considers everyday practice as primarily conforming with a dominant cultural regime. Pink instead suggests a conception of practice as a "more open analytical concept that stands for human actions that may have multiple potentials" – both enacting a cultural status quo

and employing tactics to resist, remix, and construct new meanings out of encounters with the sensory, material and cultural dimensions of everyday life (Pink, 2012, p.19). Coming from sociology and anthropology, Schatzki's (1996) conceptualization of practice as a problematic, a locus of research and a unit of analysis refers to the 'total nexus of interconnected human practices,' which include knowledge, meaning, human activity, power, language and social institutions. More contemporary sensory ethnographers such as Pink and Ingold problematize not only everyday practice as a unit of analysis, but also consider its intersections with material existence - personal biography, memory, discourse, sensory environment and sociality. In this sense, Pink's proposal for everyday ethnography constitutes a synthesis of Bourdieu's attention to normative practices and de Certeau's focus on individual actions as tactics and strategies for cultural participation (Pink, 2012, p.21).

As discussed in the previous chapter, a number of works focusing on portable audio listening engage the context of everyday life both in terms of enactment of normativity, reflected in du Gay's 'circuit of culture' framework, and in the form of auditory 'tactics' for the management of urban life modeled by Michael Bull's contemporary take on mobile listening. There is work, albeit limited, that specifically engages audio recording of environmental sound as an everyday practice connected to the cultural paradigm of new media (Ito, Okabe & Matsuda, 2005). One of the reasons for this scarcity is the relatively recent accessibility of video and audio recording as convergent capabilities in a device as 'everyday' in status as the mobile phone. One of the dominant narratives around the mass adoption of personal digital technologies in general is that of *domestication* – connoting a transition from specialized to ordinary use that implicates both the type of user who has access to the technology and the spheres of praxis that technology occupies (Scifo, 2005; Hjorth, Burgess & Richardson, 2012). In the case of mobile phones and smartphones in particular, the idea of domestication spans beyond the technology's entry in the domain of the home – it also signifies its status as an object of conspicuous consumption, and marks its ubiquity and seamless integration into the register of everyday experience (Goggin, 2006, p.39). While Goggin laments the general dearth of comprehensive research on mobile phone cultures, he acknowledges the increasing interest in portable devices as conduits for mobile learning, e-commerce and business, mobile broadcasting, mobile web and global networking.

The problem with doing research along these kinds of frames is that the focus is often on what a portable smart device *can do,* rather than what *we do when we use it*; in this sense research questions invariably pre-define the scope of ethnographic inquiry. Even in extensive cultural ethnographies of the mobile phone such as Ito, Okabe and Matsuda's work (2005), as well as a number of education research projects that mobilize the use of smartphones (Shilston & Lund, 2009; Cochrane & Bateman, 2010), the exploration of everyday practices is framed through *de facto* conceptual categories, with a specific demographic. In particular, most existing research on the uses of portable smart technologies is typically oriented towards youth either in their capacity as harbingers of new cultural practices (Ito, Okabe & Matsuda, 2005), or as the intended recipients of proposed educational applications of digital media (Buckingham, 2007; Burn, 2009; Khine, 2011). Furthermore, ethnographies of new media culture apply a specific analytical lens to approaching the fabric of everyday life – that of 'learning', 'socialization,' 'play,' 'identity construction' and similar overarching conceptual categories. And while these studies already explore everyday practices with portable smart technologies, they do so without necessarily problematizing the everyday as an analytical category; this makes it easy to obfuscate and ignore layers of sensory, material and physical experiences connected with the use of these devices. Such studies provide models for investigating everyday uses of technology, but also highlight certain deficits that remain to be addressed, such as an attention to phenomenal aspects of cultural participation, as well as the role of technological mediation in making sense of everyday experience. My aim with this project is thus to construct an ethnographic approach that explores mediated aural experience – listening with technology – in relation to a larger ecology of new media practices. As such, I aim to situate my study as an everyday ethnography in order to explore the dynamics of mediated listening as both a receptive practice and a form of media production.

3.4. Methods

> *Field recordings and soundscapes are functions of each other. As much as the field recording responds to the soundscape, it may be true to say that each new field recording expands and extends, skews and stretches, minute by passing minute, the soundscape itself. Dan Scott, 2013*

Building on Taussig's formulation of representative objects in fieldwork, Dan Scott (2013) describes field recording – recording of everyday sound – as a deeply existential human enactment of mimesis, of 'making copies' as a way of comprehending the surrounding material reality. Through the representational power of the *recording,* the 'copy' and 'original' are never entirely distinct, and in a process of affecting each other's significance and meaning (Sterne, 2003a; Scott, 2013). Extending Walter Benjamin's idea that making copies is a way of constructing meaning, Scott (2013) proposes that, "field recording, through being recorded and being listened to, is an affective agent in the constant construction and changing of the soundscape" – a thesis hearkening to the spirit of soundscape composition (Truax, 2001). Such a proposition implies that the mimetic process of recording sound not only co-constitutes meaning formed at the site of sensory experience, but also affects how we make sense of the soundscape in general, beyond individual sound events. Field recording, Scott suggests, is an enactment of separation and connection, other-ing and bringing together, reducing the space between listening to a mimetic moment and 'being there.'

I began this thesis by suggesting that sound has the ability to ground nebulous concepts about culture and society in material reality. Needless to say, both the research questions formulated here and the methods, technologies and techniques mobilized in addressing them have come in part through my own experience as a listener, a field recordist, a user of technology and a sound studies researcher with a background in acoustic ecology. As Dan Scott (2013) eloquently puts it, the acoustic ecology movement is an attempt to "diagnose the problems of the urban soundscape and to cure them," in part through attentive and aesthetic listening to both acoustic and recorded sound. It would be dishonest to omit the great influence that acoustic ecology has had on my thinking and development as a researcher over the years. In conjunction with my interest in new media culture, it has driven me to look for ways in which technology can not only facilitate but also engender new ways of engaging with the soundscape in a more participatory way. Yet it is also important to note that at this point in the journey I've come to reject the normative implications of 'good' and 'bad' soundscapes, or superior and inferior kinds of listening, and as a result, my research objectives have shifted from an interventionist approach (how can I make people listen more actively) to an ethnographic approach (what happens when people deliberately listen with technology).

Sarah Pink suggests that a sensory ethnographer ought to attend to the everyday contexts in which the research is taking place and immerse herself in the multisensoriality of everyday experience (2012, p.34). Both Pink and Sterne advocate reflexivity directed at phenomenal experience as a core aspect of a sound studies approach to research. To that end, the next paragraphs will trace the tenets of my own engagement with listening and technology and outline the elements of everyday experience that have contributed methodologically to the design of this project.

This particular methodological story begins in 2009 when I acquired my first smartphone and discovered the world of apps – a technological paradigm shift from having a device that has a singular designated purpose (e.g. portable audio recorder, cell phone, etc.) to a device that can be transformed via software from a flashlight to a camera to a sound level meter in a matter of a few taps. The smartphone, in terms of media literacy, is likely to be the last technological intervention in my lifetime that I'm going to feel fully 'literate' in, and in the context of my tenuous relationship with technological proficiency, I was encouraged by the ease-of-use of the smartphone experience and its 'natural' fit in my everyday routine. One of the first things I started doing with this device (since it was always in my pocket) was take audio recordings of events, spaces and situations I found *interesting*, at first intended as source material for soundscape composition, and then increasingly as a kind of informal auto-ethnographic practice. Between 2001 and 2006, I actively engaged with soundscape composition using source material from field recordings I had made myself with high quality recording equipment and an external microphone. The transition from using an external microphone to recording directly with a smartphone was a significant one: as Westerkamp (1998) and McCartney (2005) both emphasize, the ability of the microphone to heighten auditory experience by equalizing the sound level (and thus – perceived importance) of all sounds in a given acoustic environment shapes the process of recording in particular ways. A recordist hears what she is recording in real time, and the microphone lends itself to 'zooming in' to specific sounds – something that is less likely to occur in a situation of recording with the built-in microphone of a mobile device (and without real-time monitoring through headphones). At the same time, the tradeoff between the control of real-time monitoring and spontaneous everyday recording introduces an element of instability and surprise in the recording process – I never know

how the sounds I'm hearing will be mediated through the device. Often, returning to an old recording made with my phone I struggle to remember what made me interested in that soundscape in the first place – in a sense, the act of recording itself made the experience of acoustic listening more significant and phenomenologically rich in that moment. With this realization, sound recording became my own personal practice of 'engaged' listening to the soundscape, a form of *soundscape competence* and a particular *audile technique*: the ability to imagine recorded soundscapes as they were being recorded. I knew at that point that I wanted to involve recording as part of my fieldwork, as a way of exploring questions at the time deeply inspired by acoustic ecology: What happens when people listen more actively? What happens when people record sound as part of their active listening practice? What happens when sound recording becomes an accessible experience through everyday technologies and how might that shift people's relationship to the soundscape? I decided to take several months to do a more structured auto-ethnographic exploration of what a sound-based everyday ethnography of this kind might look like. In addition to audio recording I started researching applications that afforded other possibilities for engaging with the soundscape – I wanted to use my multimodal smartphone in a truly multimodal way. I tracked down several sound level meter apps: a suite of audio tools produced by *Studio Six Digital*[12] and another audio measurement toolkit from *Faber Acoustical*[13] that included an *RTA*[14] (Real Time Analyzer) module. I particularly liked using a simple, free application named *dB* (made by *Faber Acoustical*) that allows a user to take a photo and overlay a decibel measurement value, add a note and the day/time information onto the photo[15]. I began to use this tool in my daily life and started a blog[16] where I put together the sounds I recorded along with the decibel measurement photos, and added written reflections. I was inspired by an article by Fran Tonkiss (2003) named 'Aural postcards: Sound, Memory and the City.' The concept of *aural postcards* is somewhat analogous to

[12] http://www.studiosixdigital.com

[13] http://www.faberacoustical.com

[14] An RTA maps the sound levels against the frequency spectrum in real time, using the built-in microphone. It does not play or record sound.

[15] The application does not record or play sound; it uses the built-in microphone to measure surrounding sound levels. It automatically adds geo-locative and time information to the image.

[16] http://natuaural.com

the WSP's use of 'sound diaries' (1973) particularly in relation to the idea that structured reflection on sound and listening can over time increase one's soundscape awareness (Truax, 1984). However, while sound diaries are largely textual and imply a record for internal reference, a postcard connotes a style and format of representation akin to an 'audio tweet' aimed at expressing oneself and communicating externally. In Sarah Pink's sensory ethnography, everyday research encapsulates both experiences that are "tacit and unspoken, as well as verbal actions and categories [that people] use to classify and represent these to others" (2012, p.34). Thinking about multimodality in this way, in terms of aural postcards made a lot of sense – the same situation of everyday listening became animated for me precisely through the convergence of audio, video, photography, written reflection and the interactivity of the smart device itself, all compiled into one snippet of phenomenal experience (see Figure 3). Framing each moment as a multimodal 'flashcard' captures not only the entry point into sensory experience (as a moment in time), but also the convergence of representational modes used to communicate about that experience. While as a static artefact an aural postcard might seem like an oxymoron given sound's temporal nature, the cultural connotations of a postcard seemed to me to align perfectly with the way smart device users create digital archives. Aural postcards, as I'd conceptualize them for the purposes of this study, are discrete media artefacts that serve as audio souvenirs referencing phenomenal experience, simultaneously a copy and a variation of the original. An aural postcard is a story about a particular sound or soundscape – it can contain one or multiple media artefacts, reflection in spoken or written form, a drawing, a map; it could be shared online or kept in one's own personal digital archive. Throughout the six months that I spent collecting aural postcards with my smartphone using audio recording, photos, videos, writing reflections and putting it all together on my blog, I noticed a gradual shift in how I related to the soundscape, how I experienced sound in my everyday routine and how I listened. While I already had years of experience as an 'engaged' listener in the way prescribed by acoustic ecology, I still experienced a shift as I began to routinely mediate my listening practices through the use of a smart device. I found myself walking into a space and before even reaching for my phone, I'd imagine the soundscape in terms of a decibel value – the way years of practicing field recording had conditioned me to walk into an everyday situation and listen with the ear of the microphone, identifying unique sound textures and imagining them as first recordings and then compositions.

Daffodil Park – Limerick Art Gallery

I made this recording as part of a guided soundwalk organized by Softday (an Irish experimental sound collective) while I was in Ireland for the Urban Soundscapes conference. It was interesting to visit Limerick again but in a really different context. These areas of the city I did not visit at all before, being entirely tourist-bound. This time, I documented many of the soundwalk sites but this daffodil park really struck me, starting with the big red "don't pick the daffodils" sign at the front. Visually it was a serene site in the middle of city traffic and noise (although I should say I found Limerick much less noisy than say Vancouver). The greenery really epitomizes Ireland to me, the green there is really green, deep green, not the chartreuse I'm used to on the West coast. Sonically, however, the park was a mess: traffic on all sides, and a leaf blower blaring right in the middle, so that the sound of it diffused across the open field. Little birds chirping in the bushes and trees were barely audible – you had to get very close to hear them clearly. All of this contrasted again when we walked into an extremely quiet area of the Art Gallery (located in the park) and through it into a dry reverberant coffee shop, full of espresso steam and screaming kids.

Figure 3. Example of an aural postcard from my own sonic auto-ethnography

The use of photographs allowed me to represent aspects of the environment such as light, physical structures, atmosphere and activity – all of which are factors that actually contribute to our perceptual reception of the soundscape but cannot typically be represented in a recording. Thinking about the 'everyday' in the context of this auto-ethnography became about identifying and understanding the tacit ways in which we enact sensory habits in a cultural context. In that respect, my own interaction with technology led to shaping the fieldwork in new ways, including questioning the limits and constraints of current methodologies and research tools. Some of the work that has inspired me that challenges textual and interpretivist vestiges of ethnography involves moving towards more participant-guided interactions, more direct involvement and contribution from participants, and less selective data collection by researchers. Given that my study aims at exploring how attending to sound with portable smart technologies can offer a unique perspective for understanding everyday life, I wanted to adopt a more participatory approach to fieldwork. Borrowing from *photovoice* (Wang et al., 1998) and other visually-based techniques that place data collection in the hands of informants

(Clover, 2006) I wanted to construct a method that would enable participants to record their own aural postcards and represent their own everyday life. Acclaimed as a 'democratizing' practice (Clover, 2006), photovoice has become a popular practice in action research and other interventionist ethnographies (Wang & Burris, 1994). Its equivalent sound-based methodological approaches have been introduced as 'participant audition' (Meyer & Schareika, 2009) and auto-audio ethnography (Chriton & Childs, 2005; Baker, 2003). There are, however, some limitations to these methods that make them inconsistent with an 'everyday' approach to sensory ethnography. Participant audition, defined simply as non-intervention by the researcher (i.e. pushing the record button and letting events and conversations unfold on their own) is not exactly an informant-driven practice, but rather a minimization of researcher control. Auto-audio ethnography studies are fairly scarce as yet and tend to be oriented towards self-reporting on specific practices, for instance, music listening habits (Baker, 2003); the focus is on empowering the individual through the use of research instruments (Chriton & Childs, 2005) rather than necessarily employing it methodologically as a conceptual roadmap towards understanding everyday practice.

Contemporary urban sonic ethnographies that engage informants and are inspired by the acoustic ecology movement include the Finnish project *One Hundred Finnish Soundscapes* and several related initiatives (Kautonen & Koivumäki, 2010; Järviluoma et al, 2006); the follow-up study *Acoustic Environments in Change* (Järviluoma et al., 2009); as well as Gregg Wagstaff's (2002) community exploration of the soundscapes of the Harris and Lewis Isles, among others. Uimonen (2010) in particular has discussed the use of social media and affordable consumer equipment as catalysts for engaging the public in soundscape conservation projects. One of the key methodological contributions of the WSP that is consistently featured in sonic ethnography projects, and one that I am borrowing for my study, is the concept of soundscape competence – a term that designates the kind of tacit knowledge that we mobilize towards listening in everyday life. It includes a perceptual understanding of sound's physical structure and characteristics, as well as a culturally-informed approach to interpreting the meaning and significance of individual sounds against a wider sonic environment (Truax, 1984). Soundscape competence is thus a function of culture as much as it is a perceptual ability, which, combined with the audile techniques (Sterne, 2003a) arguably

engendered through the use of portable digital technologies, encompass both mediated and unmediated forms of listening. I want to take a moment and disentangle the notion of 'soundscape awareness' from the more general concept of 'soundscape competence.' In the acoustic ecology and acoustic communication traditions, soundscape awareness directly relates to 'ear-cleaning' activities – a process intended to result in a more discerning kind of auditory perception and soundscape appreciation. Despite the moniker of 'competence,' which implies a normative ideal for a 'better' kind of listening, I take soundscape competence to represent a more agnostic characterization of listening modes, approaches and strategies that emerge in specific geographic and cultural contexts. For instance, in this work, I consider the typical urban strategy of tuning out incessant traffic noise to be an extension of soundscape competence (a protective mechanism really) resulting from the cultural conditioning of living in a North American urban environment.

Methodologically, increasing soundscape awareness is a necessary step in accessing and understanding the listening experiences of non-specialized typical urban listeners (Truax, 2001). The challenge with ethnographies of sound, as evidenced in the WSP (1973), as well as in Uimonen (2010), and Järviluoma et al.'s (2009) work, is that people typically lack not only the perceptual acuity but also the vocabulary to describe and explain the ways in which they 'normally' listen. Soundwalking and variations of soundwalking are among the tools most predominantly used to build up participants' soundscape awareness and provide a vehicle for querying memories and associations related to aural experience (Järviluoma & Vikman, 2013; Norman 2011; Wagstaff, 2002). While traditionally soundwalks are acoustic – that is, unaccompanied by technology – contemporary soundwalks are often recorded for archival and/or compositional purposes. Soundscape ethnographies such as many of the initiatives undertaken by Uimonen (2010, 2011), Järviluoma et al. (2009) and others, incorporate guided soundwalking, audio recording and simultaneous interviews with participants. Some limitations of the Finnish studies given they are typically modeled after the WSP is that they directly espouse acoustic ecology's ideals of raising awareness about the soundscape as an end in itself, rather than as a means towards exploring other aspects of culture and social life. This is demonstrated through a focus on identifying 'significant' sounds that characterize a community; a tendency to focus on soundmapping and

compiling ear-witness archetypes, e.g. the 'long-term resident' or the 'newcomer' (Kautonen & Koivumäki, 2010). Rather than approaching the dynamics of aural experience as it happens in the flow of everyday practice, these projects embrace an agenda of soundscape conservation at the onset. A step towards a more participatory recording practice can be found in Wagstaff's (2002) community-based soundwalking project in the Harris and Lewis Isles – an initiative that aims much more directly to document everyday sounds as they occur and bear significance to local residents' lives. In the case of Kautonen & Koivumäki (2010) as well as to some degree in Wagstaff (2002), while it is the local residents who propose the inclusion of particular sounds into the project's repository, it is the researchers who control the recording equipment, and the analytical focus is on categorizing sounds as elements of a community soundscape, not on understanding listening as a cultural (and increasingly technological) practice. In contrast, I wanted to have my participants do their own recordings, make their own decisions about what, how, when and where to capture; I wanted to understand the relationship between their everyday technological use and their practice of active listening; I wanted to allow participants to develop recording and listening practices over a period of time; and finally, I wanted to create an opportunity for a creative, transformative and reflective engagement with one's soundscapes. In the next section I'll outline in more detail the research procedure that I developed towards pursuing these objectives.

3.5. Study Design

There are several operational assumptions that help situate this inquiry in terms of integral features of listening, smart technology use, and participatory culture. These themes have already been discussed in the previous two chapters and are itemized below to both give structure to the study design, and shed light on decisions I made around data collection procedures and subsequent analysis.

Sound studies approach: everyday listening as a problematic – listening is a particular way of making sense of everyday experience, a particular way of paying attention, and the soundscape is an active element in orienting us both with regard to place and in our social relations with others (Feld, 1993; Schafer, 1977; Truax, 2001; Norman, 2012).

Technology use: recording media as an everyday practice – communicating about everyday experience through media representations is a particular feature of new media culture and is instrumentally supported by the emplacement, ubiquity and portability of smart technologies in everyday life (Squire, 2009; Ito et al., 2010, Lane & Carlyle, 2013).

The context of new media: a technocultural problematic - producing media artefacts as a way of engaging with and framing sensory experience engenders a mobilization of digital literacies and new media competence; understanding it requires understanding of each participant's technological and media use background (Jenkins et al., 2006; Burn, 2009).

With these themes in hand, I moved to break down my research question into corresponding sub-questions for the purposes of designing a research procedure. My starting question asks '*how does using a portable smart device to attend to sound re-mediate people's access to understanding and experiencing everyday life?*' At a base level, this inquiry seeks to uncover what we can learn about the way people engage in listening in the course of everyday life using portable smart devices; further to that, it focuses on how people represent and communicate about everyday life through media artefacts. The presence of technological mediation and the emphasis on production of media artefacts in turn implicates questions of technological and media literacy. As such, the original question can be broken down into the following parts:

1. What is the relationship between people's existing media and technological literacy, and the kinds of media artefacts they create as part of the study (to be established by cross-referencing reported media/technological habits and ways of framing media artefacts of everyday listening experiences)
2. How do people stage their everyday listening experiences using different kinds of media artefacts, and how does that reflect the way they understand and communicate about everyday life? (to be established by looking at participants' choices of sonic content and ways of 'staging' or framing sound recordings using the iPod)
3. What kind of soundscape competence and corresponding audile techniques are engendered through the use of recording technology? (to be established by examining participants' reflections about their own listening habits in relation to the use of technology for recording sonic experience)

In order to address these questions through a set of sonic auto-ethnographies, I wanted the context for my project to be that of my participants' own everyday lives. The research

instrument had to be a portable smart device that is common, accessible and easy to use in order to ecologically 'bracket' the kind of everyday technology use that exemplifies participatory new media culture. To avoid wide gaps in functionality in participants' own devices I purchased (with the financial support of my supervisor), four devices to use for the study. I chose the then-brand new iPod 4 Touch (2010) – a device with processing power, functionality, screen resolution and application capabilities equivalent to an iPhone 4 – the smartphone I had used for all of my own explorations of mediated listening. Aside from not functioning as a personal phone, the iPod 4 Touch is able to host social media applications, connect to the Web, as well as run voice-over calling services such as *Skype* and *FaceTime*. I specifically wanted a device that is not specialized for single-purpose use, and is capable of capturing audio, video and photographs. The next sections elaborate on the specific aspects of my study including recruitment, ethics and procedure, data collection and participant feedback.

3.5.1. Recruitment and participants

I recruited participants through a snowball procedure with a purposive sampling approach (Strauss & Corbin, 1998) starting with my own contacts, and expanding to their acquaintances. In keeping with the idea of studying everyday life, I approached potential participants in everyday situations and talked to them about the project in order to gauge their interest, ability and commitment. I would explain that this was a study about everyday listening and that they would need to record a daily entry about their listening experiences for the duration of two weeks using a mobile device (more detailed information was provided later via the informed consent form and study information package – see Appendices 2 and 3). In assessing whether people were relevant subjects, I primarily inquired about and noted their overall daily routine, level of technological literacy, habits and attitudes around sound, as well as their availability and eagerness to participate in the project 'in good faith' (given the intensive self-monitored commitment of producing an aural postcard daily). In particular, I selected participants who expressed most interest and appeared most likely to be committed to the project; who had not had prior training in specialized or musical listening; and who had, at minimum, a basic technological literacy with mobile communication such as smartphone devices and/or portable media devices.

Given that I was interested in individual approaches to technology use within a new media context, I wanted to invite participants of different degrees of competence; however, I felt that having users be completely unfamiliar with technology would have posed a significant challenge to their ability to complete the project, and correspondingly, would have introduced an analytical disjuncture for me at the stage of interpretation of the collected data. In order to establish a baseline referent for technological literacy, as part of my recruitment procedure I asked participants whether they owned and used a mobile phone[17]. I also informally asked participants about general media use to ensure some variety of technological familiarity and competence. Given that this study is focused on everyday practices, in addition to technological habits I also wanted to allow for diversity in participants' life routines. Since my immediate circle of candidates tended to include other graduate students I made sure to approach a number of participants outside that occupational sphere and demographic, again using a snowball approach. Last but not least, I wanted to recruit participants who did not have prior training in specialized musical or acoustic listening – i.e. 'typical' urban listeners. I wanted to stay conscious of the fact that my own experiences with the iPhone took on the unique character they did because of my training in 'attentive' listening and my history as a field recordist; as such, I cannot consider my experience *representative* of listening in everyday settings or of creating multimodal recordings using mobile technology. As part of my recruitment process I asked prospective participants about any personal history with sound recording and musical training. I was looking for *interest in* listening and the soundscape (primarily to ensure commitment) but no specific prior experience with e.g. deep listening[18], soundwalking, professional sound recording or specialized musical practice. The study sample consisted of eight participants sorted into two groups of four. The size of groups was a pragmatic decision, in part a function of equipment constraints having only four iPods; however, I wanted a combination of group and individual work in order to gain two distinct perspectives on listening with technology through a balance between personal reflection and focus group discussion. The participants ranged in age from under 25 to over 55 (as determined by a questionnaire). There were seven female

[17] The use of mobile phones is often positioned as an entry-level form of technological literacy in many cultural contexts (Plant, 2002; Kavoori & Arceneaux, 2006; Goggin, 2006).

[18] An embodied method for bringing attention to listening that combines movement, breathing, listening and soundmaking, developed by Pauline Oliveros (2005)

and one male, participants. Gender (and ethnicity for that matter) was not an analytical variable in my initial thinking about the project primarily because of the small informant pool size. Needless to say, my sampling approach is neither exhaustive nor representative; rather, it is an attempt to explore archetypal dynamics around two central elements: participants' everyday routines and their technological use, both of which arguably inform a diversity of listening approaches, stylistic methods and forms of documentation. In effect, the study is aimed at developing a theoretical and methodological model for doing sensory research with technology, and makes no claims to represent an exhaustive account of listening practices with portable smart devices.

3.5.2. Ethics and data management

I applied and received approval for ethics during the 2009-2010 academic year from Simon Fraser University's Office of Research Ethics. As part of my ethics application I prepared an Informed Consent form (see Appendix A) and a study information package (Appendix B) that included detailed information about the project, research tasks and instructions on technology use. As part of the study protocol, I asked each participant to sign a copy of the Informed Consent form and provided them with a copy of the study information document. I explained to participants that the media archives they generated would be kept confidential and would be anonymized to the best of my ability and stored on a secure external hard drive. Each participant was informed they would receive $100 for their participation in the project and be entered in a draw for an iPod upon the completion of the study. Participants were informed that they could request additional information about the project and get a copy of their media contributions to the study at any time.

3.5.3. Research procedure and data collection

The study took place between the fall of 2010 and the late spring of 2011 and consisted of two distinct iterations, conducted in the same format with each group of participants. Since soundscape awareness and listening acuity are processes that develop over time, I wanted to see the unfolding of technological use and approaches to audio recording over a period of two weeks for each group. This period of time was in

part an attempt at a realistic timeline for the level of commitment that participants were expected to maintain to the project. The first group of four participants completed the project between October 18 and November 1, 2010; the second group between February 19 and March 11, 2011. Both installments happened over two weeks, however the second group had use of the device for an extra week due to scheduling challenges for our last meeting. Regardless of the length of time to complete the study all participants were asked to produce a minimum of 14-15 aural postcards (one daily corresponding to a two week period); however, if time permitted or they so wished, participants were encouraged to create more audio entries in the time that they had the equipment. The study procedure for each group followed the same five steps: 1) an initial group meeting that included a soundwalk and follow-up discussion, as well as a detailed introduction of the study and distribution of equipment; 2) filling out a questionnaire about media and technology use, general listening habits and attitudes towards everyday soundscapes; 3) a self-directed listening activity with the iPod where participants created daily aural postcards for two weeks; 4) a final group meeting and wrap-up discussion, where equipment with individual contributions was returned and participants were compensated for their time; 5) a follow-up email to each informant to collect any final reflections. Below is a more detailed description of each study procedure element including decisions around their structure and design.

/Soundwalk/ The first important step towards setting up the study included a soundwalk that I developed in advance for each group of participants[19] (see Appendix C). As discussed earlier, soundwalking is a method for fostering soundscape awareness and it is an approach frequently used in studies that explore urban listening and rely on interview data (McCartney, 2012). Soundwalking and other listening-awareness activities tend to serve as counter-measures to the 'learned indifference' (Tonkiss, 2003) that urban dwellers usually have towards their daily soundscapes – a phenomenon Schafer (1977) terms 'tuning out'. A typical soundwalk is a silent guided walk along a pre-determined (or improvised) route. A soundwalking group could consist of as few as two and as many as 30 or 40 people. The leader introduces the practice by inviting

[19] The need to create different soundwalks developed out of logistical reasons as each route was organized around group meeting locations – e.g. with the second group I had to provide a wheelchair-accessible route.

participants to open their ears and pay attention to the soundscape around them. Rather than being prescriptive, the intention of a soundwalk is to allow people to discover and engage in their own style of listening and connect with the sonic environment. The soundwalk leader signals both the start and end of the soundwalk. Hildegard Westerkamp (1974) suggests that a soundwalk should be around 45 minutes at minimum since it takes time for our ears to re-habituate to paying attention rather than tuning sound out. In order to keep the overall first group meeting time to a maximum of 2 hours (for scheduling purposes), each soundwalk was structured as a 45-minute block. I introduced the activity as a silent, active listening walk and invited participants to note acoustic features, specific sounds as well as be mindful of their own approach to listening. I designed the soundwalks in advance with an ear towards having a variety of urban sonic spaces, including contrast between indoor and outdoor areas, as well as traditionally 'noisy' and 'quiet' areas. Rather than having soundscape awareness be an end goal in itself here, I used the technique of soundwalking as a preparatory exercise towards eliciting curiosity about sound and listening.

/Focus group discussion/ After completing the soundwalk, I invited participants to debrief about their listening experience through a semi-structured group discussion. I posed only general questions about the experience in order to start off the discussion, including prompting participants to describe and comment on sounds they heard during the soundwalk. All focus group discussions and soundwalks were audiotaped for analysis. At the first group meeting I also introduced the study in more detail and distributed the iPods and research packages to each participant. Each package contained an informed consent form, a questionnaire, a description of the project objectives and tasks, an example of an aural postcard, and some how-to information about using the device and the applications on it (see Appendix B).

/Questionnaire/ In order to access each participant's typical use of media and technology as a baseline reference for the manner and extent to which they use the iPod in my study, I devised a questionnaire (see Appendix D) as part of the study package. The questionnaire asked participants how they typically communicate with others, access news and consume media; what type of technologies they own and how they tend to use them. In addition, the questionnaire asked participants to identify their

general listening habits and describe their home soundscape as a starting reference for their everyday relationship to sound and listening.

/Activity Structure - Aural Postcards/ While elements of the study involved group work (the soundwalk and follow-up discussions), I wanted each participant to work individually for the duration of the study in order to avoid cross-influence and interference in the valuation and interpretation of sounds between different participants. I was interested in each person as a singular case study towards building a relational account of how their individual backgrounds with listening and technology connect with the strategies they employed in recording everyday sound. In order to do that I wanted to avoid participants influencing each other about what types of sounds to record and how to characterize them. I explained the idea of aural postcards in detail and drew participants' attention to the example provided in the study information package (see Appendix B). I left the content of aural postcards open-ended and instructed them to record whatever they decided in the course of their everyday routine. In terms of structuring the auto-audio ethnographic activity, I had considered the idea of imposing categories of sounds for participants to record (e.g. street, mall, home, telephone conversations, etc.); however, in light of wanting to understand 'typical' everyday habits, I opted for an open-ended study design. I explained that aural postcards would ideally contain a voice recording commenting on some aspect of the soundscape, place or event of their choosing, however, an aural postcard can also contain photos, sound level readings, video and any other media formats that are available through the iPod.

In the study information document I included some guiding questions in the event that participants had a difficult time trying to form an aural postcard and record a voice commentary about a listening experience. These guiding questions included the idea of describing specific sounds in the environment, commenting on the overall soundscape, as well as reflecting on the purpose and function of different sonic elements. Finally, participants were encouraged to use the iPod in their daily life to connect to the Web, play games, etc. The only limitation was that they couldn't sync the device to their own computer because that would have erased all the hosted applications (associated with my own iTunes ID). The calendars on each device were set to provide a daily reminder to each participant to record their aural postcard. With regard to content, I asked

participants to decide themselves what they wanted to record, when and where to capture material and what to comment or reflect on in their aural postcard. I highly encouraged participants to reflect live, in the form of running commentary at the same location they were recording but stressed that they were not limited as to how to do that, or how long or short the entries should be.

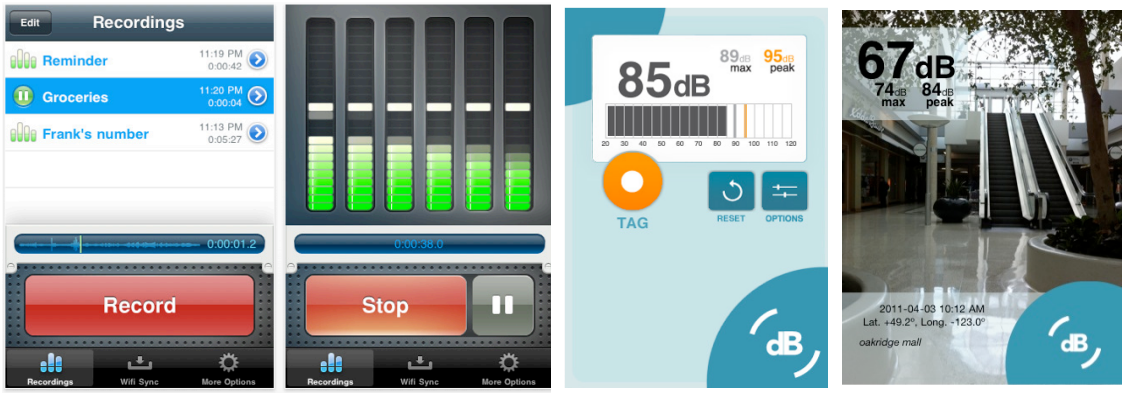


Figure 4. Screenshots of iPod applications used in the study: (from left to right) *Recorder*; *dB* (level only); *dB* (picture overlay)

I gave everyone a quick introduction to the main applications: *Recorder*[20] for high-quality audio recording; *dB*[21] for photo + decibel level; and the iPod's built-in camera for photos and videos; I also drew their attention to the *Faber Acoustical* and *Studio Six Digital* audio suites, explaining that these were optional possibilities for further engagement with ambient audio measurement tools.

/Final group meeting/ Upon completion of the activity period, I set up another meeting with the group for a wrap-up discussion of their impressions on participating in the project and final reflections on listening. The discussion was once again audiotaped for future analysis. At that time I also collected the devices back with all the data generated on them, and distributed $100 to each participant.

[20] http://www.recordertheapp.com
[21] http://www.faberacoustical.com/ios_apps/db/

3.5.4. Participant Feedback

While I did not have a formal member checking procedure, there were several opportunities to receive participant feedback about the project, as well as check in with individuals about the direction that my analysis was taking. In addition to the final focus group discussion where participants had a chance to share overarching impressions of the project with each other and myself, I sent a follow-up email two weeks after the final meeting to each group soliciting any additional reflections. As well, I have spoken informally to five of the participants (from the two groups of four) at different stages of my data analysis and have had an opportunity to hear their thoughts and respond to any concerns or questions they had about how the data collected was being stored, analyzed and represented.

3.5.5. Saturation

Since my study focuses on individual experiences of listening with technology in relation to each participant's wider background of media use and epistemological orientation, one important question regarding the validity of this research is that of saturation. In qualitative research saturation refers to the 'sufficiency' of data collected in a study: a point when new information ceases to emerge through the methods of collection employed by a researcher. For my study, I take saturation to refer to the breadth of data required in order to confidently draw conclusions with respect to my research questions (not to be conflated with the amount of data I would need in order to fully explore the phenomenon from all potential vantage points). The intention of this study is primarily to provide a theoretical foundation for understanding mediated aural experience in the context media culture and everyday technological use, as well as to provide a methodological model for researching sensory experience with technology. Through the research design I aimed for a robust and rigorous theoretical sampling approach in light of attending to the main conceptual concerns of the study. Conducting each instalment of the study in a sequential fashion allowed me to monitor and establish the study's saturation point, as well as to take note of some initial impressions and begin to build preliminary theoritizations around my research questions. Upon completing work with the second group of four participants, I already started to see some distinct trends in

how different individuals approached the activity of capturing and framing aural postcards, which, in consultation with my advising committee, I established as sufficient data on which to base my analysis.

3.6. Summary

In this chapter I introduced the methodological context for a sensory ethnography of everyday life using smart mobile technology. More specifically, I presented a way of approaching the study of listening with technology through a sonic auto-ethnography that looks at audio recordings as media representations of individual everyday listening experiences. I surveyed theoretical implications from prior work with portable listening as well as approaches and techniques from sonic ethnographies in the fields of acoustic ecology, soundscape studies, and ethnomusicology. Based on these methodological foundations, I outlined an approach to participant-led sonic auto-ethnography that engages everyday experience and everyday technology use through a self-directed media practice. The latter part of this chapter described the design and implementation of the study procedure used in addressing the research questions at hand.

Once again, this study is by no means exhaustive or representative of all possible individual approaches to listening with portable smart technology; rather, through providing a rigorous and theoretically-informed methodology, I aim to offer a model for doing everyday research with technology that could be adapted to future work that attends to sensory aspects of urban experience in the context of new media culture. In the next chapter I will briefly introduce the analytical framework for structuring and interpreting the collected data, and move into a discussion of salient outcomes that illuminate the cultural (and perceptual) practice of attending to sound with portable smart technologies as a unique perspective for understanding and experiencing everyday life.

Chapter 4. Analysis and Discussion

Where the previous chapter outlined the methodological context of this study as well as the research procedure, this chapter deals with analyzing and discussing the data collected towards building a model that leverages a focus on listening in the problematization of mobile technology use as part of everyday (urban) experience. The data collected consists of audio-visual artefacts generated by participants in the course of attending to their everyday practices; transcripts of verbal reflections made as part of aural postcards; transcripts from group discussions; and tabulated questionnaire responses. Between two groups and a total of eight participants[22] each using an iPod for two weeks, I collected 139 aural postcards encompassing a total of 238 audio recordings, 129 photos (50 of which included decibel measurement overlays, generated with the application dB) and 20 videos. In addition, I recorded and transcribed each set of group discussions conducted with the two groups of participants (see Appendix E). In the sections to follow these results will be further broken down and discussed where relevant to the analytical trajectory.

I begin this chapter by setting up the analytical framework that I relied on to conceptualize a sensory ethnography of technology use in everyday settings, borrowing from *multimodal analysis* (Dicks, Soynka & Coffey, 2006; Kress, 2011) and *visual hermeneutics* (Raab & Tänzler, 2005; Pink, 2007). I then present a preliminary model for visualizing participants' reported technological and media ecologies of use as a way of constructing their subjectivity with reference to new media practices. Following that, I offer an analysis of the collected multimodal data in three stages, each addressing an aspect of the main research question while remaining mindful of the interaction between multiple modalities and registers of experience. In the first stage, I address intersections between listening, technology and everyday life by examining the types of media

[22] From here on I'll refer to individual participants by their assigned anonymized numerical: P1-8.

artefacts that study participants produced featuring their urban everyday soundscapes. More specifically, I elaborate on the *staging* (Bijsterveld, 2013) of everyday life by developing a set of documentary modes for the multimodal representation and communication of everyday sonic experience. As an exploration of the *dynamics* of listening, in the second stage of the analysis, I present another preliminary visualization that models the interplay between place, sound, identity and memory that intersect at each sonic encounter and thus become part of the captured media artefact. Finally, I develop the idea of mediated aural practices through a conceptual synthesis of the notions of *soundscape competence* (Truax, 1984), and *audile techniques* (Sterne, 2003a); specifically, I speak to the kind of soundscape competence that is co-constituted through the technological mediation of the iPod when listening in the context of everyday life. I illustrate each section of the analysis with examples from the media archives generated by participants and corresponding discursive expressions captured from individual reflections and group discussions.

4.1. Multimodal analysis

> *[Sensory ethnography] attends to the multi-sensoriality of the ways in which ethnographers and research participants experience their lives and worlds, and to the tacit and unspoken as well as verbal actions and categories they use to classify and represent these to others. (Pink, 2009, p.34)*

Sarah Pink (2007) suggests that in ethnographic work meanings are not held exclusively in words, text or media artefacts, rather they are part of a relational matrix which is multi-sensorial and interpretive, such that the constructed research product is not a reality but a discourse. Examining the media artefacts created by participants is one such route to apprehending the way people encounter and understand everyday life sensorially, and a way of exploring how technology mediates our relationships with the materiality of everyday experience. To that end, Pink warns that a researcher ought to resist 'flattening' ethnographic experience to 2-dimensional media objects, and should instead look for the phenomenal richness intimated by such experiential accounts, striving to represent that richness at the stage of interpretation and analysis. Multimodal ethnography, a contemporary practice of working with media and digital technology,

involves the use of a variety of media forms for capturing different layers of experience (Dicks, Soynka & Coffey, 2006; Kress, 2011). In part, it is a reaction against studying situated, multisensory activities along separate channels of perception such as visual, auditory or traditional textual documentation. Rather than supporting models for 'modality scholarship' this type of ethnographic approach adopts tools that attend to the multisensory resonance of cultural practices and phenomena (Kennedy, 2013). Granted, the idea that exploring the dimensions of new media culture necessitates the employment of multimodal tools is not a new one (Dicks et al., 2011; Flewitt, 2011; Jenson & de Castell, 2011). Over a decade of educational research has made use of institutionally available technology and common digital tools for designing and conducting ethnographies (Burn, 2009; Ito et al. 2010; Khine, 2011). As well, much contemporary work utilizes mixed media and innovative visualizations not just to represent media ethnographies but more directly as tools for thinking through and interpreting complex social and multimodal data. As a way of uniting ethnographic research with the perspective of social semiotics, Kress frames multimodality as a field of inquiry where the various resources and materials of lived experience 'enter into meaning' (2011, p.242), emphasizing the contextual and dynamic character of modes as potentials for meaning (2011, p.248). Alongside stable modal realities, every cultural setting also constantly re-shapes the utilization of modes as resources for making representations and ultimately communicating meaning (Kress, 2011). Taking sound as an example of a cultural resource, Kress illustrates:

> With the same human physiology, the 'same' physical material is shaped into distinct cultural resources. Sound is shaped as speech; as music; as sound-track; as whistle-languages; as drum-languages. Even leaving perception aside, the relation of material and mode is anything but straightforward. (2011, p.248)

The contribution of social semiotics then is to situate ethnographic data as meanings produced in social contexts; with multimodal approaches supplying a diverse sensorial and semiotic perspective of lived experience and everyday interactions with technology and culture. Similarly, the concept of *video hermeneutics*, as discussed by Raab and Tänzler (2005), involves considering human perception, social action and the cultural transmission of knowledge as always conducted through symbolic forms (p.86). These symbolic forms, traditionally verbal and textual, are now increasingly audio-visual, technologically-mediated and multimodal. As such, what we need to attend to as

ethnographers, and this is at the heart of my research inquiry, is how technologies "shift and alter the potential for the construction and attribution of meaning [brought] into being in the course of everyday life" (Raab & Tänzler, 2005, p.86). For Dicks, Soynka and Coffey multimodal ethnography is not 'simply a mosaic' (2006, p.78) of disparate elements but rather a 'multi-semiotic form' where data is collected across different modes and modalities of experience, and ethnographic knowledge is produced through the inter-relationships of different media artefacts. As Suzanne de Castell (2011) further suggests, multimodal forms of expression are best understood through the process of *convergence* and not multiplicity – that is, ethnographic knowledge shouldn't focus on layering different modal expressions alongside each other, but rather explore convergences of meaning between and among them. In this sense, while I am exploring *intersections* of technology, listening and everyday life, the analytical framework for constructing and representing these relationships will be one focused on *convergences* of communicative modalities, discourses and mediated practices.

The core idea of *video* (and by extension – multimodal) *hermeneutics* is to consider social data as "manifestations of the protagonist's perception and recognition of reality as well as their self-representation and self-perception" (Raab & Tänzler, 2005, p.85). In my study, media artefacts as well as discursive contributions manifest as distinct reflections of the ways in which participants relate to the material and sensorial reality of everyday urban experience. Both in the study design and now at the stage of analysis, I aim to retain the sense of participants as protagonists of their own media story, agents of an exploratory, documentary venture where framing, content and representation of soundscapes crystalize a view of everyday life refracted through the lens of each person's subjectivity. This type of analysis involves attending to a multitude of media artefacts – textual, verbal, visual and auditory, and at the same time seeking to produce accounts and interpretations at the points of convergence between different modal forms of expression and discourse. As Raab and Tänzler posit, multimodal analysis is "a reconstruction procedure that shows how [experience] is re-fabricated by human beings under particular socio-cultural conditions" (2005, p.87). Since patterns of mobile media use are undeniably part of the socio-cultural conditions of new media culture, I'd suggest that this re-fabrication of experience is also contingent upon the degree and range of technological fluency or 'technicity' (Dovey & Kennedy, 2014) that

participants possess. In the next section I present a preliminary model for visualizing the configurations of technological use and new media competence as reported by participants towards establishing individual media ecologies.

4.2. Listening with technology: Media Ecology Profiles

Traditionally, in ethnography the subject is constructed through a rich personal biography meant to illuminate individual user actions and perspectives within the study's ecological context. However, given my specific interest in the convergence among mobile technology use, everyday life and listening, I used the questionnaire data to develop *typologies* of media *use* in relation to participants' engagement with different communication technologies, as well as their levels of participation in new media practices and communities. Alongside technological profiles specifically geared to the phenomenon of personal mobile technology developed by Ito, Okabe and Matsuda (2005) as well as Squire and Dikkers (2012), I aimed to construct a model that references both the kinds of media devices participants use as well as the frequency and relative prominence of their use. The process of codifying questionnaire responses was also inspired by a design method known as 'persona development' (Light et al., 2009; Foth et al., 2011). This method presents a way of working conceptually with a set of 'typical' subjects, however, where the ethnographic subject is rich and biographical, the *persona* contains only details relevant directly to the inquiry at hand: in this case, media and technological competence, typical media use and communicative habits. Persona development is also a method specifically geared to extracting useful and relevant patterns when working with small user groups.

In my study, I opted for constructing subjects as communication hubs[23] or individual ecologies of media and technology use. In keeping with the 'postcard' theme of this work[24], I created media ecology postcards of each participant using information gathered from the questionnaire as a way of visualizing relevant information across

[23] I'd like to credit Suzanne de Castell for the suggestion of this term (private communication)

[24] The postcard visualization approach was also inspired by Mary Bryson's work on millennial queer youth identities (Bryson & McIntosh, 2010)

participants. Each postcard uses common CMC (computer-mediated communication) icons to represent a participant's media and technological use, contexts of exposure to different types of sounds and soundscapes, kinds of audio consumption, as well as self-identification as listeners. Figure 5 features a more detailed description for each aspect of these media and technology use profiles. It is important to note that while the questionnaire responses included additional categories for each participant, the icons displayed in their individual 'communication hub' postcards are the ones that were used most predominantly by that participant – i.e. the frequency of use for each media type or device was rated as 'mostly' or 'very often' rather than 'rare' or 'occasional' (see Appendix F for extended legend).

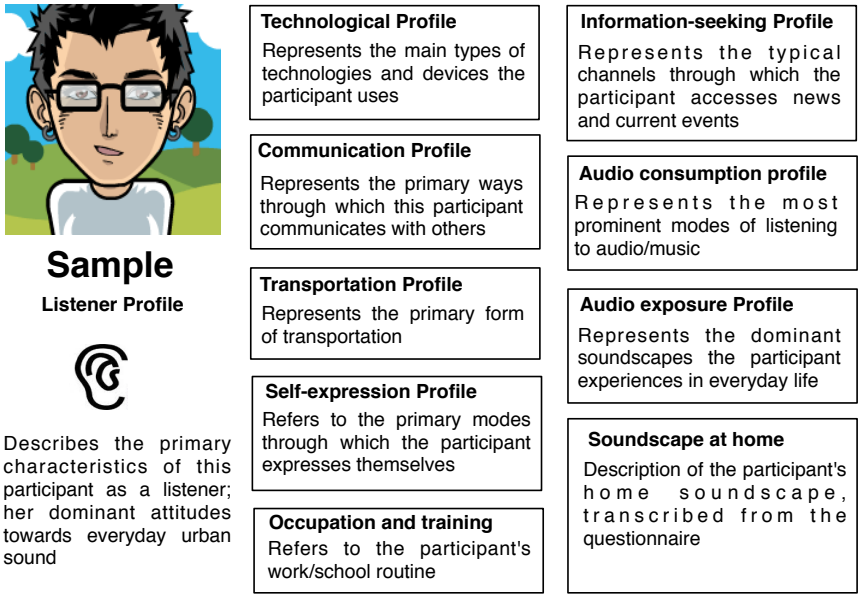
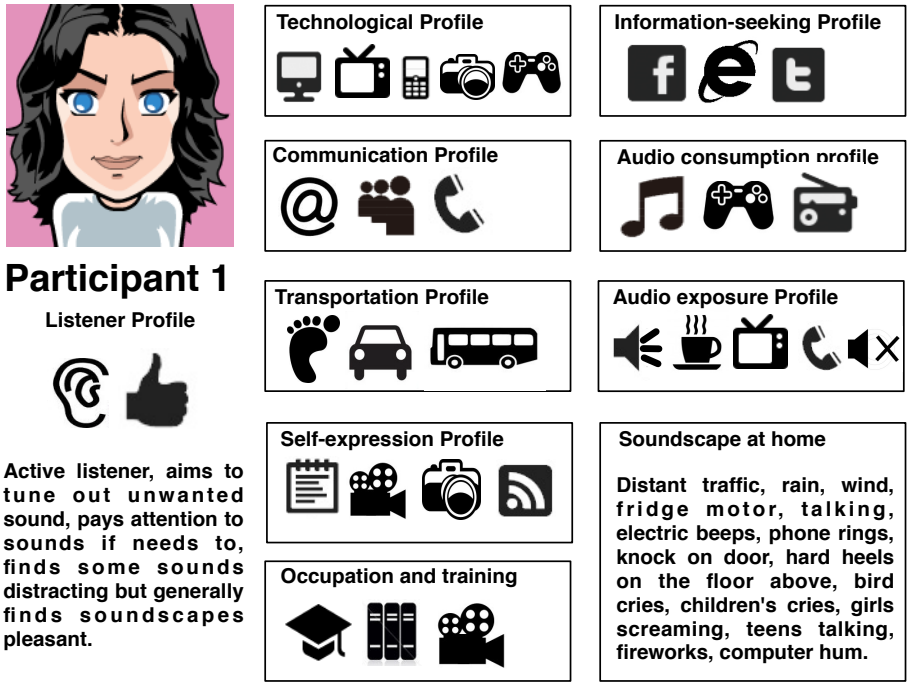


Figure 5. Media ecology postcard template

Through this method of information visualization, I was able to 'weigh' participants in terms of heavy versus light use of media/technology, as well as assess the distribution of their engagement with old and new media, where old media refers to (for the purposes of this study) newspapers, TV, radio, home audio, telephone, email and basic web, while new media refers to social networks (e.g. *Facebook*), micro-blogging (e.g. *Twitter* or *Tumblr*), podcasts, portable audio use and mobile computing. Reading the media ecology postcards in Figure 6 as a tool for comparison across participants yields some interesting distinctions: P2 and P4 are the heaviest users of social media and mobile

computing (smartphone-based in particular), where P4 is also a user of portable audio, while P2 is a heavy user of and participant in micro-blogging. P1, P3 and P5 are heavy web users who also listen to home audio but are only light participants in social networks, instead consuming more traditional forms of media such as radio and TV. P1 and P6 are heavy users of both old (predominantly) and new media, however both use a mobile phone rather than a smartphone. Of eight participants, only P1, P4 and P6 report talking on the phone as a dominant way of communication (the rest prefer texting, instant messaging or email). P7 and P8 are predominantly old media users with light mobile phone and web use. While all participants reported listening to music at home, P3, P4, P5, P7 and P8 reported using headphones and P3, P4 and P5 noted they listen to portable audio specifically. In terms of media practices for communication and self expression, most participants listed face-to-face contact, as well as taking pictures and making video recordings as part of their regular routine, with most (except for P3, P5 and P1) frequently using social media as a means of communication. P1, P7, P4 and P3 also listed writing (i.e. keeping a paper diary) as a regular form of self-expression.



Participant 2

Listener Profile

Considers himself an active listener, listens if he needs to and ignores the rest; overall feels neutral about his soundscape.

Technological Profile

Information-seeking Profile

Communication Profile

Audio consumption profile

Transportation Profile

Audio exposure Profile

Self-expression Profile

Occupation and training

Soundscape at home

Generally quiet during the day, kids playing loudly after school behind my building. A gate that slams loudly and often. A school tone across the street every morning. There is an industrial hum at times .

Participant 3

Listener Profile

Only pays attention to sound if she needs to. Prefers to control her (home) soundscape by listening to sounds and music of her own choice.

Technological Profile

Information-seeking Profile

Communication Profile

Audio consumption profile

Transportation Profile

Audio exposure Profile

Self-expression Profile

Occupation and training

Soundscape at home

I play ambient music to drown out noise, but I have silence when the area around is silent enough.

Participant 4

Listener Profile

Listens informationally, but finds soundscapes distracting and noisy even at home and so feels negative towards them. Sounds define her relationship to home and others around her.

Technological Profile

Information-seeking Profile

Communication Profile

Audio consumption profile

Transportation Profile

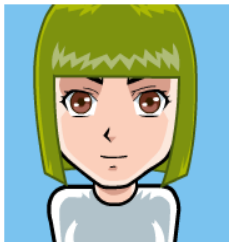
Audio exposure Profile

Self-expression Profile

Occupation and training

Soundscape at home

Refrigerator hum and clock ticking, door slamming, feet on wood floors, muffled conversations, street noise from passing cars, cacophony from nearby high school (choir practice), dehumidifier blaring, radio and records playing.



Participant 5

Listener Profile

Attentive listener, wears earplugs to tune out noise, frequently irritated by unwanted sound that might not bother others.

Technological Profile

Information-seeking Profile

Communication Profile

Audio consumption profile

Transportation Profile

Audio exposure Profile

Self-expression Profile

Occupation and training

Soundscape at home

Cars all the time (I live by a busy road), wind through single-pane windows, piano practice every day from neighbours, lots of thumping and pipe sounds (water through the pipes)

Participant 6

Listener Profile

Considers herself an active listener, listens for information, though finds soundscapes sometimes intrusive, noisy and occasionally annoying.

Technological Profile

Information-seeking Profile

Communication Profile

Audio consumption profile

Transportation Profile

Audio exposure Profile

Self-expression Profile

Soundscape at home

Hum of traffic, sound of fridge humming, occasional muffled sound of conversation, music, activity from neighbours, baby crying, someone playing piano (daily).

Occupation and training

Participant 7

Listener Profile

Considers herself an active listener, listens for information, enjoys pleasant soundscapes, but is often bothered by unwanted sound such as the ceiling fan and fridge hum.

Technological Profile

Information-seeking Profile

Communication Profile

Audio consumption profile

Transportation Profile

Audio exposure Profile

Self-expression Profile

Soundscape at home

Inside my home is always marked by the sounds of traffic, my fridge running, the dog and his nails on the laminate, music streaming from good computer or stereo speakers, too much TV at night, phone dings and clacking of keyboards.

Occupation and training

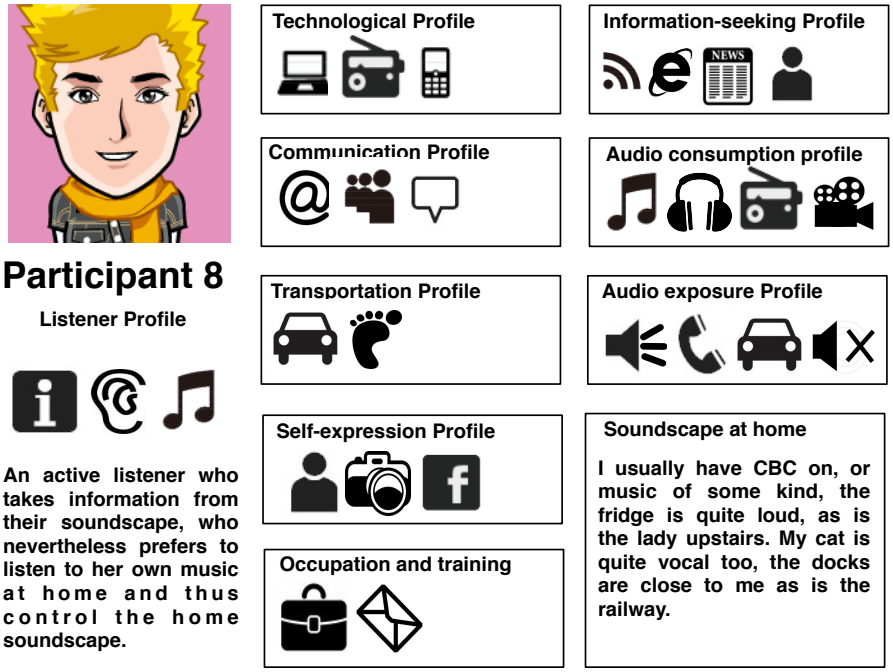


Figure 6. Participants as hubs of media and technology use

My intention in featuring this persona visualization is to demonstrate its capacity as a useful methodological tool for linking established media and technology use to other cultural and sensory practices in the context of new media ethnographies. In the present case, the purpose of building these media ecology profiles is to map them to the kinds of approaches to mediated representation of everyday listening that each participant adopted as part of the study. This approach to constructing and visualizing subjects breaks ground in offering some preliminary illustrative suggestions towards intersections between technology and media use on one hand, and listening with technology on the other, as reflected in the types and formats of media artefacts produced. For instance, looking at participants P2 and P8 as the 'heaviest' and 'lightest' new media user respectively yields some useful patterns with respect to typologies of technological competence and media engagement. P2 uses a wide range of new and old media with a focus on mobile computing using both a tablet and a smartphone; he also privileges social media and the web for communication and regularly creates a variety of audio-visual artefacts as a way of participating in online social communities and micro-blogs. P2 listens to music primarily on headphones and considers himself a neutral yet attentive listener. P8, on the other hand, uses basic computing and a mobile (not smart)

phone; listens to radio and music at home; watches movies and prefers to read newspapers or talk to people as a means of communication. She also regularly takes photos with a portable camera and occasionally participates in social media. An examination of the rest of the participants reveals similar patterns of communication, and media use: P3 and P5 privilege face-to-face communication more than others, while P2, P7 and P8 prefer email, the web or social media for communication. P6 is an example of a heavy user of both old and new media without significant participation in social media or micro-blogs, however comfortable enough with new media technology to produce the largest amount of media artefacts in the study (see Figure 7 in the next section). While developing stable user typologies is outside the scope of this study, there are at least three *personae* that can be preliminarily articulated based on the available media profiles: the heavy new media user; the mixed-media user; and the light tech user.

The heavy new media user: this persona has a highly functional command of mobile computing (smartphone, tablet, etc.) and incorporates it into the flow of everyday life; their media consumption includes both old and new media, likely used through new media technology (e.g. watching movies on a computer rather than on TV); they are most likely to use portable audio or headphones regularly and engage in non-synchronous forms of communication (email, web) as well as instant communication (texting, instant messaging); photography and video is a regular form of self-expression for this user; likely identifies as a neutral listener – listens for information, as needed.

The mixed-media user: this persona is more familiar with 'old' media, however is technologically fluent enough to explore a variety of media forms as they emerge; their routine around consuming media likely involves using discrete devices rather than convergence technologies (e.g. using the television to watch movies; using the computer to check email; using the mobile phone to talk); they regularly consume radio and listen to music in the home, rather than on headphones; likely identifies as an active listener, listens for everything and seeks soundscapes that are pleasant and avoids unpleasant ones.

The light tech user: this persona uses limited technology in everyday life, constrained to specific devices that align with habitual cultural practices (e.g. a home audio to listen to music at home; a game system to play games; a camera for photography); most familiar with 'old' media forms, this user is able to navigate technology to some degree, however their participation in social networks and new media culture is limited; they are most likely to read the newspaper, search the web (rather than specific websites) and listen to radio; likely identifies as a purposeful listener – values silence and finds many urban sounds irritating.

One of the reasons for developing these typologies, given that articulations of media users and technological literacies already exist (Eynon & Malmberg, 2011; Brandtzæg, 2010) is to offer an alternative to the digital native/immigrant (Prensky, 2001) discourse, whereby age is implicitly connected with technological proficiency and new media participation. As has been argued since, fluency in digital tools and applications is only one marker in a nexus of complex relationships that implicate cultural competency in the enactment of new media practices (Jenkins, 2006a; Dovey & Kennedy, 2014). As Dovey and Kennedy argue, notions of *technicity* have long informed key aspects of both a contemporary new media culture and a new media subject. As a "variable, heterogenous and dynamic aspect of identity formation in contemporary techno cultures," technicity plays a key part in conceptualizing both individual and collective identities in terms of how technological proficiencies are "harnessed to the production and reproduction of consumer culture" (2014, p.6). The model for codifying these relationships presented here re-directs the focus away from procedural literacy, towards frequency and range of media and technology use, aiming to circumvent generational assumptions by taking both reception and participation as aspects of individual media ecologies. The central idea here is that our technical proficiencies as well as our habitual exposure to particular media forms, styles and formats are all mobilized in the mediated translation of experience, evidenced in the ways that we use technology to capture and communicate about everyday life.

4.3. Listening with technology: Media Formats

In a recent community soundwalking project, Förnstrom and Taylor (2014) refer to recording sound in everyday settings as taking "world experience, mediating it through one's body and one's memories and translating it into approximate experience". Mediation, whether technological or psychophysical, is a key aspect of the way we make sense of and communicate about everyday experience. The media artefacts generated by participants as part of this study constitute precisely such 'approximations' of everyday life accessed through aural experience and mediated by the technological capabilities of the iPod. Exploring the range of different production approaches to the mediated representation of urban soundscapes offers an entry point into understanding

the convergences between individual technological and media competence and ways of using mobile media to capture everyday experience. In this sense, mediation manifests not simply as a technique for recording experience, but also as a *perspective* through which people access and understand everyday life. And it is not surprising that at a most basic level, participants understood this activity through the new media trope of 'digital curation' (Paul, 2008; Jenkins, Ford & Green, 2013) – as a personal archive, a 'digital diary' or 'media scrapbook' (See Appendix E). All participants were already familiar with and engaged with mobile technology in some capacity in their everyday life (e.g. taking pictures or video) and no one felt that the activity was onerous or discordant with their routine; rather, all participants indicated in the final discussions that they appreciated the ability to document their daily life through audio recordings.

Since the format as well as the specific content of recordings was left quite open-ended, participants expectedly produced a wide variety of media artefacts and employed a range of styles in representing soundscapes encountered in everyday life. To reiterate, the tools that participants had at their disposal included the *Recorder* app for audio-only recording; the iOS 5 built-in camera and video applications; Faber Acoustical's *dB*: a sound level measurement application which allows an overlay of decibel levels onto a still photograph of the environment[25]; a suite of RTA (Real Time Analysis) audio tools; all the built-in iOS 5 apps including *Facebook*, *Twitter* and *Safari* for web access; as well as several games (*Fruit Ninja*, *Bebot* and *Doodle Jump*). Approaching the data in terms of formats, at a first glance there was a range of different stylistic and modal choices around featuring different sounds and soundscapes. Aural postcards included audio files, video files, still photographs, or any combination of the three. Durations of recordings varied from under a minute to over two hours. Some aural postcards included a set of different recordings – both visual and aural; other postcards comprised of a single recording or photograph. A look at the number and type of media files generated reveals the range of stylistic choices and ways of organizing and documenting that characterized each participant's media collection (see Figure 7).

[25] dB uses the built-in microphone to generate a decibel value, it does not record or play sound, however it responds in real-time to sound changes in the surrounding area.

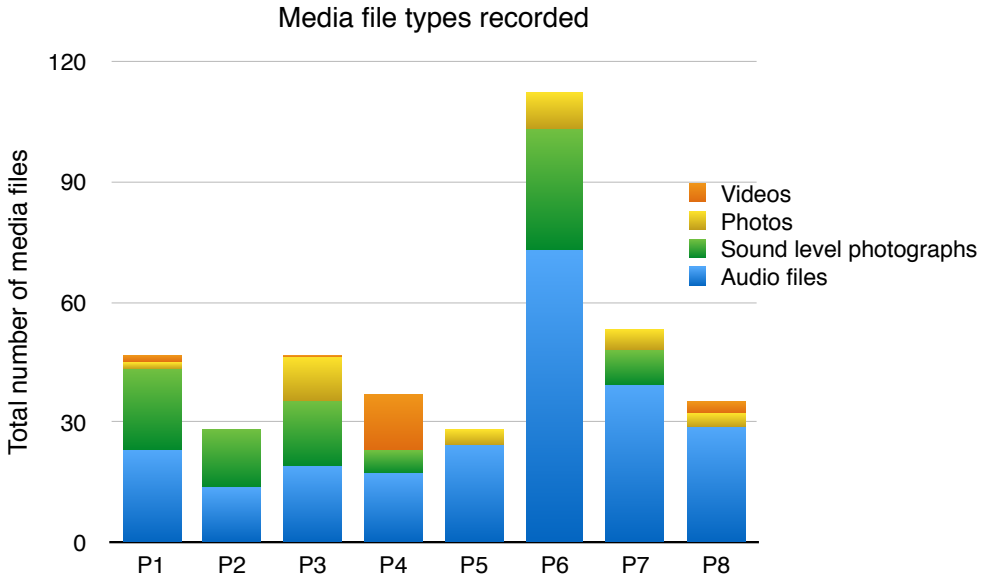


Figure 7. Media file types recorded per participant

In order to effectively map relationships between participants' media use and their approaches to capturing and framing everyday urban soundscapes, I had to first devise a way of categorizing aural postcard entries in terms of the manner in which sound was medially and discursively staged. What I mean by 'medially and discursively staged' refers precisely to the technological capabilities of the iPod that make possible certain methods of multimodal representation and communication of meaning: e.g. the use of audio, video or still image to convey a sense of ambience; environmental parameter measurements and geo-locative data to evaluate and compare different noise levels. Considering that most aural postcards contained some combination of sonic ambience, voice and/or a visual reference, I was able to derive, based on a careful examination of entries across participants and individual aural postcards, several stylistic categories for the discursive presentation of mediated aural experience. These categories were informed by Imbert Orchard's classification of aural history in terms of 'levels of remove' (Truax, 2001, p.221). Orchard recognizes four such levels of audio documentation that reflect the increasing distance between listener and historical reality: *actuality* (direct recording of a live sound event), *running commentary* (voice-annotated recording of a live event), *recall* (verbal description of a past event) and *re-enactment* (reproducing or revisiting a past event), to which I added *measurement* (collecting information about sound's properties in a given situation). As a radio producer with a keen interest in

production techniques, Orchard's conceptualizations of aural history recordings directly address the documentary process as a re-construction of cultural and sensory material into mediated forms of communication. Taking into account both sonic and visual expressions featured in the aural postcards, I have broken down the symbolic approaches that participants used for recording and representing everyday aural experience into the following categories:

> **Voice memos:** verbal reflections, pre- or post- sound event, with no discernable ambience, most resembling Orchard's category of 'recall' in that they typically contain abstracted and narrative contemplations.
>
> **Live commentaries:** voice-over entries at the location of the sound event, most resembling Orchard's 'running commentary' category, given that the thoughts and descriptions expressed are synchronous to the time and place of experiencing the soundscape.
>
> **Ambient recordings:** recordings of ambience or particular sound event with minimal or no introduction or voice-over, of varying durations. This category most resembles Orchard's 'actuality' since this format allows sound to be captured in a seemingly more 'authentic' manner, leaving the listener to form her own impressions.
>
> **Sound level photographs:** static visual representations of a soundscape, where the listening experience is evoked specifically through a numerical representation of the sound level (decibel) measurement produced in that context.

Ambient recordings can be further broken down into 'sonic highlights' (samples or excerpts of the featured sound event or soundscape, where durations are on average between 30 seconds and 2 minutes) and 'process recordings' (recordings of an entire activity or process from start to finish, capturing the soundscape as it unfolds – durations here vary on average from 10 minutes to an hour). Since live commentaries contain and feature a specific sound event or ambience, they can also be either sonic highlights or process recordings depending on the intention of the recordist and typically reflected in the duration. The presence of sound level photographs in particular, aligns with the context of new media cultural production, specifically in relation to mobile computing, locative media and augmented reality (Klopfer & Squire, 2008; Ito et al., 2010; Thulin, 2013). In their capacity as production techniques, the categories presented above can thus be mobilized in relation to understanding the individual and collective *technicities* employed in re-constructing everyday urban experience.

4.4. Media Ecologies and Mediated Listening: Convergences

If we consider different types of participation in new media ecologies in relation to Orchard's levels of remove, then typologies of media use can be re-imagined on a continuum from a more receptive 'audience' paradigm to more participatory 'social networking' forms of engagement (Jenkins, 2006a). This conceptualization provides a starting point for mapping convergences between established technological use and production approaches to framing everyday listening experience using the iPod. Once again, these convergences are meant as illustrative suggestions towards building meaningful relationships between technical proficiency and everyday media production, rather than an attempt to essentialize media types and uses. Looking specifically at the breakdown of media recordings (see Figure 8) as re-constructions of the way people attend to sound, we can begin to point towards some preliminary patterns. With regard to the two participants discussed above (P2 and P8), P2's contributions consist of 11 voice memos and only five live commentaries (a three-to-one quarter ratio), while P8 has only two voice memos and a large number (20) of ambient recordings in addition to nine live commentaries. In fact, given that the first group of participants (P1-4) was on the whole more technologically competent and new media savvy than the second group, the almost complete absence of 'process' recordings from the first group may signal a fundamental difference in the conceptualization of personal digital archiving.

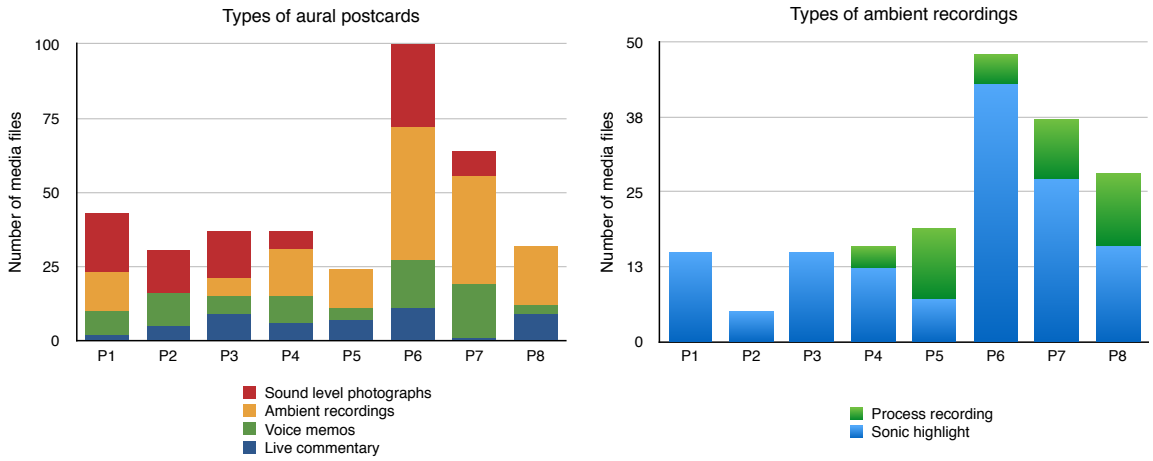


Figure 8. Approaches to representing listening experiences per participant

In other words, what it means to attend to and capture everyday life using a portable smart device is likely a function of dominant cultural paradigms and understandings already internalized by the subject, in part as a function of their habitual media use and exposure to particular communicative formats. At first glance, we could suggest that heavier investment in 'removed' forms of communication – virtual places where we can monitor and control our participation – elicits the more 'removed' format of the voice memo (Imbert Orchard's 'recall'). This in turn relates to the user's capacity to step-aside from the situational experience of the soundscape in order to reflect on more abstract implications, often separated both spatially and temporally from the original experience. As one participant put it in the final discussion (Appendix E), the less one records ambient soundscapes, the more one has to *say* about the corresponding listening experience in order to convey its richness and significance. In line with that, it appears that a lighter technological profile overall elicits a greater number of 'closer' (in terms of Orchard's classification) formats of sound capture – direct ambient recordings (P5, P6, P7, P8) and live commentaries (P3, P6, P8). Where ambient recordings entail letting soundscapes 'speak for themselves' and allow the audience the space to form their own impressions, live commentaries involve positioning the recordist as a participant-observer in the context of the experience. Participants who are heavier users of media (both old and new – P1, P6) and those most fluent in mobile computing (P2, P3) had a marked absence of process recordings, instead relying more heavily on sonic highlights – shorter clips or 'snippets' of ambience featuring the sound event. Alongside the use of 'process' recordings, the creation of visual artefacts as part of aural postcards intersects in a similar way with participants' new media and technology use. The first group used sound level (dB) photographs much more actively overall compared with the second group (Figure 8). If we look at the ratio of sound level photographs to audio files (either voice memos or ambient recordings), while participants who are more active in social media (P1, P2, P3) recorded roughly equal amounts of audio recordings and sound level photographs, participants with 'lighter' new media participation generated fewer sound level photographs respective to the number of audio recordings created (P6, P7). P5 and P8 who are likely the 'lightest' users of technology (new media in particular) did not create any sound level photographs.

In terms of overall strategies to the creation of aural postcards, participants who were more consistent in their technological and media use – that is, used the same technologies and services for communication, as well as for information and self-expression, also applied a more sustained and consistent approach to creating aural postcards. For instance, P2 (a 'heavy new media user') systematically framed everyday sonic experience through a combination of a sound level (dB) photograph and a voice memo reflecting on the soundscape both in terms of sound levels and spatial composition. P5 (a 'light media user') was consistent in featuring the soundscapes of entire activities through process recordings, letting them unfold authentically and leaving the recordings largely non-narrated as a deliberate stylistic approach (Appendix E). P4 (a 'heavy new media user') consistently used minimal-movement (almost still-image) video as a form of visual reference for live commentaries in addition to audio-only voice memos for each postcard and occasional sound level photographs. Conversely, 'mixed-media users' such as P1, P3, P6 and P7 employed a more wide-ranging and situational approach to recording aural postcards: in some settings they recorded just audio or just a photograph, while other times they captured both aural and visual elements as part of the same aural postcard. Furthermore, in the case of mixed-media users certain audio recordings featured process while others captured different sonic examples and only select postcards contained a voice memo (P1, P3, P7, P8). Participants with a lighter media ecology profile in general (P5, P7, P8) created a lot more direct ambient recordings with minimal commentary, capturing entire everyday activities and soundscapes not as 'highlights' but as 'authentic' evocations of phenomenal experience, as reported in the final discussions (Appendix E).

In conjunction with these scenarios of individual use, the above-described media ecology profiles or *personae* can now serve as fundamental anchors for investigating precisely those implications that hint at more reliable correlations between *technicity* and media production as an everyday cultural/perceptual practice. To that end, it could be argued that different degrees of investment in new media culture (and respective technological fluency) manifests in a particular manner of organizing or *curating* one's mediated presence in terms of representing everyday experiences and conveying thoughts and impressions. For instance, as my preliminary analysis suggests, participants with a heavier investment in new media privilege a more thorough (and

more abstracted from lived 'actuality') audio-visual documentary approach that often includes a combination of ambient recording, voice memo, live commentary and sound level photograph into a packaged and annotated media artefact. Similarly to the formats of expression prevalent in traditional and social media – clip, sound bite, short reportage – those participants gravitated towards capturing a range of static representations of everyday soundscapes conveying a balanced and comprehensive sense of the featured event or activity. On the other hand, participants with a lighter media profile approached the re-mediation of experience through situationally appropriate modes of capture: e.g. using sound level measurements only in loud contexts; employing process recordings when engaged in a duration-specific activity. In that, these participants conveyed a totality or 'flow' of events and activities without over-determining the 'message.' In the case of my own auto-ethnography using the iPhone as a tool for attending to sound, I definitely noticed a marked shift in my documentary practices away from creating long, extensive recordings that I would archive, and towards capturing shorter (and increasingly multimodal) highlights that I would upload on a blog or share on social media. This shift occurred, in my experience, not so much because of a growing facility with mobile computing, but precisely because of the way my use of the smartphone as a cultural practice fit in the flow of my everyday life and the media ecology of my 'digital' presence.

So far I have focused on the approaches to creating aural postcards in terms of modalities and formats, as they intersect with participants' media ecology profiles. I have constructed and presented individual subjects as 'communication hubs' of media and technology use, profiling their engagement with the tools and practices of new media culture in relation to the kinds of production techniques and approaches they utilized towards creating aural postcards. In the next section I extend these ideas by considering each participant's collection of aural postcards as a form of media archive that illuminates specific dimensions of staging sound as documentation. In other words, I look into the way all elements – modality, message and presentation – come together to form particular documentary formats that reflect different conceptualizations and representations of everyday life as apprehended through the experience of listening.

4.5. Staging mediated aural experience

In her recent book, *Soundscapes of the Urban Past* (2013) Karin Bijsterveld proposes in that in order to understand the "changing representation of urban sound and urban identities over time" we need to look at the *staging* of sound both in textual discourse and in media archives such as radio, television and film (p.14). According to Bijsterveld, the representation of sound always implicates a particular *dramatization*: e.g. the use of nature-based or other 'comforting' sounds foregrounds a sense of the city as a safe zone; while featuring 'intrusive' sounds and traffic noise highlights a sense of the urban environment as a chaotic, violent place (p.13). Exploring the dramatization of urban soundscapes in media documents thus introduces a unique perspective into understanding urban culture, both artistically and historically; in the same way, my exploration of recording sound sheds light on the staging of everyday life through the perspective of mediated aural experience.

Probing the role of technological mediation in relation to listening with technology requires first a differentiation between 'ordinary' everyday listening and recording. While the former might be tacit and encompass an entire sound environment, the latter is typically selective, focused and purposeful. It is precisely this microcosm of choices embedded in the decision to capture something encountered in the course of everyday life that is at the heart of my inquiry. While not all aural experiences are aesthetically distinctive, meaningful or valuable, those that are *selected* for recording embody a range (no matter how narrow) of decisions around format, communication and significance. Extending the concept of *staging* beyond content and connotation thus allows us to focus on the convergences among format, style, organization and presentation. In all their variations across individual participants, aural postcards created as part of the study all involve a combination of *aesthetics* (the choices around media format, recording duration, microphone placement, voice-over, etc.), *value* (the personal significance associated with the sound event or soundscape), and *meaning* (the communicative intention of the featured experience in the sense of 'message,' analysis or reflection). When one chooses to record a particular soundscape or sound event instead of another there is always an implicit or explicit meaning that is intended and/or communicated through the creation of that media artefact. Furthermore, the format,

duration and staging of each recording express aesthetic choices and decisions that may or may not be explicitly discussed (when to press “record” and when to press “stop”; where to aim the microphone, how to position and move the recording device; whether to include a photo or not, whether to collect sound level measurements; whether to comment on location or record commentary later, etc.). Focussing on particular aspects of the aural experience also involves personal choice in the form of *bracketing* a ‘slice’ or ‘snippet’ as a featured selection. Collectively, each participant’s media artefacts reflect a specific curatorial process whereby certain conceptions of everyday life come to the foreground through the staging of sound. In this sense, a collection of aural postcards can be treated as a documentary methodology for the exploration of urban soundscapes; a process of curating everyday life from the standpoint of sonic experience (Figure 9).

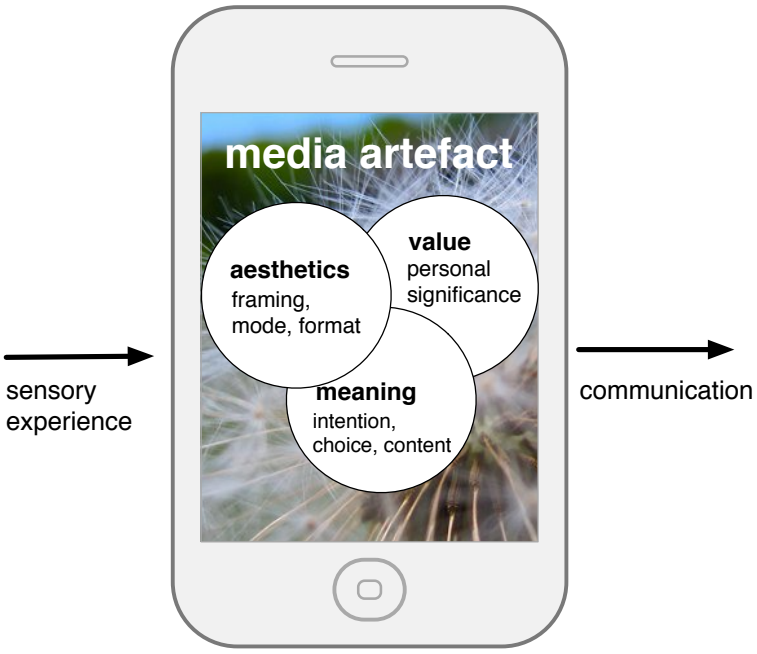


Figure 9. A model for curating everyday sensory experience

This curatorial process involves creating forms of documentation that take particular stylistic formats and organizational character depending on the way everyday aural experience is encountered and represented. The idea that participants utilized a personal methodology for curating everyday life builds directly on the media ecology personae discussed earlier in terms of particular stylistic and modal choices employed. In other words, the question of staging mediated aural experience is as much a question

of approaches to listening, as it is an issue of media and technological competence with regard to the *representation* of sonic experience. From that perspective, adopting a multimodal analytical framework for me as a researcher means looking both for convergences across the specificity of each participant's approach and for thematic stylistic characteristics of different media artefacts in their capacity as forms of communication.

In order to provide a model for and lend validity to the task of constructing approaches to staging mediated aural experience I turn to Bill Nichols' (2001) classification of *documentary modes*. According to Nichols, documentary modes – that is, the combination of visual aesthetics, voice and message that characterizes the documentary film genre – can be expressed through the following categories: expository, poetic, observational, participatory, reflexive and performative. The expository mode embodies authoritative narration (e.g. the 'voice of god'); the poetic mode strives at an 'inner truth' through subjective and artistic manipulation; the observational mode is the closest approximation to 'authentic' reality (e.g. 'window to the world'); in the participatory mode the filmmaker/author is implicated in the documentary subject in an attempt for direct engagement with the audience; the reflexive mode brings attention to the artifice of media representation; and finally the performative mode replaces notions of objectivity with 'evocation and affect'. Engaging Nichols' classification in conjunction with Imbert Orchard's categories of aural history documentation, I articulated four approaches to staging mediated aural experience that participants adopted as part of the study: exploratory, aesthetic, narrative and analytical.

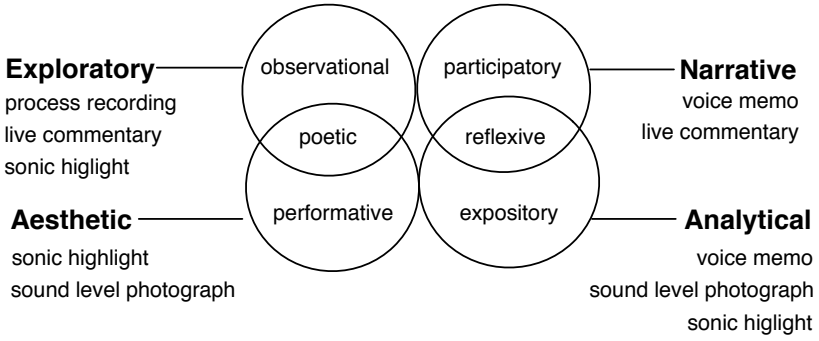


Figure 10. Approaches to staging mediated experience

These modes of sonic documentation represent a convergence of the stylistic and procedural categories of media artefacts already discussed in this chapter. Figure 10 offers a preliminary sketch of the overlap between Nichols' categories and the four approaches hereby proposed, including the way specific media artefact types map to each documentary approach; these overlaps will be further discussed in each corresponding section to follow. The four modes of documentation proposed here are meant not as exclusive categories, much less individuated methodologies, but as dimensions present (to varying degrees) in each participant's collection of media artefacts. What follows is an elaboration and illustration of each dimension, constructed as a distinct curatorial process for the staging of mediated aural experience.

4.5.1. Exploratory approach

> *The banal, the quotidian, the obvious, the common, the ordinary, the infra-ordinary, the background noise, the habitual? [...] How are we to speak of these common things, how to track them down, how to flush them out, wrest them from the dross in which they are mired, how to give them meaning, a tongue, to let them, finally, speak of what it is, who we are. Georges Perec, 1997*

This approach describes a methodology for representing everyday life as a *flow*, predominantly through ambient recordings of unfolding process that participants referred to in the final discussion as a 'turn it on and forget it' approach to recording. As a stylistic method, the exploratory approach aligns most closely with Nichols' *poetic* and *observational* documentary modes, combining a 'window to the world' aesthetic with minimal narration, striving to convey the 'inner truth' of phenomenal experience. By and large, the exploratory approach describes incidental documentaries of routine events: soundscapes that are featured as a result of greater attentiveness and investment in the sonic aspects of everyday life, as a function of participation in the study. The entries created using this approach reflect a process of discovering (seeing and hearing) the ordinary as extra-ordinary (Lefebvre, 2002; Perec, 1997); re-experiencing sometimes mundane and routine places and activities with a fresh perspective and actively exploring hidden characteristics, nuances of meaning and significance. In the spirit of exploration, many participants prefaced their recordings of typical everyday occurrences in terms of being 'curious what [this process] actually sounds like' (Appendix E), as well

as being open to the potential unpredictability of routine: as one participant put in in the final group discussion, “I’m just about to walk and maybe you’ll hear something, I’ll see what would develop if I turn on the recorder and forget about it” (Appendix E). Below is an example of an exploratory aural postcard of a participant’s (P8) workplace (a mail-sorting warehouse). It features the general ambiance of an environment that is routine for her, but that she was away from for a week due to injury. She thus used the recording as an opportunity to purposefully re-hear the routine-ness of this context. P8 chose the format of a process rather than a highlight excerpt recording because, in her words, “this activity doesn’t have just one sound, it’s a whole soundscape” (Appendix E) As she shared in the final discussion, what she wanted to capture with this recording was the totality of her relationship to this place and her work routine in all its complexity.

“Back at Work” (1:29:41 min)

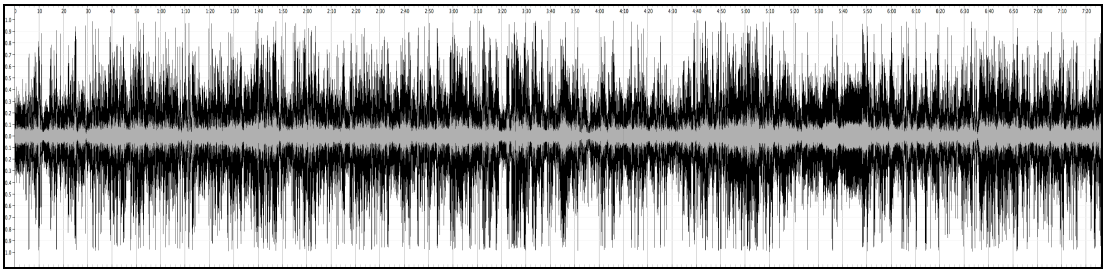
Ok, it’s day 9 and I’m finally back at work. This would be an interesting environment for you to listen to, so I’m just going to let it roll…

Figure 11. P8 – Aural Postcard 9 “Back at Work”

The recording spans close to an hour and a half and moves as the participant moves (she placed the iPod in her shirt pocket). We hear the acoustic character of a large reverberant indoor space; a myriad of machinery operating at various distances; voices mixing and resonating inside the space; close-up conversations with colleagues; a mixture of repetitive factory-line sounds and ambience changes as voices rise and lull during the work day. The way P8 herself described this environment to the group during the final discussion further reflects her stylistic use of audio recording as a form of communication: “there’s this *ssssshhhhhh* and something explosive would happen like a forklift or some big kafuffle in the environment; and some people are bullies and you can really hear that. It’s just really loud. People are constantly moving, dropping stuff. And everything echoes” (Appendix E, supplementary comments about Aural Postcard 9).

Alternatively, the following aural postcard from P4 reflects an exploratory approach conveyed in the form of an incidental ambient sonic highlight of hanging out with friends in a café, followed by a voice memo. What we hear is the typical ambient sounds of a café – coffee grinder and espresso machine nearby; clinking of ceramic cups and plates; music in the background; a general murmur of voices; and a more foreground conversation between several friends, P4 included.

"Café Living" (0:7:26 min)



"Source notes for Café Living" (0:1:17 min)

I made my 7th aural postcard at Gene this afternoon at probably sometime around 3 o'clock. I'm just making a record of the aural postcard itself and maybe offering a bit of commentary to put it in context. I'm also doing that while I'm making dinner, you can probably hear that. I guess this was really my first attempt at trying to get a whole soundscape recorded and of course what better soundscape to record than the noise in a rather noisy and social café. I feel like I tried to listen to it again while making my dinner but of course it's so noisy that it's hard to get a sense of really what was going on. But you can hear that there was a bit of talking from me and a lot of awareness of the moment being recorded. I think I'm going to kind of leave it at that. It's kind of hard to multitask but I wanted to make sure that I remember exactly what it was that I had recorded and maybe I'll come back to it tomorrow and see how else I feel.

Figure 12. P4 – Aural Postcard 7 "Café Living"

The mediation of the recording device is intentionally minimized in order for the 'authenticity' of the café ambience and social conversation to come through – the participant refers to her intentionality as an "awareness of the moment being recorded." The representation of this soundscape is constructed from a 'fly on the wall' perspective, evoking rather than explaining; yet at the same time the listener is drawn into the exploration and placed in the middle of the unfolding conversation. The commentary is given in a secondary recording made at a later time against the backdrop of a different soundscape – that of cooking dinner. The reflection is then split, attending to memories of the café soundscape, as well as to the actuality of kitchen sounds and the process of cooking. Even the decision to "come back tomorrow and see how else I feel" about the

initial recording appears to reflect an exploratory methodology, one that isn't driven by a preconception or hypothesis but a desire to problematize the soundscape itself – something that P4 expresses at the onset of the project as an overarching intention (noted in one of her early aural postcards).

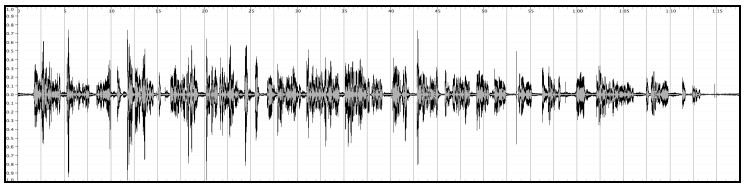
4.5.2. Aesthetic approach

The aesthetic approach describes instances where the creation of aural postcards was driven primarily by the qualities and features of the soundscape itself; specifically where the intention to capture reportedly came from an incidental encounter with an 'interesting' or 'cool' sound (as per participant comments in the final discussion – Appendix E). This curatorial practice for staging mediated aural experience aligns most closely with Nichols' performative and poetic documentary modes. It combines a largely subjective approach to documenting and an absence of traditional narrative development with an affective and evocative aesthetic. Where the exploratory documentary approach seeks to represent place, routine, environment, social setting and context through sonic characteristics, the aesthetic approach features sound first and foremost, aiming to represent and comment on sound qualities and characteristics directly. The media formats most often used in conjunction with this approach were the incidental ambient sonic highlight and the live commentary. Following is an example of an aesthetic approach to staging aural experience made by P6 as a portion of a larger aural postcard created at a popular walking trail in Richmond, BC. The aesthetically driven portion of the postcard represents an encounter with a kinetic sound sculpture as part of a public art exhibit. Consistent with this participant's general methodology for the creation and organization of aural postcards, each media artefact is recorded separately. In fact, P6 is in the middle of a purposive live commentary, walking along the trail when she encounters the strange-looking sound sculpture. She interrupts the recording to take several sound level photographs of the area (as noted in one of the audio recordings associated with the postcard) and proceeds to engage with the sonic exhibit and capture these spontaneous interactions. What we hear in the sonic highlight recording is an open outdoor space and distant traffic which becomes audibly modified (amplifies and resonates) when P6 walks through the metal plates; we also hear P6 drumming on the sound sculpture, which produces resonant metallic tones. As well as commenting live on

this aesthetic experience, P6 also records a voice memo immediately after, to capture some supplementary reflections about the sound qualities of the art sculpture, as well as some general impressions of the park.

"Sound Art Installation" (0:0:36 min)

There's some artwork here – these big metal cymbals weren't here the last time. I'm going to walk through them and see if the sound changes. [sound changes audibly] Oh yeah! I don't know if you can tell, there's a massive echo when I stand between them. It actually looks like they're amplifying my voice too, 'cause there's another cymbal in the distance that appears to have a speaker. I think I'll take a picture of this.



"Sound Art Commentary" (0:1:17 min)

What I wanted to say about the image that looks like cymbals is, it's actually a sound installation. There are tubes attached to each of the metal pieces and if you stand between the cymbals and talk somebody can hear you on the other side. And there are these metallic drums. So I drummed on a couple of them just to hear their tone. You can hear them come out of the other pipe, so, if it were warmer out, I'm sure they would sound different, because it's so cold out today, I'm sure the sound is a little bit different than if it were warm.

Figure 13. P6 – Aural Postcard 5 "Sound Art Installation"

As another example of an aesthetically-driven documentary approach, P8 creates a purposive ambient highlight of driving her new motorcycle. The sound of the engine is featured as a foreground to the aural postcard. Even without explicit reference, analysis or explanation of the sound characteristics, the listener is invited to appreciate the aesthetic qualities of this particular sound event guided by the recordist's obvious excitement. The recording is briefly introduced as the participant listens for the sonic properties of the throttle, and then interrupted as P8 comments on having to adjust the choke. While the listening attention is deliberate and logistical (establishing the 'health' of the engine), the act of creating this aural postcard appears to point to a decidedly aesthetic sensibility.

"I Bought a Motorcycle" (0:02:52 min)

This is me, and this is the first motorbike that I've ever bought in my life. [starts up bike] I think I'll have to adjust the choke a little bit … [starts the bike again] Woah, woah, easy now… [stops bike] I'm pretty stoked about it!

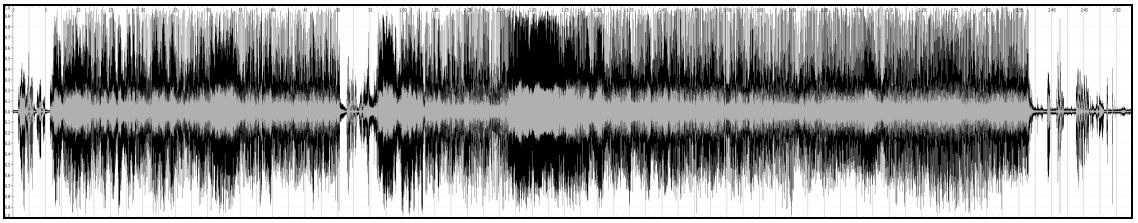


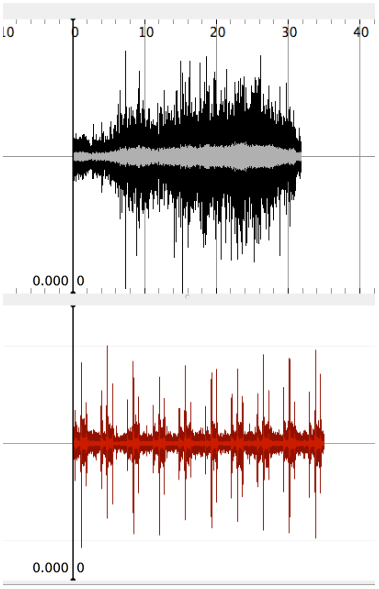
Figure 14. P8 – Aural Postcard 12 "I Bought a Motorcycle"

4.5.3. Narrative approach

> *To begin with, everyday life does not exist as a generality. There are as many everyday lives as there are places, people and ways of life. Henri Lefebvre, 2002*

This approach to creating aural postcards stages sound as a springboard for recollecting memories and storytelling through reflecting on associations with other soundscapes, environments and interactions. Rather than highlighting place, routine, or sound itself, this methodology constructs sound as a window into the identity and inner life of the recordist. It most closely aligns with the participatory and reflexive documentary modes in Nichols' framework. This approach combines a subjective narrative development, often reflective of the process of documentation itself, with a participatory aesthetic that draws the listener into the unfolding story. This approach is also performative (Nichols, 2001) in that it stages sound as a deeply subjective experience and approaches the narrative from a personally significant perspective. Most often this type of sound staging was curated using voice memo narratives about a particular sonic experience in conjunction with an ambient sonic highlight, or as a live commentary. While some participants communicated personal significance through purposive recordings, recollections typically emerged from incidental encounters, or in the midst of other observations about sound. The example below created by P6 stages sound as a phenomenal instance that triggers a personal recollection in the format of a live commentary. The context for encountering this soundscape is the participant working temporarily as a production assistant on a film project, having to drive around on

errands. The aural postcard contains two short ambient highlight recordings featuring wipers and rain falling on the car roof. In the typical style that this participant curates their aural postcards, the two sonic highlights are a purposive comparison between the sound of 'heavy rain with no wipers' and 'rain with intermittent wipers'; curiously, however, there is no accompanying sound level photograph.



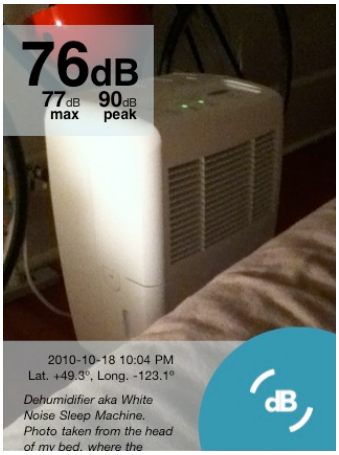
"Thoughts on Rain and the Film Industry" (0:2:09 min)

Well it's 8:30 on Friday night and I'm waiting in the car again, just 'cause I'm illegally parked. So I was just thinking about how I haven't paid much attention to the instructions that were in our sound booklet, and I suspect there were probably some questions I was supposed to answer and comments I was supposed to make on my recordings. So I thought I'd take this time to make some notes. I know that originally I thought I would go exploring for special sounds and that, but it's ended up being just recording things wherever I was, whenever I had a moment, so a lot of it's really the banal sounds of the everyday. Not special recordings, but you know, that's legitimate in and of itself. But now tonight, Friday night, I'm thinking about how plush this job is compared to me being a camera assistant. Out there it's raining torrentially but I'm sitting in the car. I haven't even put my rain jacket on. I'm used to having like three pairs of rain gear and switching them out every hour, and being pissed on for 12 hours. So that was my thought on this sound recording, rain on the car roof with wipers, that I missed my calling in the film industry, I should have been in transportation.

Figure 15. P6 – Aural Postcard 12 "Thoughts on Rain and the Film Industry"

The recordings of rain and wipers, thus, seem to be an experimental and aesthetically driven way of attending to sound. Accompanying that is an incidental voice memo with general observations about recording sound as part of the study, including a discussion of P6's intentions for further recording. At the same time, the presence of rain-on-car soundscape seems to trigger an additional association and reflection about the participant's past career as a camera assistant in the film industry. In this sense, the manner in which sound is staged in the two sonic examples constitutes a phenomenal moment that ultimately shapes the aural postcard as a reflection triggered by memories. Alternatively, the following aural postcard is a purposive sonic highlight of a specific sound (dehumidifier) used as a vehicle for an intentional narrative about the experience of moving to a new apartment and dealing with the noise of neighbours. In conjunction

with the theme of a sleeping 'noise machine' the postcard also contains a sound level (dB) photograph of the dehumidifier's sound levels. The story is staged as a live commentary against the whirring of the dehumidifier – a format that brings attention to the actuality of the sound event as P4 is struggling to speak over the noise, bringing the listener inwards as a participant in the event.



"Sleeping through a loud sound" (0:1:57 min)

I don't know if you are even going to be able to hear over this. Probably this is a little frightening. It's my dehumidifier and unfortunately for the last month or so it's the reason I sleep at night. See, I moved into this new apartment and both the person who lives beneath me and the person who lives next door to me happen to work really late jobs during the week and usually don't get in until 1 or 2 am, which is right around the time I'm trying to get to deep sleep. It's not an ongoing problem but I guess just with some of the stresses that cropped up over the summer, made it easy for their respective returns to their apartments to wake me at night and keep me from getting a good night's sleep. So I've developed this funny relationship to my dehumidifier. I guess knowing that it's really actually as loud as it is, now that I've measured the sound level, I have to think about putting it in my living room where maybe it'll be just loud enough to overpower the sound of two guys coming home late but not noisy enough to cause hearing loss.

Figure 16. P4 – Aural Postcard 2 "Noise Machine"

4.5.4. Analytical approach

> *Before familiarity can turn into awareness it must be stripped of its inconspicuousness; we must give up assuming that the object in question needs no explanation. However frequently recurrent, modest, or vulgar as can be, it will now be labeled as something unusual. Bertolt Brecht*

This approach describes entries that stage mediated aural experience as a way of systematically and inductively investigating everyday phenomena; a conceptual and analytical experimental methodology employed towards confirming or disproving a 'hypothesis' or forming a theory about sonic relations developed in the course of the study. In this context sound is treated as a variable to be measured, compared, researched and theorized about in an explicit attempt to form conclusions about social relationships, personal significance, place, or function. In other words, this approach, and the corresponding attention to sound, is used as a way of developing analysis and

understanding the significance of sound in everyday life. This analytical methodology combines an explicit and critical focus to the process of documenting itself (whether it be measuring decibels or systematically attending to sonic qualities) with a distinctive analytical synthesis that presents as 'formal discovery' or even 'truth.' In using this approach participants most often mobilized the format of short sonic highlights and follow-up voice memos. While typically these aural postcards contained sound level photographs (decibel measurement values), in some cases the inquiry and subsequent conclusions were made inductively through sustained observation of series of soundscapes. Often the thread of inquiry could be traced across a given participant's entries as they collected more 'data' about sound in their everyday lives and compared it to previously experienced and recorded soundscapes.

"My Bathroom"

So I was just in the bathroom and noticed it's a relatively quiet space, so what I thought I would do was take a sound map of that space. I didn't have the door fully closed, and I turned on the thing and noticed I was still getting like a peak of 72 decibels. And I wasn't really sure if, like at first I was convinced that there couldn't be that much noise going on around me. And as I sort of tuned in, I could actually make out the vent in the bathroom directly above us. I could also make out that they eventually flushed their toilet and I think part of me could actually hear the computer in the other room, like the whirring of the fan. And I mean I know the difference between deafening silence and a quiet room. And I think this room made that distinction quite clear for me. Because I do remember being for example in my old apartment, and you know, the bathroom in that room, the silence could be quite deafening. You'd literally close the door and you'd just hear the ringing in your ears. That would be the loudest thing you'd hear. But here definitely I don't think we have a room in this house, actually now that I think of it, it's not something I realized before, that is as quiet as that. And I think you know part of the reason might be because of the fact that there's someone's bathroom directly overhead now and there wasn't before. We're on the ground level, everything is sort of very horizontally laid out instead of vertically laid out in the old place. And so yeah, a little myth-busting there on my own first impressions of the room.

Figure 17. P2 – Aural Postcard 3 "My Bathroom"

The aural postcard in Figure 17 is an incidental investigation of the sound levels of P2's bathroom (which he considers to be the quietest room in the house) in comparison with other rooms that he had already explored systematically by reflecting on the sound

levels measured. Similarly to all of his aural postcard entries, P2 did not record the ambient soundscape – rather, he attended to it acoustically while monitoring live readings with the decibel measurement iPod app. The inquiry continues here through a voice memo directly following a decibel measurement, with an analysis that P2 refers to as "myth-busting". Consistent with an experimental design, the commentary here includes a description of the 'conditions' of the measuring session, a step-by-step recounting of the process, and a summary of 'findings' and conclusions. The postcard or rather, the exploration itself, references other comparative decibel values that the participant has recorded; furthermore, subsequent aural postcards make reference back to this instance of sound level measurements as well as his analysis and discussion of the properties of the space. Alternatively, the next postcard created by P3 (Figure 18) embodies her quest to qualify the distinction between 'pleasant' and 'annoying' sounds in terms of connotations, aside from simply a 'loud-quiet' duality. Through the process of curating different soundscapes, both pleasant and unpleasant, loud and quiet, she continues to sharpen her unique perceptions and add to an overarching discussion of sensitivity to sound in different contexts. Many of her entries deal with the relationship between her emotional state of mind at a given moment, and her subjective experience of listening and perception of the surrounding soundscape. In particular, one dominant theme for P3 across a number of entries is her use of headphones / iPod listening to escape and tune out city noise. This particular aural postcard represents her incidental reflections about the typical urban sound environment of a popular café. Given that this entry is reportedly motivated by the presence of 'noise,' the postcard contains a sound level photograph, and P2's self-analysis is relayed using the live commentary format, with the ambience in question plainly audible in the background.

What these overarching categories of documentation illustrate are both the unique qualities of individual approaches to capturing, representing and communicating about sound, and the convergence of thematic methods for the exploration of everyday life through the practice of listening with technology. Articulating these approaches draws together the configuration of different stylistic decisions, setting choices, as well as manners of reflection and analysis towards an overarching conception of staging mediated sound as a *curatorial practice*.

"Our Town"

I'm here, feeling silly now. I came to this café to study. It's 7:30 at night, it's Our Town café and it started out as a beautiful, quiet café, but it all of a sudden became a noisy, night time atmosphere and that made me think of sound. And so I was listening to my headphones and trying to drown out the sound of the café and I couldn't even hear my headphones anymore because of the blaring, noisy club [music]. And I guess it was a bad choice of a place to study but I thought I would make a little sound recording of this spot' cause this is the city sound that I know a lot. And I was also thinking about how all of my entries must seem so obvious, like I sort of say what I think is really obvious information, but maybe it's just obvious because it's me listening, and I've been trying to think outside the box and think about other ways to hear sound and I'm just sort of stuck in my own ways of like, my annoyance with sounds and my love of quiet and my love of my choice of music and not other peoples' choice of music or the chatter around me because I want to be alone at the café.

Figure 18. P3 – Aural Postcard 9 "Our Town"

In light of the central theme of my analysis so far, concerning the intersections between listening, technology and everyday life, the four documentary approaches can now be discussed in relation to the media ecology personae developed earlier. It is important to emphasize at the onset that these approaches cut across stylistic formats and types of media user – that is, neither approach is characterized exclusively by a particular type of media representation; nor is any documentary mode the purview of a specific media user. Rather, there are convergences that point to salient patterns in the mediated representation of everyday life connected with particular typologies of media use. For instance, while heavier new media users tended to utilize mostly aesthetic and analytical approaches to staging everyday aural experience, mixed media users and 'old' media users employed overwhelmingly exploratory and narrative approaches to the curation of everyday soundscapes. In addition, more technologically fluent users organized their entries predominantly as 'packages' of complementary audio-visual material, whereas lighter technology users tended to rely on a single-modality, situationally appropriate representation for each soundscape or sound event featured, i.e. an audio file to depict a process, a separate voice memo to discuss or offer a narrative about the recording; a sound level photograph to portray noisy environments. These findings can be seen to align with typologies of new media competence offered by

Jenkins et al. (2006) as well as 'genres of representation' proposed by Ito et al. (2010), in that they construct the participatory new media user as a deliberate and skillful producer of convergent multimodal digital artefacts, navigating the process of technological mediation as seamlessly as phenomenal experience; alternatively, the traditional media user works more strictly along the axis of modal experience in a deeply subjective way, capturing experiential content in a way that engages self-reflexively with the process of technological mediation. This line of analysis also aligns with Dovey and Kennedy's (2014) conception of 'technicity' in that it illuminates cultural practices with technology as 'heterogeneous and dynamic aspects of identity formation in contemporary techno cultures" (p.1) – that is, technological use is inextricably linked to subjectivity and already established participation in the production of culture. Remaining mindful of the overlaps in the characterizations of documentary modes and typologies of use, the above-presented categories of staging mediated aural experience can be considered as *dimensions* of an everyday (mobile) curatorial practice. This curatorial practice implicates the process of technological mediation itself, both in terms of approaching phenomenal experience, and in the way sensory material is re-constructed into 'approximate experience' through media representations. The next section builds precisely on the mediational aspects of curating everyday life by examining listening with technology from the standpoint of the *listening process* itself. In order to problematize the way sound constitutes a unique perspective for accessing and understanding everyday life, I present a preliminary model for visualizing the interplay between place, sound, identity and memory as elements that intersect at the site of mediated aural experience. In doing so I aim to elaborate on another set of convergences – those that happen at the very point of listening itself.

4.6. Listening Convergences: Encountering Everyday Life

> *Concepts without percepts are empty. Percepts without concepts are blind. Immanuel Kant, 1781*

Given that sensory experience is one of the ways in which we encounter and apprehend the world, tools for capturing sensory experience allow us, by extension, to understand and construct ideas about the world and ourselves, and communicate that

understanding to others (Pink, 2012). Everyday experience, and ultimately the very problematic of 'everyday life' have been ethnographically formed in relation to (and contrast with) a history of documenting 'non-everyday' phenomena. In outlining the discursive territory of the 'practice turn' in ethnography, Sarah Pink (2012) surveys several metaphors that conceptually inform understandings of and research into the everyday: everyday life as *flow* – attention to the unfolding succession of actions, social processes and interactions; as *movement* – a framework that addresses human activity and geographical displacement as quintessential aspects of everyday life; and as *place* – an approach resting on the notion that everyday life happens in specific settings and is necessarily mitigated by physical setting/context. Thinking in terms of sonic experience, as outlined in my literature review, sound is uniquely positioned in relation to the experience of place (Feld, 1993; Classen, 1993; Rice, 2002), movement and territoriality (Thibaud, 2003; Bull, 2007; McCartney, 2010) as well as temporal experience (Nancy, 2007; Ihde, 1976; Schine, 2010). It is therefore up to an individual researcher and particular research agenda, to construct everyday life as flow, as movement, as practice or as place through the activity of listening. Considering that each participant undertook essentially a mini-research project through the process of a sonic auto-ethnography, the individual methodologies utilized by participants reflect and are mediated by each person's unique conceptions and understanding of everyday life. Without delving into the philosophical lineage of conceptual and experiential knowledge, the process that participants engaged in as part of the study illuminates a long-standing question about the relationship between perception and conceptualization. 'Reading' the content of aural postcards reveals, through the properties of the different documentary iterations, an always-present interplay between pre-existing ideas about what it is that participants intend to capture, and reflections that arise out of the mediated sensory experience of capturing. In other words, the structuring and choices around recording settings and content reveal particular perspectives about everyday life and relationships to everyday practice, as communicated through media artefacts. Each aural postcard can thus be considered a particular mediated representation of an everyday experience. Problematizing methods for the selection of recording material in turn provides a way of addressing the manner in which participants access and understand everyday life *sonically*.

In terms of type of activity recorded, I categorized participant entries as 'routine' versus 'special occasion' aural postcards – where routine settings comprise soundscapes or sound events associated with a participant's routine, or a typical event directly encountered and recorded as part of everyday life[26]. Alternatively, special occasion aural postcards feature activities or events that happened during the study period but are typically outside the context of the individual's routine[27]. To the extent that I could determine, each aural postcard was also either primarily *incidental* or *purposive*. Certainly all aural postcards are purposive in that they involve a conscious choice to feature a particular soundscape, event or activity, however, in some cases participants clearly recorded an event that was already unfolding as part of their routine at that time and place (incidental), whereas in other cases participants deliberately sought out specific soundscapes in order to feature a particular situation or sound event (purposive). While only some of the participant entries contained explicit indication as to the *intentionality* of the recordings, I suggest that the distinction between *incidental* and *purposive* aural postcards sheds light on the way participants approach the representation of everyday life, and how they communicate personal significance in technologically mediated settings. A closer observation of the aural postcards in terms of a relationship between setting and intentionality reveals that while most participants featured street settings, work, school and transit in a largely incidental way, aural postcards featuring retail environments or nature settings were overwhelmingly purposive, which is to say that participants went out of their way to visit and feature these contexts. Postcards set at cafes and restaurants or in the home were split between incidental and purposive with most home-based soundscapes being purposive. Many routine domestic sounds were performed specifically for the purposes of recording and reflection, particularly by those participants who reported spending a lot of time at home (P2, P4, P7). In essence, the closer participants were to a particular routine, the more dominant it was in their everyday life, the more purposefully they explored it sonically using the iPod. As one participant put it:

[26] The most common routine settings featured across participants included the soundscapes of the home; the street; nature; traffic and other forms of transportation; cafes and restaurants; retail environments; and work or school settings.

[27] Examples of these types of events include attending a concert (P2); Halloween celebration soundscapes (P1, P3), attending a public lecture (P6), etc.

> I really like [my] apartment so I'm interested in continuing to explore my relationship to the sounds that the structure of the apartment building enables. Not just the lightwell I guess but also the thinness of the walls, the unusual lifestyles of the inhabitants, the setting of the building in a fairly central urban neighbourhood…It's probably a good idea for me to be exploring these things because frankly a lot of them confuse me, and I'm not always sure how to respond to them. (P4, Aural Postcard 2)

In trying to understand how mobile technology mediates a particularly 'aural' relationship to everyday life, I began thinking of and mapping relationships between pathways of sensory experience and elements of subjectivity that converge (in some configuration) in each listening encounter. Revisiting the links between sound, place and memory in relation to metaphors for understanding everyday life – through practice, place, movement and flow, formed a starting point for uncovering patterns of convergence that define listening encounters in everyday life. While all multimedia recordings constitute representations of some manner of listening, in the case of voice memos or live commentaries, the intersections between sound, place, practice, identity and memory are a more discursively explicit. Examining these reflexive accounts, I began to see several types of potential convergences between the 'actuality' of sensory experience and elements of its mediated representation. For instance, the featured sound was most often discursively associated with a place, a practice or the participant's identity. While reflections related to identity often included voice memos, representations of places or routine practices consisted predominantly of non-narrated ambient recordings. In many instances where the postcard featured a specific everyday practice or activity, sound was discursively incidental to the 'message' conveyed. In fact, the role sound played in these 'moments of significance,' particularly in accounts involving discussion or storytelling, was typically as a trigger for memories and associations. Live commentaries were associated predominantly with sound's connection to place. The figure below presents a preliminary model for visualizing these relationships inside the singularity of each listening encounter. I envisioned these relationships as pathways that encompass the channel of phenomenal (sonic) experience, the unfolding flow of everyday practice, and the reflection and analysis related to the significance of the captured event. In that, I hoped to evoke sound's unique experiential connections to place, movement and memory as already theoretically and ethnographically established relationships (Feld, 1993; McCartney, 2010; Nancy, 2007; Bull, 2007).

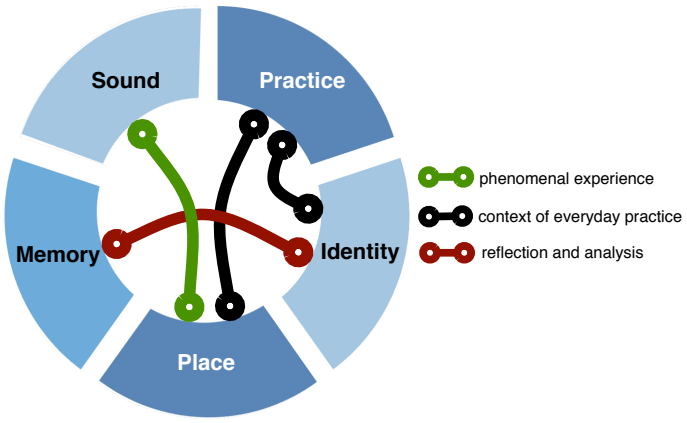


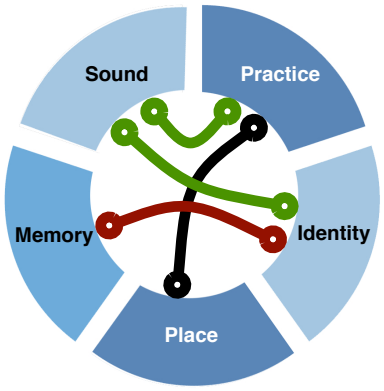
Figure 19. Listening intersections schema

In the next paragraphs I delve into three specific aural postcards in order to exemplify some of the more salient patterns of convergence between the three elements (sensory experience, everyday practice and reflection) that were present across participants and individual listening encounters. Each example contains a researcher note, the transcript from the corresponding voice memo, and a figure mapping the specific relationships between sound event, everyday practice, identity, memory and place that characterized the experience.

P7 – Aural Postcard 18 "Chasing the dog"

This aural postcard was originally recorded as two ambient sonic highlights, and later (upon re-listening of the original recordings) described and discussed by the participant through a voice memo. The two sonic highlights are short clips (over a minute each) featuring just the ambient soundscape of P7's partner playing and running with the dog at home: we can hear verbal encouragements, laughter, and the dog's excitement as well as the sound of him running on hardwood floor. What seems central here is that the participant's identity is deeply connected to the sound as an uplifting and sometimes necessary reprieve from a routine of physical pain and disability – something the participant talks about in a number of her aural postcards. The activity of 'chasing the dog' is connected to a specific place (the home), and even to a time of day (late at night). The significance of the soundscape is recounted by referring to memories of past instances of the event and its role as a household routine, highlighting the emotional impact of the activity through its sensorial characteristics and connotations (elsewhere

this participant has spoken several times of the joy she gets from watching and hearing the dog run fast in different types of settings). This purposive featuring of a routine is presented initially through the format of sonic highlight, rather than a live commentary, at once reflecting the participant's intention to "let sound speak for itself" (as she puts it in other voice memos), and a desire to convey the emotional residue of the sonic experience through a recording of the 'actuality' (per Orchard's classification) of the event. As we see in Figure 20, while the sound associated with the practice of chasing the dog triggers a moment of personal significance related to identity, which in turn, evokes memories of household routine related to both place and the participant's lifestyle and sense of self.



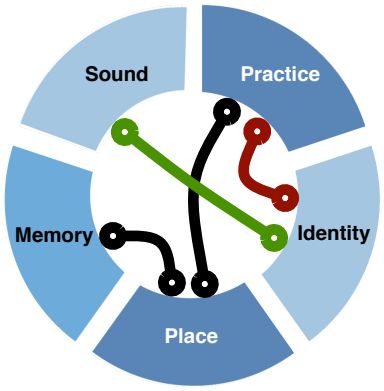
This is a common soundscape that probably happens every day in the home, and that is chasing the dog. I wasn't chasing the dog, S was … I can chase him a little bit but I get tired, and I just find it amusing when the two of them run around and collide. S's footfalls are very heavy so that's a big part of it and the dog scatters around on the linoleum floor and it's just a very common sound in our home and it's one that I really like, I find it uplifting. I deal with a lot of depression because of having chronic pain and it's difficult for me. Sometimes S's tired but I might go and encourage her to chase the dog because it makes me happy. That's a good soundscape to end on because it often happens late at night, close to midnight, and it's a soundscape I enjoy!

Figure 20. Listening convergences: "Chasing the dog" (P7)

P6 – Aural Postcard 1 "Coffee"

This aural postcard includes a dB photograph and a live commentary recording of making coffee in an old-fashioned stove-top percolator (the coffee is being made in the background). The recording starts off with a long stretch of soft hissing and some distant traffic noise that the participant comments on; it continues on and as the hissing intensifies the participant makes a note that 'this is not a mistake' and she is still recording the process of coffee-making. As the coffee begins to gurgle signalling that it is ready, P6 shares some thoughts about her relationship to this particular sound. The strongest intentional connection here seems to be the participant's self-identification with the practice of making (and drinking) coffee – by extension, the soundscape itself is one that is deeply associated with the participant's identity (as we see in Figure 21). In fact it

is the specific act of *listening* for the sound of the stove-top percolator that the participant identifies with – a kind of 'coffee-whisperer' expert listener of sorts. In explaining the process of making coffee she draws on memories of routine actions that go alongside it – putting the pot on, going back to bed, timing the process through the sound that coffee makes. This is a practice typically set in and associated with the home life of this participant, as is this specific method (routine practice) of making coffee.



[Soft hissing sound] I'm still recording. It's not a mistake, just a slow process. [Hissing sound gets louder; intensifies and starts gurgling]. That's the sound of a stove-top percolator which I've been using for many years and I pretty much know exactly how long it takes to make a pot of coffee by the sound that it makes. As people who've stayed at my house know, I'll put the pot on, come back to bed and I listen for it. As soon as it starts gurgling I know I have about a minute before it burns. It's all about audio when it comes to making coffee. I don't really know what I'll do if I get some other kind of coffee maker. It'll change my relationship to coffee, that's for sure. It's like the coffee calls, and I come. Spoken like a true addict [laughs].

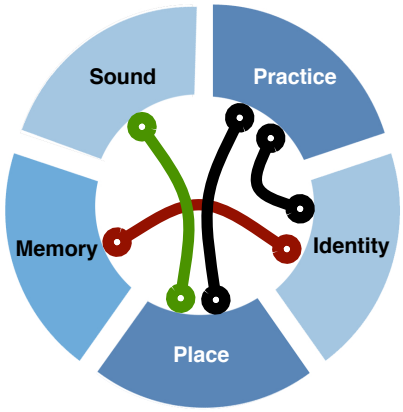
Figure 21. Listening Convergences: "Coffee" (P6)

The choice of a live commentary as oposed to an ambient recording (given that sonic highlight is the predominant media format for this participant's aural postcards) reflects an intention to be an active participant in the soundscape, instead of stepping back and letting sound speak for itself. Rather than divorce sound from reflection, the live commentary style draws the listener's attention to the very sound featured – the process of making coffee – as a temporal and sensorial event unfolding over time. This way, the participant foregrounds the precise moment where the increased hissing and gurgling signal that the coffee is ready; the sound event symbolizes the participant's relationship not just to coffee but to the routine-ness of the practice and her sense of self.

P5 – Aural Postcard 4 "Eating lunch along in the cafeteria"

This aural postcard contains an ambient process recording and a follow-up voice memo describing the significance of the soundscape and the experience of eating lunch in the school cafeteria alone. In the process recording we hear the ambient soundscape of a large indoor space and the general murmur and elevation of voices, talking and laughing

in the background; some kitchen and food-related sounds are present as well, while the participant's foreground presence is minimal. In contrast to the other two examples, here sound is associated primarily with place and is incidentally encountered in the context of the participant's routine – eating lunch in the school cafeteria.



Ok so, this is a note to the 'eating lunch alone in the school cafeteria' entry, because I felt weird sitting and talking into an iPod, or sitting alone at all at a table at school, which actually I can go on at length about, really has nothing to do with sound but has to do with standing out at school because you know, you spend all this time in high school, especially in the younger grades trying to fit in and not stand out, and not be a freak and supposedly you're with your peers, but you know, I always thought that I stuck out like a sore thumb. So then, 25 years later, I go to school with a bunch of people who are only a few years older than high school age. And there are times when I actually have these flashbacks, even though I'm this 40-year old woman who is pretty confident and I feel pretty separate from the theme there, I'm certainly not looking for friends or anything like that, I'm coming in to go to school and get the fuck out. But … ah, there are times when I feel like to myself 'please, don't do anything to draw attention to yourself... hah, you already are a really big freak just being old and at school.' So what that clip is, is the sound of me sitting alone in the [school name] cafeteria. There are all of these little round tables, they're all packed together, and sometimes it gets pretty full in there, but it's always loud. I find generally at [school name] there isn't really anywhere that you can sit quietly and take some time to focus and ground yourself away from all the noise, because as you can hear in that sound clip, there's the sound of cheesy music being piped in and there's just this…I guess it's probably the machines in the kitchens and like the fan, it's like a roar in there. Although I also find that sometimes it's helpful that the surrounding area is so noisy, so that I can shut everything out and do my own thing, because it's not so quiet that whatever sound you make, you know, really sticks out.

Figure 22. Listening Convergences: "Eating lunch in the cafeteria alone" (P5)

The soundscape here acts as a trigger for a flashback that springs a narrative into place – a narrative, which the participant claims, 'has nothing to do with sound'. In terms of format choice – an ambient recording and follow-up voice memo, P5 starts out by addressing why she chose not to comment live – a choice that is integral to the essence of the story itself, and very much has to do with sound, both in terms of the soundscape's characteristics and in the sense of the participant's own sound-making as a contribution to the overall ambience. Both the practice and place associated with the soundscape are deeply bound up with the participant's identity, who recalls her past experiences with being in school, and those memories are essentially organized around

the theme of 'sticking out' – socially and culturally, in a place that is driven by streamlining social interaction and behaviour (e.g. any school). This theme of homogenization is reflected in the soundscape itself, as P5 explains, through the piping of 'cheesy music' and the general roar of kitchen fans and appliances that maintain the environment loud enough that no individual sounds really stand out, instead everything is drowned in the general ambience. And while the present-day self of the participant dislikes the noise and longs to find spaces to quietly 'become grounded' and focus, her past self is thankful for the generic ambience that allows her to blend in. Sounds in this sense symbolize, both materially and culturally, 'sticking out' (like a sore thumb) in the crowd. The choice to not create a live commentary and instead let the soundscape unfold in the process of quietly eating lunch directly reflects both this participant's overall approach to documenting (process-based recordings) and also illustrates her aversion to drawing attention to herself in this particular setting.

There are several analytical convergences that I want to draw from these examples. For one, they demonstrate the ways in which mediated representations and the use of mobile recording technology provide an entry point into understanding how people encounter everyday life through their senses – in this case, through attentiveness to sound and listening. Unmediated listening is of course already part of everyday life, but it is precisely the technological mediation of the iPod that allows the externalization of experience, which elicits, in the process, a range of observations, sensations and reflections that might not otherwise take place. As such, this type of everyday mobile recording technology can be seen to engender particular types of experiences, specific means of capturing and understanding everyday life and unique narratives that are intimately bound up with the technocultural problematic of mobile communication, media production and social networking. In other words, the stories that we tell ourselves and others when encountering the world with and through mobile smart technologies are in part configured and even elicited by their use in the context of new media culture. The process of speaking to and producing for a disembodied and fragmented audience (neither entirely *self*, nor entirely *other*) offers a distinctive means for mediating one's own thoughts and impressions. Even in the few years since the inception of this project, the technical capabilities of mobile computing have evolved alongside a steadily-increasing trend towards communicating with one another by way of 'user-generated

content'. Multimodal snippets of experience continue to replace textual forms of expression as mobile media platforms embrace a communicative model of 'pointing to' meaning in place of verbal and textual explication. These trends underscore ever so strongly the need to explore the translation of sensory experience into mediated communication as a core vestige of new media culture.

The wide array of narratives, associations and reflections generated by participants as part of the study ultimately point to the idea that in technologically *documenting* listening experience sound ceases to be central: the process becomes about what participants unlock and understand about themselves while attending to the soundscapes of their everyday lives. At the same time, technology remains a critical part of the mediated curation of experience as a new media practice. Just as it mediates, frames and structures the way sonic experience is captured and represented, the device also mediates the process of perceptually attending to sound as part of an urban strategy of everyday listening. Extending the conceptualization of mediated aural experience as a cultural practice, the next section offers a re-theorization of Truax's (2001) model of 'soundscape competence' as it intersects the notion of 'audile techniques' proposed by Sterne (2003a).

4.7. Technologically-mediated soundscape competence

> *Along with new technological forms of display, communication, recording and playback come new forms of looking, listening and interacting; they afford new ways of focusing as well as defocusing attention. Jonathan Crary, 1999*

> *I think this exercise of recording sound is actually making me more aware of the sound. It's like a reminder, this object I hold in my hand, and it makes me see and hear differently. (P1, Aural Postcard 16)*

As discussed in the previous chapter, kick-starting participants' soundscape awareness was an implicit objective of this study as a way of eliciting attentiveness to sound, given that most typical forms of urban listening involve a lot of 'tuning out' loud and distracting

soundscapes[28]. While an acoustic ecology inquiry would be concerned primarily with the transformation of participants' soundscape awareness over time in the service of greater listening acuity, I was more interested in apprehending, at least so far as it is possible to do under the circumstances, the way technology re-mediates how people *already* listen to everyday life. By that I don't intend to suggest that a sustained attentiveness to sound does not engender a transformation and a sharpening of one's listening awareness. Rather, I wish to delineate the aims of this project from a more interventionist agenda – by providing participants with an open-ended structure I wanted to access, as much as possible, the kinds of listening sensibilities and sonic relations they already engage in and move through as part of their everyday lives. Certainly the framework of participating in a study, and the mediation of the iPod invite a heightened awareness of sound that does not entirely reflect 'typical' listening habits, however, by interweaving the project's deliverables as much as possible into the flow of everyday life, it is possible to get a closer approximation of the 'actuality' of listening. In fact, the discursive reflections generated by participants in the course of producing aural postcards speak, in their entirety, to the potential of already nuanced and discerning auditory practices, which the act of recording can help to bring out.

To reiterate, the question that guides my inquiry engages sound as a unique perspective from which everyday life can be accessed and understood; the presence of mobile recording technology is therefore central to this type of mediated understanding. This section aims to address how technological mediation supports the practice of everyday urban listening and produces a particular kind of soundscape competence: listening with and through technology. Soundscape competence (Truax, 1984), as already discussed, is a type of tacit knowledge mobilized in attending to everyday soundscapes; it is culturally and individually defined and includes both a perceptual understanding of sound (sonic characteristics, sound structure and dynamics) and a 'conceptual' culturally-informed interpretation of sound's meaning and significance (e.g. the beeps of a reversing truck mean 'stay out of the way!'). Furthermore, I take soundscape competence to indicate not only ways of paying attention to sound but also

[28] All participants reported this without prompting, both in their questionnaire and in their individual aural postcards.

ways of not paying attention. Akin to Bourdieu's 'communicative competence,' which encompasses not only when and how to speak, but also when to 'keep silent,' listening competence in the urban environment entails habituation to sound as well as avoiding or simply ignoring it. We can think of 'tuning out' city noise as one of the central aspects of everyday urban soundscape competence: a listening strategy that exists as an overarching cultural practice and at the same time is expressed and enacted in subjective, individual ways. For instance, some participants noted, as part of their aural postcards, regularly avoiding noisy establishments (P1, P3, P5); using earplugs and/or listening to portable music to avoid traffic noise (P4, P5, P8); or even aestheticizing loud sounds in certain situations (P4, P7). Inasmuch as soundscape competence involves tuning things out, 'noise' is a subjective evaluation that refers to any sound or soundscape that is perceptually or ideologically unwanted. Traffic sound was (and typically is) considered, in all participant accounts, unwanted; however, while P3 discussed café soundscapes as noisy and distracting, P6 purposefully featured the sounds of coffee shops through an aesthetic sensibility. Engaging with noise through the framework of audio recording and capturing sound allowed participants to explore a wide range of relationships to urban settings and everyday practices. While some participants focused on the measurement of loudness in a more 'objective' way, others focused on the emotional and connotative aspects of noise by way of sustained observation and reflection. In all cases, the externalization of these relationships into media representations helped 'dramatize' (Bijsterveld, 2013) the realities of urban noise.

> I really became aware of the amount of noise that exists near and far. The city soundscape is so … just the pace, the amount of noise – it's quick noise, the pace of it makes you feel stressed. I became very aware of my stress levels through the levels I was capturing. It's very difficult, almost impossible to find a quiet place in the city. So that's what I became aware of - I've always been aware but I've never done documentation of it - the levels of noise. (P4, final discussion)

> I think I listen to a lot of sounds around me but I think you know, the biggest thing that I recognized after this [study] was the amount of sound energy makes - like electricity, cars, everything to do with making money, it's constant. (P8, final discussion)

> Using the decibel meter - I found that interesting. Like, some restaurants went into the app and it was really high, and a construction site was the same height. So I was just thinking about what we tolerate and what's irritating and what isn't, depending on what the tone is. Like in my car, sometimes I crank the stereo - I made sure I got a good car stereo – I love that, but it's higher than the construction site! Sometimes volume is a good thing. (P7, final discussion)

Clearly, the affective dimension of sound – how we feel about it – is a deeply ingrained aspect of listening as a form of sensory encounter with everyday life. In the initial stages of the study I purposefully avoided framing discussions around noise or 'pleasant' versus 'unpleasant' sounds since this has the potential to derail a more comprehensive exploration of listening into the duality of 'likes' and 'dislikes.' Nevertheless, both the issues of noise and personal preference came up in all participants' aural postcard entries. Interestingly, affect and subjectivity were tightly entangled with the idea of 'attentive' listening itself, with all participants already considering themselves active and discerning listeners (as reported in the questionnaire and final discussion – see Appendix E) despite not having had any special training. In the worldview of acoustic ecology *attentive* listening entails being able to hear and perceptually locate all sounds in a given environment regardless of personal value or function. Being an 'attentive' listener in this study translated to either being sensitive to unwanted and/or loud sound, or being able to pick out incidental 'cool and interesting sounds' from the surrounding environment. *Interesting* seemed, based on individual reflections and group discussions, to be the catch-all phrase for events, places, or practices worthy of recording both for subjective reasons (of personal significance) and objective reasons (as a way of illustrating or communicating an idea, and representing the general character of an environment or occurrence). In this sense, *interesting* also encompassed other symbolically meaningful categories such as significant, functional and otherwise informative sound content. Despite some prominence given to the issue of noise, what was reported as overall most engaging and transformative for participants was the re-discovery of a wide array of familiar (and hitherto tacit) everyday encounters with sound that would often go unnoticed and unexamined: popping popcorn (P5); the sound of wind (P1, P4); the soundscape of typing on a keyboard (P5); the ambience of cafes and restaurants (P6); the sound of making tea (P7), etc. Attending to these soundscapes allowed participants to investigate their own understanding of everyday life and reflect on sound from a point of renewed significance. The act of recording could be said to have heightened the listening sensibilities that were arguably already part of participants' everyday routine, and the media artefacts that each individual created served as externalizations of the nuanced and complex relationship they *already* have with sound. The process of this re-discovery, particularly through the mediation of the iPod, is thus one of the more salient aspects of a *technologically mediated soundscape competence*.

At least in the course of the study, listening with technology can be seen as both a subset of unmediated everyday listening and *de facto* indistinguishable from it. In order to explore the notion of a technologically mediated soundscape competence in more detail I want to draw upon Jonathan Sterne's (2003a) concept of 'audile techniques' as a model for qualifying perceptual aspects of listening with portable smart devices. For Sterne, audile techniques are at the centre of listening through audio reproduction technologies: as we internalize the perceptual skills of sorting out signal from noise and rectifying the discrepancies between original and copy, we, in a sense, offload our listening to machines (p.93). From listening through vinyl 'wobble' and cassette tape 'hiss,' to the perceptual formatting of the MP3 (Sterne, 2012a), mediation 'vanishes', not perceptually but culturally with audio reproduction being discursively positioned as equivalent to an 'original.' In the context of the present study, there are several discrete audile techniques that can be attributed directly to the process of recording sound as part of an everyday multimodal curatorial practice.

Recording as imagination: in the absence of live monitoring (using headphones) participants reported imagining how sound is being captured during the recording process. Alternatively, if the iPod was not on hand, participants reported imagining the soundscape as if they were recording it. This audile technique was most often associated with the exploratory and analytical approaches to staging mediated aural experience.

Experimenting and comparing: employing both acoustic perception and audio recording, several participants (P4, P6, P1, P8) engaged in purposeful experimenting with recording techniques, including recording the same sound in different settings. For instance, P4 experimented with the sound of recycling bottles and noted the audio file didn't capture the sonic nuance of different materials. Both P2 and P6 experimented recording similar environments at different times in order to compare sonic characteristics and sound levels in different environmental conditions. This audile technique was used predominantly as part of the aesthetic or analytical approaches to staging mediated aural experience.

Making sound part of the story: this audile technique involves explicitly acknowledging the presence of sound as part of the recording, e.g. pausing speech in order to let a particular sound be heard; speaking closer to the microphone when the sound environment is noisy; or interacting with objects and people as part of an intentional (re)-enactment of a sound event. This audile technique aligned predominantly with the narrative approach to staging mediated aural experience.

Every participant expressed some concern in the course of his or her individual recordings as to whether the intended sound event or soundscape was getting 'picked up' correctly by the iPod: this included considerations around sound being too quiet, too far away, or the ambience being too noisy. This logistical attention to the mediational aspects of audio recording demonstrates that rather than being a 'black box' of invisible processes (Latour, 1994), the mobile recording device engenders a unique type of cultural and perceptual competence, whereby participants actively mitigate the translation of 'authentic' experience into media artefact. With these articulations in mind, we can now revisit the idea of *vanishing mediation* and re-theorize the nexus of relationships between technology and sensory practices. While the audile techniques associated with a fidelity discourse serve to erase the sonic by-products of audio reproduction technology (Sterne, 2003a), the audile techniques articulated here help integrate technology into the curation of everyday life. Far from being unaware of the presence of technology or its shortcomings, participants instead actively worked with it to create the sort of narratives and representations that they wanted to communicate about their encounters with sound. Effectively then, mediation becomes a double looking glass, where the boundaries of technological possibilities structure the communicative potential of media forms; at the same time, technology is seamlessly integrated with perception as people experience even the un-mediated soundscape through the framework of the recording process. Mediation doesn't vanish, but rather fuses with perception in a way that culturally positions the mobile recording device as a core aspect of the experience. The bracketing of the study itself in turn invited reflection around both mediated and un-mediated aural experience: some of the most personally significant insights emerged from comparisons between 'typical' listening in everyday life and recording everyday soundscapes:

> [the study] made me more mindful, even if it was an afterthought at the end of the day. Like thinking about 'what sounds did I encounter today?' and 'what sounds might I record tomorrow?' Even in the moment, like having to think about why a sound was interesting to me, made me notice it more on an ongoing basis. (P5, final discussion)

> I was just thinking about the mediated environment, like when you're walking around without a recording device, just listening, say walking, looking…I think then maybe the sounds are all just kind of together in a soundscape. You don't think, oh this sound is cool, and that sound [of a plane passing over] is destroying my recording, or whatever it is. (P1, aural postcard 11)

Moving towards a re-theorization of soundscape competence that accounts for the process of engaging with and recording everyday soundscapes, I now offer an articulation of several key *mediated aural practices* that uniquely pertain to listening with technology. I draw directly on participant group discussion comments and individual postcard reflections centered on the technological possibilities of the iPod that supported the externalization of particular ways of making sense of aural experience.

4.7.1. Everyday sound as 'recording-worthy'

Perhaps the most pertinent aspect of listening with technology – and one that I experienced personally in the course of my own explorations of listening and recording with the iPhone, was the tendency to mentally classify sounds as 'recording-worthy' or not, with the implication for how that re-constructs the aesthetic politics of sensory experiences. For me, categorizing sound is already a form of aesthetic appreciation of sonic characteristics and a habitual aspect of my listening practice that stems from my experience as a field recordist and sound editor. What surprised me in this study was that even in a relatively short period of time and without working with sound in any formal production capacity, most participants reported orienting their listening attention in terms of what might be an 'interesting' or significant sound to record and what types of routines or spaces would be meaningful to include as part of the study (see Appendix E). Everyday soundscapes were sorted into material for inclusion in a personal media archive based on their significance, value, meaning and aesthetic characteristics. Even when the iPod wasn't present, participants reported listening to their everyday soundscapes in terms of their being 'recording-worthy' – an extension of Daisuke and Ito's (2003) suggestion that camera phones re-define private, routine, ordinary moments as 'picture-worthy'. Technology thus *framed* participants' listening strategies, acting as an extension of their conceptual and perceptual apparatus, manifest in approaches to creating aural postcards, regardless whether that involved measuring, observing or reflecting on aurally 'interesting' spaces:

> I'm always really really aware of sounds, sometimes to a fault if things bother me, so my collection of sounds was a combination of things: sounds I'm usually aware of, but also that construction there, I'd pause and think 'oh, those chains sound really cool coming down the side of the wall', you know, I'll pause on things like that. (P7, final discussion)

4.7.2. Multimodal capturing

In keeping with the way mobile devices are used in urban everyday life in the context of new media culture (Ito, Okabe & Matsuda, 2005; Goggin, 2006; Squire & Dikkers, 2012), all participants reported conceiving of the device as a digital diary or 'scrapbook' where they collected impressions, 'snippets' and 'slices' of everyday life that held personal significance and communicated subjective dimensions of sonic experience. Capturing photographs and other visual recordings along with the ability to tag, annotate and organize files into a multimedia collection was brought up (P1, P2, P4, P6, P7 – see Appendix E) as a meaningful way of effectively *experiencing* soundscapes and structuring the documentation of sound. Photos were characterized as a particularly convenient way to evoke a sense of one's surroundings, in conjunction with sonic highlight recordings, packaged as part of aural postcards. While we certainly already experience sound through all of our senses (Classen, 1999; Pink, 2009), multimodal capturing is a way of experiencing and communicating a phenomenally richer sense of sound's emotive and subjective significance compared with textual communication.

> Keeping a diary for me has always been an important thing, but it's not always convenient. Taking pictures is convenient, I have a ton of pictures, and I don't ever take them off my phone because I like going through them but it's not always representative of my feelings, like I want to remember how I was feeling at the time, and sound does that. (P3, final discussion)

It is precisely the ability to record different experiences in different modalities that characterizes this as an element of soundscape competence. Ease-of-use and convenience are central features of new media culture: in certain contexts, participants would snap a picture or sound level photograph in passing, while in other situations they would take the time to record multiple takes and memos, depending on the featured event and the extent of reflection that they intended to convey.

4.7.3. Measuring and analysis

While unmediated listening allows us to perceive spatial differences in sound environments and gauge sound levels to some degree, having access to a media archive of sound recordings alongside a collection of decibel measurements opened a range of new avenues for observation and analysis in the context of the present study.

For participants who utilized – whether lightly or heavily – the sound level meter app (P1, P2, P6, P7), the iPod became a tool for quasi-*scientific* exploration: measuring the sound volume in different spaces; theorizing and hypothesizing about spatial acoustics and sonic functions; as well as using measurements as a foundation for reflecting on subjective aural experiences and listening practices. The ability to go back and compare a set of sound level values was brought up by several participants (P2, P4, P6, P7) as a way of conceptualizing the significance of different listening experiences. In this sense, the device is both a tool for a personal archive and a centre for analysis and experimentation that can be used to better understand the connections between sounds, practices, environments and listening habits.

> I realized one of the reasons why I like to work at home is because it is so much quieter. At school the dB rating was around 70 and at home it's around 50 and when I looked that up online I realized that that's about 4 times as loud. So I guess that makes quite a difference! (P1, Aural Postcard 6)

In this sense it can be argued that the iPod incidentally provides a tool for the enacting of personal agency, helping participants to represent their relationship to sound in richer and more nuanced ways. In several instances the iPod was explicitly used as a tool for empowerment as participants either transformed routine situations into exciting audio recording explorations, or were inspired to seek out more pleasant soundscapes to record. In some cases, the capturing of decibel levels yielded unexpected reflections about the connotations we develop about different sound environments and the reality of actual sound volume.

> I didn't realize that the restaurant would be so crowded so I took a decibel reading there – it's quite high. I had the iPod at our table in order to convey what it's like to converse when things are so loud, but this seems almost a celebratory kind of noise, I don't find it terribly irritating. And then I just did a quick recording of the general ambiance of the place – as the music goes up and there's a whole bunch of people waiting for tables, the noise levels get higher and higher, so it was interesting to take a decibel reading there and note that it's actually very close to the decibel reading at a construction site. (P7 – Aural Postcard 5)

4.7.4. Re-play and reflection

One of the most common ways in which participants communicated a narrative or engaged in discussion about a particular sound event was through voice memos. Voice memos allowed participants to take some distance and (something I had not anticipated)

re-listen to their original ambient recordings, either as a way of remembering, or as a way of jump-starting thoughts and reflection. By contrast, a live commentary (the format I had initially encouraged participants to use) forces participants to comment on the spot; to both experience and reflect on the experience, which turned out to be a distracting and counter-intuitive technique for a number of individuals (P1, P2, P6, P7). A few participants specifically reported wanting to wait a day or two to reflect on a given recording of a sonic experience or even accumulate a set of related recordings before constructing commentary. Importantly, participants recorded sound with the *expectation* to be able to listen back and formulate reflections at an appropriate later opportunity. Most participants specifically noted re-listening to all their recordings just before the end of the study in order to refresh their memory and generate ideas about their listening practices for the final group discussion. Re-play turned out to be something of a social experience too as everybody was eager to share their recordings with other participants at the final meeting in order to illustrate and compare approaches to the process of recording sound, as well as communicate sonically inspired nuances about routine practices and environments. More importantly, re-play was a way of grasping overarching patterns about one's routine, one's overall attitudes to urban sound and a unique understanding of everyday practice.

> When I look back at my recordings and hear what I've collected, I realize my life is crazy, like ridiculous, and I learned that - I guess I already knew that! (P5, final group discussion)

> Maybe it's because I spent so much time documenting sound in my apartment that sound provided a lot less information than I expected it would. Or it provided less logical information and it played a bigger part in my emotional life than I had realized. It was surprising that sometimes it felt like sound was integral to the structure of my domestic life and sometimes it really felt like it competed for my attention as I tried to go about my day. (P4 – Aural Postcard 16)

4.8. Summary

With this chapter I hope to have provided a pathway through the myriad of analytical choices and approaches that could have been adopted and developed. The richness of the 'data' seen through the complex and nuanced representations of individual experience is clearly shaped only in part by the study's parameters and largely by the intentionality, technological capacity, imagination and logistical considerations

that each participant brought to this experience. To the best of my ability I have attempted to address the convergences between everyday life, listening and technology, guided by the question of how technology re-mediates the way people access and apprehend everyday life through sound. Using a variety of approaches to visualizing data and contextual relationships I also aim to offer some preliminary models for analytically approaching and representing ethnographic research with technology at the intersection of new media culture and sensory practices. In the first section of this chapter I presented a visual approach for constructing research subjects as 'communication hubs' in terms of their media and technological use; with those in mind I demonstrated ways of drawing connections between a participant's individual media ecology and the stylistic choices around media artefacts that they made as part of the study. Extending the metaphor of 'staging' as a particular way of communicating about aural experience, I articulated four documentary approaches for exploring and representing everyday life and routine urban soundscapes. Following that, I offered a way of visualizing the convergences of place, practice, identity and memory that are at play at the site of encountering everyday sound. Finally, I presented a theoretical elaboration on the notion of a technologically mediated soundscape competence that accounts for the kinds of audile techniques engendered through the use of mobile smart devices in the process of curating sensory experience.

Chapter 5. Conclusion

The story of this work began with my own experience of attending to everyday life, so as I bring this dissertation to its conclusion, I would like to revisit the kinds of questions and explorations that have defined this inquiry as a sensory ethnography of listening with technology. As I have articulated throughout this work, I hold that an ethnographic perspective entails seeing the minutiae of everyday life as a microcosm of socio-cultural relations and practices, set against a backdrop of landscape and soundscape – sound, smell, touch and sensation. I also intend for this work to contribute to a theorization of the smartphone (and similar personal mobile devices) as a technology central to the communications paradigm of participatory new media culture.

The smartphone, being an instrumental device in the hyper-mediation of contemporary Western society, perhaps more so than any previous (multi)-media device, presents a convergence of multimodal possibilities that have facilitated my thinking, acting and moving along ethnographic lines through urban space and culture. The 'everydayness' of the smartphone in terms of its emplacement in the fabric of daily life provides a framework through which we can discern the systematic and curatorial process of 'data gathering' – a practice that we already engage in as part of everyday urban experience. The new media trends of 'citizen science' and 'mobile journalism' are two prominent examples of information being purposefully gathered and instantly shared on social media as part of larger socio-cultural (and commercial) initiatives. Each one of us, whether we're aware of it or not, generate and compile data through our smart devices about our own (consumer) behaviour, geographic trajectories, social relationships and cultural values; data thereafter utilized for targeted consumer strategies and the design of new products and services (Jenkins, Green & Ford, 2013). While my choice of using the iPod 4 Touch replicated many of the functionalities of a smartphone, the study did not provide for full participation in the 'communication circuit' that we think of as intrinsic to new and emergent media practices. While the iPod

certainly qualifies as an 'everyday technology,' it is the mobile phone – the smartphone – that has in the last several years engendered an ecology of communication through media artefacts; a cultural economy of 'sharing' on social networks; the 'capturing' and interacting through technologically mediated multimodality. Since it was not logistically feasible to distribute iPhones and ask participants to temporarily replace their personal communication devices, if I were to do the project again I would want to utilize participants' smartphones directly.

Although I don't consider myself 'fluent' in the cutting edge of new media practices, this inquiry was inspired by my own use of the smartphone as a tool for gathering and representing lived experience in a multimodal fashion. The hope of garnering a systematic understanding of my own life and surrounding environment gained by using the smartphone as an ethnographic data collection device drove me to explore the culturally informed sensory practices that make this sort of 'everyday' inquiry possible. While some loss of online privacy and succumbing to 'big data' mining seem to be the price of entry into the social media multiverse, the technologically mediated sensory practices I advocate for in this study support the enactment of a critical media reflexivity and agency as we attend to, seek out and generate our own individuated understandings of place, culture and self at the site of everyday life. At a very personal and fundamental level, the idea of integrating the smartphone into my practice of purposeful listening seemed an intuitive way of accessing everyday urban experience.

The practice of *attentive listening* has long problematized my encounters with physical environments and culture in challenging and profound ways. In particular, as an embodied and experiential activity, soundwalking allows for unique sensory connections between a listener and their surrounding environment that illuminate different aspects of culture, history and social relationships. Outside the habituation of typical urban listening strategies, the practice of field recording became for me a surrogate ear for attending to the soundscape and creating space for re-discovery and reflection. Both the device itself and the ecology of applications developed around it revolve around participatory practices such as mapping, sharing, capturing, manipulating and producing/authoring creative content. These practices are fluid and individuated, with each person's unique use of technology co-constructing their relationship to and understanding of everyday

life. My technologically mediated listening was re-defined accordingly: instead of hunting for the perfect specimen of a particular sound event (to be recorded in the highest-quality manner possible), I began using the smartphone – a device that already accompanied me as I move through daily life – ethnographically, to attend to the sonic aspects of different contexts and environments. Phenomena I already found fascinating such as the embedding of different sound environments into one another through background music; the unspoken etiquette of communication on public transit; or the purposeful sensory design of shopping centres, I was now able to capture and represent using photos, videos, audio recordings, sound level measurements and text. By providing a different framework for these experiences, the presence of technology created an opportunity for me to re-discover these phenomena anew, transformed and re-mediated through informational and multimodal representation.

While I was using my smartphone in an arguably unique and specialized way in terms of attending to *sound*, the popularity of tools for the multimodal capturing of 'moments,' impressions and experiences (e.g. *Instagram* and *Vine*) point to these kinds of practices as central tenets of a steadily emergent participatory new media culture. These experiences and reflections brought me precisely to the question I pursued in this work, namely, how do people access and understand their everyday life through the process of attending to sound? Using the structure of a sonic auto-ethnography where participants could communicate moments of significance through the creation of media artefacts allowed me to analytically take up the staging of sound as an individuated curatorial practice that both represents phenomenal experience and at the same time is an integral aspect of it. Building on Henry Jenkins' (2006b) categories of new media competence including play, experimentation and performativity, I elaborate on this project's findings with the proposition that *curation* is another core media practice deeply integrated into the ecology of social media and mobile technology use.

5.1. Curating everyday life

As an operational metaphor, *curating* aptly captures the process of technologically mediated documenting, representing and organizing the multisensory contents of lived experience. The mediational role of personal smart technologies is key here as particular

features facilitate and invite certain aesthetic sensibilities and modes for representing sensory experience, in effect calling attention to the 'frames' of our everyday technological interactions. Not surprisingly, the concept of 'social curation' already exists in commercial discourse for social web marketing (O'Connell, 2013; Zarro & Hall, 2012). As business consultants advise, the ability to curate, or gather and arrange content is one of the most important features to have in a social network-oriented online product community (Allton, 2013). High traffic, wide integration web services such as *Reddit* and *Pintrest*, as well as older portals such as *Digg* and *Delicious* all work on the principles of arranging user-generated, web-aggregated and re-purposed content around custom themes. From a business perspective, the notion of social curation captures, unsurprisingly, only the surface level of a pattern of consumer behaviour rather than the kinds of values and meanings that this process might hold for people. In the more classic sense, artistic curation involves aesthetic, pragmatic, epistemological and communicational choices about the subject of (re)-presentation, including considerations such as manner of display, intended audience, as well as both affective and phenomenal impact of the artwork. In a recent book tracing the discourse and culture of (art) curating, Paul O'Neil proposes that over the last few decades, the role of the curator has shifted from one of arts administrator to one where the curator is an important agent in the production of cultural experience, an influential socio-cultural figure independent of artistic affiliations (2012, p.88). He further describes the curatorial process as:

> … a durational, transformative, and speculative activity, a way of keeping things in flow, mobile, in-between, indeterminate, crossing over between people, identities and things, encouraging certain ideas to come to the fore in an emergent communicative process. (p.89)

Both this description, and the discursive shifts in the formulation of 'curatorship' can be easily transposed from a specialized to a generalized context of cultural production, to a more quotidian context where everyone with the technological means to capture, share and frame the material and sensory content of everyday life becomes a *curator* of sorts. Each of us is an agent with a unique aesthetic and epistemological perspective regardless of the content we curate, and yet the entire communicative exchange is necessarily located within a nexus of our new media practices. Adopting the metaphor of curation re-frames the question addressed in this work as one of curating the urban soundscape as an aspect of everyday experience – engaging listening practices and

technological literacies towards a curatorial process that is as much a cultural construction of the soundscape as it is a cultural production of the self. In the same vein, traditional understandings of aesthetic sensibility manifested in concepts such as the 'photographer's eye' (Mitchell, 2001) and the 'recordist's ear' (Westerkamp, 1994; Miller, 2013) can be seen to transcend the realm of specialized expertise and become the purview of a general technologically mediated everyday practice (Pink, 2011). With that, the boundary between recording *as documentation* as opposed to *as art* (Sherk, 2012) is thinly compressed into the simultaneously creative and epistemological act of curating everyday experience through the aesthetic politics of the smartphone.

Certainly, it is not that audio recording technology has single-handedly changed the way we listen to and attend to everyday experience; rather, it has influenced the manner of mediated representation by which we make sense of the everyday. Personal smart/mobile technologies prompt us to frame sonic experience in a *multimodal* fashion - through the microphone, through the camera, and through the interactive possibilities of the device itself: and this is exemplified in my study through participants' distinct sensorially based curatorial decisions related to the staging of recorded content. These curatorial decisions were in turn correlated with each participant's respective self-described technological literacies and communication habits. Unlike a written account of sonic experience, multimodal recordings afford the retention of phenomenal residue through an *evocation* of sensory experience – right down to the fingerprints we leave on the screen. The occurrences that are captured constitute impressions, highlights, emotions, reflections, experiments and creative efforts – the analogues of haiku, aphorism and parable, rather than the literary masterpiece of 'the great novel'. As articulated in my analysis, each decision for sensory capture is a curatorial act: epistemological, aesthetic and communicative; it implies value of personal significance and an intention to convey meaning; it engenders cultural and technical knowledge. Framing phenomenal experience – in this case listening – is thus a core characteristic of a more general new media sensibility – that of multimodal documenting of sensory materiality, or *the curation of everyday life*. As a cultural and perceptual act, curation constitutes one of the central tenets of a communications paradigm that succeeds discursive theorizations of orality and literacy, including the role of communication technology in the cycle of cultural knowledge production.

5.2. Intersections and convergences

As I have argued throughout this work, exploring listening with technology as a cultural and sensorial process requires both that it is contextualized within the ecology of new media practices, and that we take up the act of listening as an emplaced material and sensorial encounter with everyday life. Placing the ethnographic tools in the hands of participants allowed me to explore, alongside my own experience of listening with technology, the way in which others encounter and apprehend everyday life by attending to sound. Using primarily the media artefacts generated by participants as part of a multimodal analysis framework, I sought to de-construct and then re-construct the process of mediated curation of sonic experience, in order to build a model of *curating everyday life as a participatory new media practice*. The analytical convergences of multimodal data, participant transcripts and researcher observations discussed in Chapter 4 are aimed at elucidating those critical aspects of listening with technology that make it a curatorial process. To that end, the intersections between listening, everyday life and technology presented in Figure 23 constitute preliminary conclusions, connections and relationships that gesture at larger themes of technological mediation and sensory practices. The curatorial practice of capturing sonic experience with a portable smart device straddles, I suggest, at least three relevant domains: new media cultural participation; the emplacement of the smartphone as a convergent media device into daily routine; and the practice of sensory awareness as an entry point into accessing everyday life. As I've argued in the analysis chapter, the process of curating everyday experience as a participatory media practice implicates an encounter of personal significance; it involves aesthetic decisions around media format, modality, duration and creative manipulation; and engenders an intentional form of communication to both self and others. These intentional communicative acts reflect both what is significant to a user and what they feel has purchase with an intended audience in their role as a media 'content provider.' Aside from group discussions and the fact that as a researcher I served as an 'audience' for my participants, the study didn't provide a full cycle of communication complete with online sharing and social networking using media artefacts. As such, the practices of communication and sharing are displayed in Figure 23 in red, as elements that are central to mediated curation, however were not fully reflected in the present study.

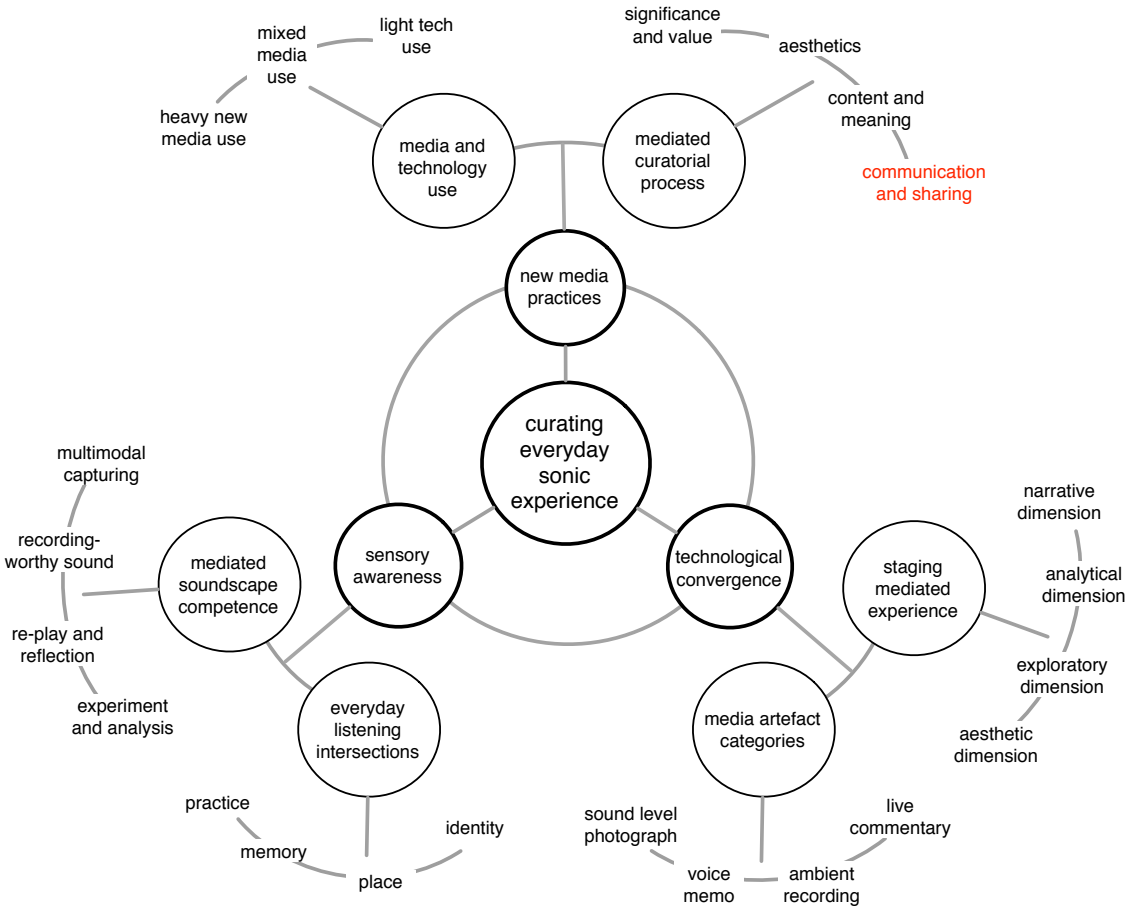


Figure 23. Overarching schema of categories and elements that support the mediated curation of everyday sonic experience

In order to map new media participation as a cultural context within which participants are listening with technology, I looked at participants' existing media and technology use in connection with the types of media artefacts they generated in the study. By creating a media ecology postcard for each user, I was able to articulate a kind of technocultural *personae* and model their relationship to the use of specific media formats and documentation categories, highlighting the idea that habituation to media genres is co-constitutive of individuated media production approaches (Jenkins, 2006b). Media ecology postcards represent each participant as a 'communication hub' that reflects not only their degree of investment in a variety of 'old' and 'new' media practices, but also their typical use of digital (personal, mobile) technologies; their approaches to self-expression; and their communicative and information-seeking habits. In place of an arguably more limited conception of 'technological proficiency' I have, in this work,

borrowed from the notion of *technicity* (Dovey & Kennedy, 2014) as a broader and more reflexive notion of media and technological 'literacy' that encompasses both habitual and emergent cultural practices with technology, and bridges individual and collective forms of engagement with (new) media culture.

In order to develop conceptually relevant categories of mediated representations of sound that directly reference the capabilities of mobile smart devices I borrowed from Imbert Orchard's (1974) classification of audio documentation techniques nascent in the production of radio aural histories. In addition to voice memos, live commentaries, ambient process recordings, and ambient sonic highlights, I added the category of sound level photographs, to reflect the iPod's ability to measure decibel levels as a particular way of approaching urban sonic experience. The fact that participants were able to use multimodal forms of capture including video, image, sound recording and parameter measurement speaks directly to the convergent characteristics of the iPod and similar mobile smart devices, and positions mediated curation as a cultural practice nested within a new media ecology. Co-relating typologies of media and technology use with approaches to the creation of multimodal artefacts reveals some critical preliminary findings. While lighter media users in my study took a more situational and opportunistic approach to recording formats, heavier users of new media employed a more purposeful method to constructing packaged multimodal entries for each aural experience featured. Moreover, heavy new media users privileged verbal forms of expression that involved discussion and analysis at a distance from the 'original' sound event (voice memos); in contrast, old media and lighter technology users were more likely to create direct ambient recordings or live commentaries closer to the actuality of the featured soundscape. Study participants who were heavier and more fluent users of media and technology created significantly more sound level photographs as a way of developing and testing out hypotheses about soundscape characteristics in different settings; in contrast, lighter technology and media users privileged process recordings, capturing the entirety of everyday processes as they unfolded. Certainly, choices around media formats and other production approaches implicit in the creation of aural postcards can also be related to the selection of everyday settings and practices or confounding issues of technical proficiency, in addition to a variety of other situational factors that are outside the scope of this inquiry. On a more abstract level, the idea of mediated curation

as a cultural and communicative practice engenders the convergence of production techniques (aesthetics) and semiotic considerations (value, significance, message) that manifest, as I have argued, in the *staging* of mediated sound. Using Bill Nichols' (2001) classification of documentary modes in cinema, I articulated four documentary approaches to staging sound that are supported by multimodal forms of expression: exploratory, aesthetic, narrative and analytical (Figure 23). Locating these categories in relation to media-use personae further illuminates relationships between technological competence, media participation and the curation of sonic experience. While study participants who were lighter media users privileged the *exploratory* and *narrative* approaches to staging sound by way of foregrounding incidental discovery and personal reflection, heavier new media users adopted primarily the *aesthetic* and *analytical* approaches, focusing on the micro-properties of sound and its relationship to overarching themes of urban everyday experience. Once again, the implication here is that *technicity*, as a dynamic cultural construction of collective and individual technical fluency is inextricably connected to and helps co-construct the modes of communication and cultural production characteristic of a new media paradigm (Dovey & Kennedy, 2014).

Throughout the mapping of these data convergences I have utilized the concept of the *postcard* not only as a means to visualizing relationships between collected data, but also as a metaphor that points to the limits of representation: just as a multimedia artefact is a 'still in quotation' (Barthes, 1978), conceptual maps and analytical visualizations are flashcards of information that serve to illuminate relevant convergences rather than attempt to portray reality in its completeness. Visualizing subjects as individuated 'communication hubs' presents a novel way of constructing subjectivity in ethnographies that directly engage technological competence as a relational, perceptual and cultural property. Similarly, representing aural entries through a postcard or flashcard format, combining photographs, sound wave displays (in the absence of audio) and verbal transcripts works to preserve the multimodality of mediated curation and evoke the phenomenal residue of the featured experience as a critical aspect of analysis. Last but not least, delving into the specifics of mediated curation requires a model of perceptual or sensory awareness as enacted with and through technology in the context of new media culture (Figure 23). As discussed previously, the

mobilization of different technological capabilities towards the activity of attending to sound can be seen to amount to an important shift in everyday sensory practices engendered by the use of mobile smart devices. Specifically, as demonstrated by participant data presented in Chapter 4, the *staging* of sound as a curatorial practice involves not only media and technological fluency but also a particular soundscape competence supported by a set of audile techniques that serve to translate and re-mediate experience between the phenomenal and medial realms, as part of a larger communications paradigm of new media culture.

5.3. Revisiting Soundscape competence

> *As people become accustomed to watching film they learn how to process a rapidity of image sequences that previous generations couldn't handle. This is a form of media literacy. That media literacy means they can now process new ways of understanding their world. Thomas Levine, 2014, as interviewed by B. Walker*

As with every communication technology, attempting to disarticulate emergent cultural practices and epistemological paradigms from the specific capabilities and media ecologies of a technological artefact is a difficult task. The tendency to attribute socio-cultural 'effects' to particular media and technology use has over time given way to considering technologies as co-constitutive rather than determinant of cultural and sensory practices. Starting with sensory experience thus offers a fresh perspective into understanding technological mediation particularly at the site of everyday life. Attending to the soundscape is, as has been argued (Westerkamp, 1974; Norman, 2011; McCartney, 2012), a route to re-discovering the socio-cultural and sensory relations otherwise fused into the matrix of everyday life and rendered invisible. This is where sound studies meet sensory ethnography: a focus on sound mobilizes the phenomenological properties of listening that enable a unique connection to the surrounding environment and constitute a distinctive form of inhabitation. A sound studies inquiry also draws on the historical and cultural implications of audio recording and technologies for the reproduction of sound. In my literature review chapter, I bring light to some of the most important historical discourses around audio technology in terms of the ways they have framed mediated listening. The narratives of audio

reproduction as *displacement* and *commodification* position listening with and through technology as a 'loss' of context (Schafer, 1977) and a diminishing of active participation (Westerkamp, 1990; Franklin, 2000). Portable music listening, epitomized by the iPod (Bull, 2007), provides a specific and culturally significant instance of surrogate aural experience that has arguably set the stage for subsequent conceptualizations of mobile smart technology use. While scholars such as Schafer (1977) suggest iPod listening alienates us from the emplaced, acoustic environment, others, most notably Michael Bull (2000), see it as an urban strategy for managing everyday life. Contemporary outcries over our increasing 'displacement' from the present moment and escape into the mobile digital world (deGusman, 2013) are strongly reminiscent of concerns over early telephone (Fischer, 1992) and mobile phone etiquette (Lasar, 2010), as well as ubiquitous iPod use (Bull, 2005; de Castella, 2011). In the context of my study, the act of listening is perceptually and culturally mobilized towards *actively* exploring everyday practices, soundscapes, places and interactions; the emphasis being on sensory presence and engagement. This type of 'bracketing' of mediated experience, even in the short time of the study's duration, allowed participants not only to experience their everyday soundscapes multimodally through the technical possibilities of the iPod but also to engage in reflection, measurement, theorization and analysis – practices that have the potential to, and reportedly did, enlighten and transform participants' relationship to and understanding of everyday life.

In adopting, in this study, a sonic auto-ethnography where participants could take ownership over the representation of their listening practices, the dualities of 'active' and 'passive' listening that permeate long-standing conceptualizations of auditory attention, were subverted and challenged. In participants' own accounts, sometimes sound was the objective of the story, impression or exploration; sometimes sound was located in the periphery of everyday routine, fused with practice or place and represented as an unfolding process inseparable from the flow of daily life. Some aural postcards demonstrated a focus on nuanced micro-properties of sound; other times the act of recording served as discovery of routine, familiar soundscapes. Rather than conceiving of listening modes as levels or kinds of attention to sonic content, this study's participants produced fine-grained and nuanced accounts of everyday urban soundscapes that position sound as a springboard for reflection, narrative and analysis;

a path to understanding their everyday life. This is a critical distinction because it relates the practice of mediated listening not to the 'listening modes' associated with a media reception paradigm (Chion, 1994; Douglas, 1999; Bijsterveld, 2013), but to existent phenomenological aspects of sound as a way of being and knowing; defining of place; and constitutive of memory. In their capacity as representations of sonic experience, aural postcards embodied precisely the kinds of relationships between place, practice, identity and memory that already characterize the dynamics of everyday aural experience. Often tacit, these relationships were illuminated through the process of attending to everyday experience and materialized in the form of media artefacts.

Building on this emergent conception of mediated listening I did not feel that this project would be best served by developing more listening mode categories aimed at characterizing the smartphone experience. Rather I wanted to articulate some of the ways in which personal mobile technology augments, frames and limits our perceptual acuity to sound in the course of everyday life, and in so doing re-mediates both our sensory experiences and the ways in which we communicate about them. Among other processes that undoubtedly impacted individuated approaches to listening with technology, attending to and capturing sonic experiences involves considering sound as recording-worthy; approaching the recording process through a multimodal perspective; using portable smart devices to measure and analyze aspects of real-world phenomena; and compiling a media archive that could be revisited and reflected on at later times (Figure 23). These processes, I have argued, constitute a form of mediated soundscape competence, supported by a set of corresponding audile techniques, which extend the mechanical process of listening through the apparatus of mobile recording technology. These audile techniques include imaginative listening: listening as-if through the 'ear' of the microphone; working around the limitations and range of the microphone's pickup and recording quality; listening through a framework of decibel measurements as a functional capability embedded in the device; and narrating with sound as a production technique: directing and showcasing sound material to interact with the actuality of the media artefact captured. As well as facilitating the process of mobile recording, these techniques serve to complement specific curatorial approaches in conjunction with media formats for the recording of aural experience, and ways of staging mediated sound. As such, both the dynamics of mediated soundscape competence and the

specific audile techniques articulated here contribute to a model of sensory awareness as a cultural practice inherent in the process of mediated curation of everyday life. Given that this is a working model based on a case study, the next section outlines some of the limitations of my project and identifies possible future directions and important further developments for building on this preliminary work.

5.4. Limitations and Future work

One substantive limitation to my project pertains to the scope of the study and the number of participants involved. As a result of ensuring a base level of familiarity with mobile technology and new media culture, my selection of participants lacked sharp differentiation in technological literacy and media competence. Having found a novel way of constructing subjectivity in relation to media and technology use, I expect that assembling a bigger sample of participants representative of different levels of technological competence and new media engagement would help to solidify some of the preliminary suggestions I have offered here about media use typologies and approaches to mediated curation. By shifting the notion of media user away from a digital native/immigrant distinction, the 'communication hub' model takes into account not only degrees of new media participation and technological literacy, but also the distribution of 'old' versus 'new' media use, and the level of investment in participatory cultural practices. In the same vein, disambiguating media and technological competence from other demographic factors such as age and gender has the potential (in a future iteration of this study) to further nuance the way media users are discursively constructed in research with technology (Brandtzæeg, 2010; Eynon & Malmberg, 2011) and technical competence or *technicity* (Dovey & Kennedy, 2014).

In terms of using the specific device of the iPod 4 Touch, while it is part of the iPod product line and not an 'actual' smartphone, I argue that much of the study's analysis applies directly to cultural practices around smartphones as well, given that the iPod 4 Touch duplicates the same convergent multimodal functionality. In the short time since

the study took place, the iPod Touch series have remained the only full-fledged[29] smart portable device on the market, in large part because a wide range of smartphones have become ubiquitous and relatively inexpensive. This trend, to my mind, only reaffirms the fact that the dominant communications paradigm of new media culture is bound up with multimodal convergence, as well as a convergence of purposes and functionalities, combined with the ubiquity and everyday emplacement of mobile telephony.

Another important limitation of the study design that I want to address is the absence of real-time online sharing and social media communication: cultural tropes that we think of as central to a participatory cultural ecology. While I considered incorporating social media as part of the study structure or setting up a blog where participants could share their multimodal artefacts, I decided against both, for several reasons. First, I did not want participants to influence each other's individuated documentary approaches to staging mediated aural experience; secondly, I was concerned that the amount of extra work in uploading files and constructing blog entries would detract participants from the already quite demanding and self-directed main portion of the study – attending to sound and creating aural postcards. In these respects, the use of the (more limited) iPod 4 Touch device in conjunction with the 'postcard' idiom might be seen less as a weakness of the study and more as a strength, in that it enabled the exploration of communicative intent without 'contaminating' individual processes, which might have been altered if participants were actively engaged in media-sharing. As a future direction, however, I recognize that the incorporation of social networking is a central component of mediated curation in its capacity as a participatory new media practice. I daresay the conversations that might develop around the social sharing of media artefacts may yield yet new and differently articulated ways of understanding and communicating about everyday (sonic) experience; a sort of collective intelligence curatorial process. In terms of analytical limitations, I want to acknowledge that there are other possibilities for categorizing and interpreting the corpus of media artefacts collected as part of the study. Indeed I explored several such avenues, namely, looking at the distribution of typical everyday urban settings featured in participants' aural postcards; the relationship

[29] Unlike other mp3 players and different versions of the iPod, the Touch series operates as a smartphone in that a user can install any iOS app, including apps for instant communication and social networking.

between settings and documentation formats, including choice of recording and type of narrative development; the correlation between type of everyday practice or activity and manner of mediated representation or staging. The entirety of commentary about urban sound offered by participants throughout their aural postcards can easily be taken up as an ethnography of urban listening: a model of the 'typical' urban listener or at least of the archetypal approaches to listening implicit in each participant's practice. Here is where my interest in technology's role in sensory encounters with everyday life outweighed the value of asking questions or trying to generalize about typical urban listening. While my analysis runs along the lines of 'how' we use technology as part of our everyday listening practices, I recognize that in a more overarching way such questions imply asking 'about' sound itself.

This leads me to consider the theoretical boundaries of this work, which can be found in the privileging of sound studies and historical discourses on listening over the theoretical foundations of new media and the conceptual trajectory of the 'practice' turn in sensory ethnography. There are several reasons why I opted to make the study of sound the central paradigm and phenomenological starting point for this work. Firstly, my own experience attending to everyday soundscapes inductively led to the formulation of the research questions that are at the heart of this inquiry; the technological mediation of the smartphone being a secondary, albeit critical, element in the motivation for this study. My interest in the senses and background in communication studies also led me to take up discourses around literacy and orality as articulations of sensory paradigms traditionally bound to the emergence of particular communication technologies. Starting with a critique of the 'audio-visual litany' (Sterne, 2003a), I wanted to build an ethnographic model for exploring sensory practices with technology. Focusing on sound presented not only a unique possibility for problematizing the study of everyday life, but also a way of directly responding to the discourse of 'secondary orality' as a communications paradigm for understanding media culture. Where the orality-literacy model relies on a relationship between communication technology and the organization of thought, the conceptualization of 'technology' presented here takes up communication as a cultural and a perceptual act that is framed, structured and co-constituted by the use of mobile smart devices as part of a new media paradigm of cultural participation, convergence and multimodality. Furthermore, ethnographic research that engages

media practices and technological use still does so from the standpoint of visual culture, using primarily visual and textual methods to construct new media subjectivities (Ito et al., 2010). Adopting a phenomenological and technological focus on sound allowed me to methodologically engage sonic ethnography in understanding new media practices. By creating a space for listeners to conduct their own sustained exploration of everyday soundscapes, I was able, at least to a degree, to access and evaluate both the dynamics of mediated aural practices and the role of technological mediation in the curation of everyday experience. These two processes – sensory perception and re-mediated representations of experience – I argue are essentially fused in the everyday use of mobile smart technologies; curation of personal sensory content on social networks constitutes a mediated sensory practice that is a central element of participatory convergence culture. Both my study design and the approaches to multimodal analysis presented in this thesis could, thus, serve to enrich the fields of media studies and sensory ethnography, as well as offer a model for doing ethnographic research with technology by attending to everyday practices and sensory experience. As a future direction, I imagine this project continuing on a multimodal (rather than sonic) trajectory along the lines of what Ian Kennedy (2013) calls 'amodal scholarship' by adopting a multimodal conceptualization of sensory experience at the onset.

Finally, while this work is grounded in everyday ethnography, sound studies and discourses around media and technology, I have, for the purposes of conceptual scope and analytical focus, forgone questions of cultural and political power, social justice and inequity, critical historicity and economics. I want to acknowledge Ruth Herbert's (2011) point about subjectivity in the way notions of listening have historically developed over time, and more specifically, Jacqueline Waldock's (2011) critique of contemporary web-based sound-mapping repositories as overwhelmingly male-dominated digital archives. Considering the 'habitus' of everyday experience as a microcosm for the constant re-construction of political and personal identity, the relative lack of female (and/or feminist) contributions to the growing number of participatory digital archives signals a larger problem: the absence of the domestic and the personal (Waldock, 2011). My study certainly brings attention to some of these generally underrepresented voices and themes, however, one critical future direction I can imagine involves continuing to explore the mediated curation of sensory experience from the starting point of political

and cultural subjectivity. Moreover, as an inductive methodology for accessing and engaging with everyday urban environments, the practice of personal sonic ethnographies using a smartphone holds the potential for transformative and ultimately *educational* experiences and applications.

5.5. Doing sensory ethnography with technology

I would like to conclude with an important question that I feel is essential in an intellectual climate that succeeds institutional crises of legitimation (Habermas, 1976) and the death of grand narratives of knowledge (Lyotard, 1979): namely, why is this work important *right now*, in the immediate sense? Furthermore, why is this work important beyond the scope of academic knowledge production and outside of contributing to 'gaps' in research and the bridging of existing fields? What is critical about understanding the cultural dimensions of sensory practices as technologies continue to assist and augment our perceptions? These perceptions, which include the ways we view, hear, smell, touch and feel the surrounding environment, are undoubtedly connected to larger themes of social and cultural organization and exist within a 'habitus' of urban North American society (Bourdieu, 1990a; Haraway, 1991). Technologically-enabled participation in the global multiverse of social media and digital communication comes for many of us as 'naturally' as breathing and constitutes an important vehicle for the cultural production of self, learning, play and socialization. Increasingly, the way we experience our physical environments, make sense of immediate events and form impressions, is through the lens of the camera and through the ear of the microphone, framed by the mediating possibilities of mobile media convergence devices such as the smartphone (Ito, Okabe & Matsuda, 2005; Ito et al., 2010; Burn, 2009; Squire & Dikkers, 2012). The ability to culturally materialize these experiences on social networks using media artefacts as 'documents of the present' inserts meaning and sociality into previously routine, private moments. Documenting through image, sound and video; simultaneously experiencing and replicating the present moment on social media in the package of an 'update,' 'status' or 'comment' point to participatory cultural practices that are increasingly emplaced, sensorially and materially grounded, and seamlessly integrated into both the physical and digital planes of everyday life. The technological

process required for the production of these communicative artefacts, far from being a mere vehicle for such messages, is, I would argue, an active element in framing phenomenal experience as well as constructing and communicating meanings. In short, mediated curation through the use of personal smart devices is a particular way of making sense of everyday experience, one that is profoundly cultural as well as phenomenal and engenders specific types of cultural and technological competence. So why is understanding *these* technologically-mediated perceptual practices important? In the arena of aesthetic politics, Walter Benjamin's warning about the culture industry as a vestige of consumption and acquiescence refers not only to cultural conditioning but also to a *perceptual* media literacy engendered by the use of technologies in the production of cultural meaning. This perceptual competence is being forged today, I would argue, at the site of mobile computing and communication technologies in their capacity as 'everyday' cultural tools. Over two decades ago Donna Haraway (1991) talked about the already unfolding cyborgian (r)-evolution staged at the 'oikos' (the household or everyday realm) that renders us "theorized and fabricated hybrids of machine and organism." Haraway's larger point, however, heeds the future of feminism and feminist subjectivity in a world of fragmented materiality and equally fragmented identities. She brings to light the point that technological mediation and the ensuing perceptual and sensory practices engendered through it are also of political and ideological importance, as they become the surface onto which society and culture unfold:

> The cyborg is our ontology; it gives us our politics. The cyborg is a condensed image of both imagination and material reality, the two joined centres structuring any possibility of historical transformation (Haraway, 1991).

Transposing this statement to the present time, one could argue that social media is our ontology and it gives us our politics – whether they concern consumption and commodity fetishism; digital scrapbooking or political and social activism. And this ontology is brought into being through the cyborgian technology of the smartphone: the mobile personal 'everyday' properties of media convergence and instant digital communication. From narrating daily routine and showcasing our restaurant visits with an almost professional flare, to the mobile digital revolutions of political insurgences around the globe, technology provides the conditions for the emergence of the 'citizen' as journalist, scientist, curator, consumer, online 'personality'. As Thomas Levine suggests, invoking Walter Benjamin's work as part of Benjamen Walker's (2014) *Theory of Everything*

podcast series, mobile communication technologies possess a 'utopian potential' of mobilizing cultural practice as a form of resistance. If mediated curation of everyday life is indeed a participatory new media practice engendered in part through the capabilities of convergent, emplaced mobile technology, how we represent – and in representing, how we construct – everyday urban realities is, or should be, a resistive, utopian practice. In the context of global political upheaval and global media upheaval, these kinds of questions, Levine (among many others) argues, are urgent. In his book *After Photography,* Fred Ritchin (2008) calls the plurality of citizen voices, expressed through a multitude of (mobile) technologies and media artefacts, a 'cubist' reality: the authority of the 'one' voice is dead; the voices of many ensure the legitimacy of a fragmented representation of 'truth.' These tropes of new media culture can therefore be seen as characteristics of a kind of critical digital citizenship, whereby participatory cultural practices are directly supported by perceptual and sensory competence, co-constituted through the use of mobile personal computing and digital communication technology. In reflecting on the notion of a 'democratic surround' as the material-semiotic environment for Western (urban) democracy, Fred Turner (2013) offers the following:

> A surround is a three-dimensional encircling space in which visual, sonic and olfactory elements are distributed around you. It's not necessarily immersive and this is an important point. It is a place where you are surrounded by individuated, but nonetheless plural, sounds, sights, experiences. Your mission in that place is to select and integrate those diverse experiences into an individual experience of your own. A democratic surround is a surround for the production of democratic people, a place where we can practice the perceptual skills on which democracy depends.

Therefore, if we are to consider the curation of sensory experiences through the usage of mobile smart technology as a form of digital citizenship, then it is paramount that we understand the dynamics of these processes – and a focus on sound – that is, using a sonic imagination as an investigative trajectory – provides us with an invaluable starting point towards such an understanding.

References

Allton, M. (2013, April 15). 5 Cool Content Curation Tools for Social Marketers. *Social Media Today.* Retrieved from http://socialmediatoday.com/mike-allton/1378881/5-cool-content-curation-tools-social-marketers

Altman, R. (1992). *Sound Theory, Sound Practice*. New York: Routledge.

Augoyard, J.F. & H. Torgue (2005). *Sonic Experience: A Guide to Everyday Sounds*. Montreal, CA: McGill Queen's University Press.

Anson, A. (2012, January 24). *Smartphone Usage Statistics 2012*. Retrieved from http://ansonalex.com/infographics/smartphone-usage-statistics-2012-infographic/

Atkinson, R. (2007). The Aural Ecology of the City: Sound, noise and exclusion in the city. *Proceedings of UTAS: Housing, Community and Research Unit*.

Attali, J. (1985) *Noise: The Political Economy of Music.* The University of Minnesota Press.

Baker, S. (2003). Research Report: Auto-Audio Ethnography; or, Pre-teen Girls' Capturing Their Popular Musical Practices on Tape. *Context*, 57-65.

Baron, Naomi S. (2000): *Alphabet to Email*. London, UK: Routledge.

Barthes, R. (1978). *Image, Music, Text*. New York, NY: Hill and Wang.

Bass, E. J. (2011, December 19). Meet the man behind pioneering "augmented audio" startup RjDj. *The Next Web*. Retrieved from http://thenextweb.com/insider/2011/12/19/meet-the-man-behind-pioneering-augmented-audio-startup-rjdj/

Bea, F. (2013, May 24). The 'Instagram for Audio" App Race is Getting Louder. *Digital Trends*. Retrieved from http://www.digitaltrends.com/social-media/count-on-audio-apps-to-be-the-next-big-social-web-phenomenon/#!brcJZ3

Becker, J. (2010). Exploring the Habitus of Listening: Anthropological Perspectives. In P. N. Juslin & J. A. Sloboda (Eds.). *Handbook of Music and Emotion: Theory, Research, Applications* (pp. 127–58). Oxford: Oxford University Press.

Beer, D. (2007). Tune Out: Music, Soundscapes and the Urban Mise-En-Scène. *Information Communication Society*, 10(6), 846–866.

Benschop, R. (2007). Memory machines or musical instruments? : Soundscapes, recording technologies and reference. *International Journal of Cultural Studies*,10, 485-502.

Benjamin, W. (1968). The Work of Art in the Age of Mechanical Reproduction. In *Illuminations* (pp. 217-252). New York: Shocken.

Bergh, A. & DeNora, T. (2009). From Wind-Up to iPod: Techno-Cultures of Listening. In N. Cook, E. Clarke, D. Leech-Wilkinson & J. Rink (Eds.). *The Cambridge Companion to Recorded Music* (pp. 102–15). Cambridge, MA: Cambridge University Press.

Biggs, B. (2008). Like It Was a Movie: Cinematic Listening as Public Art. Working Paper, *Center for Arts & Cultural Policy*. Princeton, NJ: Princeton University.

Bijsterveld, K. (2008). *Mechanical Sound: Technology, Culture, and Public Problems of Noise in the Twentieth Century*. Cambridge, MA: The MIT Press.

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

Bijsterveld, K. (Ed.). (2013). *Soundscapes of the Urban Past: Staged Sound as Mediated Cultural Heritage*. Transcript-Verlag.

Birdsall, C. (2012). *Nazi Soundscapes. Sound, Technology and Urban Space in Germany, 1933-1945*. Amsterdam University Press.

Bourdieu, P. (1981). Men and machines. In K. Knorr-Cetina & A. V. Cicourel (Eds.). *Advances in Social Theory and Methodology: Toward and Integration of Micro- and Macro-Sociologies* (pp. 304-17). Boston, MA: Routledge and Keagan Paul.

Bourdieu, P. (1990a). *The Logic of Practice*. Stanford: Stanford University Press.

Bourdieu, P. (1990b). *Photography: A Middlebrow Art*. Stanford, CA: Stanford University Press.

Brandtzæg, P. (2010). Towards a unified Media-User Typology (MUT): A meta-analysis and review of the research literature on media-user typologies. *Computers in Human Behavior*, 26(5), 940-956.

Brooks, T. (2012, October 5). Tunes On The Go: From The Walkman To The iPod & Beyond [Geek History] *MakeUseOf*. Retrieved from http://www.makeuseof.com /tag/tunes-on-the-go-from-the-walkman-to-the-ipod-and-beyond-geek-history/

Bryson, M. & de Castell, S. (1998). New technologies and the cultural ecology of public schooling: Imagining teachers as Luddites in/deed. *Educational Policy,* 12(5), 542-567.

Bryson, M. & MacIntosh, L. (2010). Can we play fun gay? Disjuncture and difference, and the precarious mobilities of millennial Queer youth narratives. *International Journal of Qualitative Studies in Education*, 23(1), 101-124.

Buckingham, D. (2007). *Beyond Technology: Children's Learning in the Age of Digital Culture*. Cambridge, UK: Polity Publishing.

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, *Society and Space,* 22(1), 103–116.

Bull, M. (2005). No Dead Air! The iPod and the Culture of Mobile Listening, *Leisure Studies*, 24(4), 343-355

Bull, M. (2007). *Sound Moves: iPod Culture and Urban Experience*. London: Routledge.

Bull, M. & L. Back (Eds.). (2003). *The Auditory Culture Reader*. Oxford: Berg.

Burn, A. (2009). *Making New Media: Creative Production and Digital Literacies*. New York, NY: Peter Lang Publishing

Butcher, M. (2012, December 4). Soundcloud Revamps Site, Announces New Numbers: Reaches 180M Users A Month And Counting. *TechCruch*. Retrieved from http://techcrunch.com/2012/12/04/soundcloud-revamps-site-announces-new-numbers-180m-users-and-counting/

Cardiff, J. & Schaub, M. (Eds.). (2005). Janet Cardiff: The Walk Book. Thyssen-Bornemisza Art Contemporary.

Carpenter, E. (1972). *Oh, what a blow that phantom gave me*! New York, NY: Holt, Rinehart & Winston.

Carter, P. (1992). *The Sound in Between*. Sydney: University of New South Wales Press.

Carter, P. (2004). Ambiguous Traces: Mishearing and Auditory Space. In V. Erlmann (Ed.). *Hearing Cultures: Essays on Sound, Listening and Modernity*. Oxford: Berg.

Ceraso, S. (2010, October 5). The Sight of Sound: Mapping Audio. *HASTAC*. Retrieved from http://www.hastac.org/blogs/stephceraso/sight-sound-mapping-audio

Chion, M. (1994). *Audio-Vision: Sound on Screen*. New York, NY: Columbia University Press.

Chriton, S. & Childs, E. (2005). Clipping and Coding Audio Files: A Method to Enable Participant Voie, *International Journal of Qualitative Methods, 4(3), 40-49.*

Classen, C. (1993). *Worlds of Sense: Exploring the Senses in History and Across Cultures*. London & New York: Routledge.

Classen, C. (1999). Other Ways To Wisdom: Learning Through The Senses Across Cultures. *International Review of Education,* 45(3/4), 269–280.

Clifford, J. & Markus, G. (Eds.). (1986). *Writing Culture: The Poetics and Politics of Ethnography*. Berkeley & Los Angeles: University of California Press.

Clover D. (2006). Out of the dark room: Participatory photography as a critical, imaginative, and public aesthetic practice of transformative education. *Journal of Transformative Education,* 4, 275-290.

Cochrane, T. & Bateman, R. (2010). Smartphones give you wings: Pedagogical affordances of mobile Web 2.0. *Australasian Journal of Educational Technology*, 26(1), 1-14.

Collier, J. & Collier, M. (1986). *Visual Anthropology: Photography as a Research Method*. Albuquerque: University of New Mexico Press.

Comstock, J. (2013, December 10). Mayo's iPad study had 98 percent engagement among seniors. *MobiHealth News*. Retrieved from http://mobihealthnews.com/28015/mayos-ipad-study-had-98-percent-engagement-among-seniors/

Cook, P. (Ed.). (1999). *Music, Cognition and Computerized Sound: An Introduction to Psychoacoustics*. Cambridge, MA: The MIT Press.

Crawford, K. (2009). Following you: Disciplines of listening in social media. *Continuum: Journal of Media & Cultural Studies*, 23(4), 525-35.

Daisuke, O. & Ito, M. (2003). Camera phones changing the definition of picture-worthy. *Japan Media Review*. Retrieved from http://www.ojr.org/japan/wireless/1062208524.php

deGuzman, C. (2013, August 22). I Forgot My Phone. (video) *YouTube*. Retrieved from https://www.youtube.com/watch?v=OINa46HeWg8

de Castella, T. (2011, September 27). Has the iPod made us anti-social? *BBC News Magazine.* Retrieved from http://www.bbc.com/news/magazine-15066957

de Castell, S. & Luke, A. (1986). Models of 'Literacy' in North American Schools: Social and Historical Conditions and Consequences. In S. de Castell, A. Luke & K. Egan (Eds.). *Literacy, Society and Schooling: A Reader* (pp. 373-389). London & New York: Cambridge University Press.

de Castell, S. & Jenson, J. (2007). Digital Games for Education: When Meanings Play. *Intermedialities, 9*, 45-54.

de Castell, S. & Droumeva, M. (2011). McLuhan Meets Convergence Culture: Towards a Multimodal Discourse. Paper presented at the *McLuhan Centenary Conference*, University of Toronto, Nov 5-7, 2011.

De Certeau, M. (1984). *The Practice of Everyday Life*, California, CA: University of California Press.

De Kerckhove, D. (1995). *Oral Versus Literate Listening. The Skin of Culture*. In D. de Kerckhove (Ed.). Somerville House Publishing.

DeNora, T. (2000). *Music in Everyday Life*. Cambridge, MA: Cambridge University Press.

DeNora, T. (2005). Music and Social Experience. In M. Jacobs & N. W. Hanrahan (Eds.) *The Blackwell Companion to the Sociology of Culture* (pp. 147–159). Oxford: Blackwell Publishing.

Derrida, J. (1973). The Voice that Keeps Silent. In J. Derrida (Ed.). *Speech and Phenomena, and Other Essays on Husserl's Theory of Signs* (pp. 70-87). Northwestern University Press.

Dibben, N. (2001). What Do We Hear, When We Hear Music? Music Perception and Musical Material. *Musicae Scientiae* 5(2), 161-94.

Dicks, B., Soynka, B. & A. Coffey (2006). Multimodal Ethnography. *Qualitative Research*, 6(1), 77-96.

Dicks, B. et al. (2011). Multimodality and Ethnography: Working at the Intersection. *Qualitative Research*, 11(3), 227-237.

Douglas, S. (1999). *Listening In: Radio and the American Imagination*. New York: Random House Publishing.

Dovey, J. & Kennedy, H. (2014). Technicity: Power and Difference in Game Cultures. Keynote Paper prepared for the *Games in Action* Conference, Gothenburg, Sweden, June 7, 2014.

Drever, J.L. (2002). Soundscape composition: the convergence of ethnography and acousmatic music. *Organised Sound,* 7(1), 21-27.

Drobnik, J. (Ed.). (2004). *Aural Cultures*. YYZ/Walter Phillips Gallery Editions.

Drott, E. (2009). The Politics of Presque rien. In R. Aldington (Ed.). *Sound Commitments: Avant-Garde Music and the Sixties* (pp. 145-166). Oxford, UK: Oxford University Press

Droumeva, M. & Wakkary, R. (2006). Sound intensity gradients in an ambient intelligence audio display. *Proceedings of CHI Extended Abstracts*, ACM Press.

Droumeva, M. & Andrisani, V. (2011). Towards a Cultural Phenomenology of Mediated Aural Practices. *Interference Journal*, 1, 1-16.

Droumeva, M. (2011). Acoustic Communication Framework for Game Sound: Fidelity, Verisimilitude, Ecology. In M. Grimshaw (Ed.). *Game Sound Technology and Player Interaction: Concepts and Developments* (pp.131-152). IGI Global Publishing.

du Gay, P. et al. (1997). *Doing Cultural Studies: The Story of the Sony Walkman*. Sage Publications.

Dvorak, J. (2012, January 12). Losing the Culture War to the Cell Phone. *PC Magazine*. Retrieved from http://www.pcmag.com/article2/0,2817,2398866,00.asp

Dyson, F. (1996). When the Ear is Pierced? In M. A. Moser, D. MacLeod & Banff Centre for the Arts (Eds.). *Immersed in technology: art and virtual environments.* Cambridge, MA: The MIT Press.

Dyson, F. (2005). Wireless affections: embodiment and emotions in new media/theory and art. *Convergence: The Journal of Research into New Media Technologies*, 11(4), 85–105.

Dyson, F. (2009). *Sounding New Media: Immersion and Embodiment in the Arts and Culture*. Berkeley, CA: University of California Press.

Dyson, G. (2012) *Turing's Cathedral: The origins of the digital universe.* Toronto, ON: Random House

Erlmann, V. (Ed.). (2004). *Hearing Cultures: Essays on Sound, Listening and Modernity*. Oxford: Berg.

Erlmann, V. (2010). *Reason and Resonance: A History of Modern Aurality*. Zone Books.

Eynon, R. & Malmberg, L. (2011). A typology of young people's Internet use: Implications for education. *Computers & Education*, 56(3), 585-595.

Farrington-Darby, T. & Wilson, J. (2009). Understanding social interactions in complex work: a video ethnography. *Cognition, Technology & Work.* 11(1), 1-15.

Feld, S. (1993). From Ethnomusicology to Echo-Muse-Ecology *The Soundscape Newsletter*, 8. Retrieved from http://www.acousticecology.org/writings/echomuseecology.html

Feld, S. (1996). Waterfalls of Song: An Acoustemology of Place Resounding in Bosavi, Papua New Guinea. In Feld, S. & Basso, K. (Ed.). *Senses of Place.* Santa Fe, NM: SAR Press.

Feld, S. & Brennis, D. (2004). Doing Anthropology in Sound. *American Ethnologist*, 31(4), 461-474.

Filene, B. (2000). *Romancing the folk: Public memory and American roots music*. Chapel Hill, NC: University of North Carolina Press.

Finnegan, R. (1988). *Literacy and Orality: Studies in the Technologies of Communication*. Oxford: Basil Blackwell.

Fischer, C. (1992). *America Calling: A Social History Of The Telephone To 1940***.** Berkeley: University of California Press.

Fischer, M. (2003). *Emergent Forms of Life and the Anthropological Voice*. Duke University Press.

Förnstrom, M. & Taylor, S. (2014). *Creative Soundswalks*. Presented at the *Urban Soundscapes and Critical Citizenship* Symposium, Limerick, Ireland, March 27-29, 2014.

Foth, M. et al. (Eds.). (2011). *From Social Butterfly to Engaged Citizen*. Cambridge, MA: The MIT Press.

Foucault, M. (1972). *The Archeology of Knowledge*. New York: Pantheon.

Franklin, U. (2000) Silence and the Notion of the Commons. *Soundscape, The Journal of Acoustic Ecology*, 1(2), 14-17.

Gardner, P. (2008). Mobile Publics: Methods for Making Virtual Spaces Public, In *Mobile Nation, Canadian Design Research Network*. Riverside Architectural Press.

Gaver, W. (1993). What in the World do we hear? An Ecological Approach to Auditory Event Perception. *Ecological Psychology* 5(1),1-29.

Gaye, L., Mazé, R., & Holmquist, L. E. (2003). Sonic City: the urban environment as a musical interface. *Proceedings of the Conference on New interfaces for musical expression*, NIME '03 (pp. 109–115). Singapore, National University of Singapore.

Geertz, C. (1973). Thick Description: Toward an Interpretive Theory of Culture. In *The Interpretation of Cultures: Selected Essays* (pp. 3-30). New York: Basic Books.

Geurts, K.L. (2002). *Culture and the Senses: Bodily Ways of Knowing in an African Community*. Berkeley, Los Angeles & London: University of California Press.

Goggin, G. (2006). *Cell Phone Culture: Mobile technology in everyday life*. London & New York: Routledge.

Goody, J. (1977). *The Domestication of the Savage Mind*. Cambridge, UK: Cambridge University Press.

Griffiths, A. (2002). *Wondrous Difference: Cinema, Anthropology and Turn-of-the-century Visual Culture*. New York, NY: Columbia University Press.

Grimshaw, M. (2008). *The Acoustic Ecology of the First-Person Shooter: The Player, Sound and Immersion in the First-Person Shooter Computer Game*. Saarbrücken: VDM Verlag.

Gunkel, D. (2008). Rethinking the Digital Remix: Mash-ups and the Metaphysics of Sound Recording. *Popular Music and Society*, 31(4), 489-510.

Gye, L. (2007). Picture This: the Impact of Mobile Camera Phones on Personal Photographic Practices. *Continuum: Journal of Media & Cultural Studies*, 21(2), 279-288.

Habermas, J. (1976). *Legitimation Crisis*. Heinemann Educational Books.

Hall, S. (1986). On Postmodernism and Articulation: An Interview with Stuart Hall. *Journal of Communication Inquiry*, 10(2), 45-60.

Hamburger, E. (2014, June 20). Surprise: Snapchat's most popular feature isn't snaps anymore. *The Verge*. Retrieved from http://www.theverge.com/2014/6/20/5827666/snapchat-stories-bigger-than-snaps-electric-daisy-carnival

Haraway, D. (1988). Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective. *Feminist Studies*, 14(3), 575-599.

Haraway, D. (1991). A Cyborg manifesto: Science, technology, and socialist feminism in the 1980's. In D. Haraway (Ed.). *Simians, cyborgs, and women: The reinvention of nature.* New York: Routledge.

Havelock, E. (1963). *Preface to Plato*. Harvard University Press.

Havelock, E. A. (1988). *The muse learns to write: Reflections on orality and literacy from antiquity to the present*. New Haven, CT: Yale University Press.

Herbert, R. (2011). *Everyday Music Listening: Absorption, Dissociation and Trancing*. Aldershot: Ashgate.

Herbert, R. (2012). Modes Of Music Listening And Modes Of Subjectivity In Everyday Life. *Journal of Sonic Studies,* 2(1).

Hjorth, L. (2007). Snapshots of Almost Contact: the Rise of Camera Phone Practices and a Case Study in Seoul, Korea. *Continuum: Journal of Media & Cultural Studies*, 21(2), 227-238.

Hjorth, L., Burgess, J. & I. Richardson (Eds.). (2012). *Studying Mobile Media: Cultural Technologies, Mobile Communication and the iPhone*. New York, NY: Routledge.

Hosokawa, S. (1984). The Walkman Effect. *Popular Music*, 4, 165–180.

Honigman, B. (2012, November 29). 100 Fascinating Social Media Statistics and Figures From 2012. *Huffington Post*. Retrieved from http://www.huffingtonpost.com/brian-honigman/100-fascinating-social-me_b_2185281.html

Howes, D. (2003). *Sensual Relations: Engaging the Senses in Culture and Social Theory*. Ann Arbor: The University of Michigan Press.

Howes, D. (Ed.). (2005). *Empire of the Senses: the sensual culture reader*. New York: Berg.

Heye, A. & Lamont, A. (2010). Mobile listening situations in everyday life: the use of MP3 players while travelling. *Musicae Scientiae,* 14(1), 95-120.

Iedema, R., Long, D., R. Forsyth & B. Lee (2006). Visibilising Clinical Work: Video Ethnography in the Contemporary Hospital. *Health Sociology Review*, 15(2).

Ihde, Don. (1976). *Listening and Voice: Phenomenologies of Sound*. New York: Suny Press.

Ihde, D. (1995). *Postphenomenology: Essays in the Postmodern Context*. Evanston, IL: Northwestern University Press.

IMR (2012, November 11). Make Sound Here: a new collaborative sound map. *London Sound Survey*. Retrieved from http://www.soundsurvey.org.uk/index.php/survey/blog_comments/1745/

Ingold, T. (2000). *The Perception of the Environment*. London: Routledge.

Innis, H. (1991). *The Bias of Communication*. Toronto: University of Toronto Press. (Originally published in 1951).

Ito, M., D. Okabe, & M. Matsuda (Eds.). (2005). *Personal, portable, pedestrian: mobile phones in Japanese life*. Cambridge, MA: The MIT Press.

Ito, M. et al. (2010). *Hanging Out, Messing Around, and Geeking Out: Kids Living and Learning with New Media*. Cambridge, MA: The MIT Press.

Jahanderie, K. (1999) *Spoken and Written Discourse: A multi-disciplinary perspective.* Stamford, CT: Ablex Publishing.

Järviluoma, H. (2009). Soundscape and social memory in Skruv. In Järviluoma, H., Truax, B., Kyto, M. and Vikman, N. (Eds), *Acoustic Environments in Change*. Tampere: University of Joensuu.

Järviluoma, H., Truax, B., Kyto, M. & Vikman, N. (2009). *Acoustic Environments in Change.* Tampere: University of Joensuu Press.

Järviluoma, H. & Vikman, N. (2013). On Soundscape Methods and Audiovisual Sensibility. In J. Richardson, C. Gorbman & C. Vernallis (Eds.) (pp. 645-668).*The Oxford Handbook of New Audiovisual Aesthetics*. Oxford University Press.

Jenkins, H. (2006a). *Fans, Bloggers, and Gamers: Exploring Participatory Culture*. New York: New York University Press.

Jenkins, H. (2006b). *Convergence Culture: Where Old and New Media Collide*. New York: New York University Press.

Jenkins, H. et al. (2006). *Confronting the Challenges of Participatory Culture: Media Education for the 21st Century*. White Paper prepared for the McArthur Foundation.

Jenkins, H., Ford, S. & Green, J. (2013). *Spreadable Media: Creating Value and Meaning in a Networked Culture.* New York & London: New York University Press.

Jenson, J. & de Castell, S. (2011). Girls@Play: An Ethnographic Study of Gender and Digital Gameplay. *Feminist Media Studies*, 2 (11), 1-13.

Jordan, R. (2007). Case Study: Film Sound, Acoustic Ecology, and Performance in Electroacoustic Music. In J. Sexton (Ed.). *Music, Sound and Multimedia: From the Live to the Virtual* (pp. 121-141). Edinburgh: University of Edinburgh Press.

Jørgensen, K. (2006). On the Functional Aspects of Computer Game Audio. (pp.48-52). In Proceedings of the first International *AudioMostly Conference*, 2006, Piteå, Sweden.

Jørgensen, K. (2011). Time for New Terminology? Diegetic and Non-Diegetic Sounds in Computer Games Revisited. In Grimshaw, Mark (Ed.). *Game Sound Technology and Player Interaction: Concepts and Developments* (pp.78-96). IGI Global.

Jorgina, S. (2009, October 4). From Tweet to Hypertextual Consciousness. *Immersed in New Media*. Retrived from https://susanajorgina.wordpress.com/tag/secondary-orality/

Kittler, F. A. (1999). *Gramophone, film, typewriter*. Stanford, CA: Stanford University Press.

Kallinen, K. & Ravaja, N. (2007). Comparing speakers versus headphones in listening to news from a computer — individual differences and psychophysiological responses. *Computers in Human Behavior*, 23, 303-17.

Karaganis, J. (Ed.). (2007). *Structures of Participation in Digital Culture*. University of Michigan Press.

Katz, J. & M. Aakhus (Eds.). (2002). *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*. Cambridge, UK: Cambridge University Press.

Kavoori, A. & Arcenaux, N. (2006). *The Cell Phone reader: Essays in Social Transformation*. New York, NY: Peter Lang Publishing

Katz, M. (2004). *Capturing Sound: How Technology has Changed Music.* Berkeley and Los Angeles: University of California Press.

Kautonen, O. & Koivumäki, A. (2010). Soundscape stories and routes in Pirkanmaa. Paper presented at *Ideologies and Ethics in the Uses and Abuses of Sound*, Koli, Finland.

Kennedy, I. (2013). Redeeming The Aural: Amodal Resonance And Media History. *Criticism*, 55(3), 507-14.

Khine, M.S. (Ed.). (2011). *Playful Teaching, Learning Games: New Tools for Digital Classrooms.* Springer Science and Business Media.

Kittay, J. (2008). The Sound Surround: Exploring How One Might Design the Everyday Soundscape for the Truly Captive Audience. *Nordic Journal of Music Therapy*, 17(1), 41-54.

Klopfer, E., & Squire, K. (2008). Environmental Detectives—the development of an augmented reality platform for environmental simulations. *Educational Technology Research and Development*, 56(2), 203-228.

Kress, G. (1997). Visual and verbal modes of representation in electronically mediated communication. In I. Snyder (Ed.). *From page to screen* (pp. 53-79). Sydney: Allen & Unwin.

Kress, G. (2011). 'Partnership in Research': Multimodality and Ethnography. *Qualitative Research*, 11(3), 239-260.

Kubisch, C. (2004). Electrical Walks: Electromagnetic Investigations in the City. Retrieved from http://www.christinakubisch.de/en/works/electrical_walks

LaBelle, B. (2010). *Acoustic Territories. Sound culture and everyday life*. New York: Continuum.

Lacey, K. (2013). *Listening Publics: The Politics and Experience of Listening in the Media Age.* Polity Publishing.

Lane et al. (2005). Urban Tapestries: Public Authoring, Place and Mobility. Final Report Prepared for the Proboscis Project.

Lane, C. & A. Carlyle (2013). *In the Field: The Art of Field Recording*. Uniformbooks.

Lasar, M. (2010, August 9). 'Keep Mustache Out of the Opening' – A History of Phone Etiquette. *ArsTechnica*. Retrieved from http://arstechnica.com/tech-policy/news/2010/08/what-would-emily-post-say-about-droids-in-cafes.ars

Latour, B. (1994). On technical mediation: Philosophy, sociology, geneology. *Common Knowledge*, 3(2), 29-64.

Lefebvre, H. (2002) *Critique Of Everyday Life, Volume 2: Foundations For A Sociology Of The Everyday*. London and New York, NY.

Light, A. et al. (2009). Geezers, Turbines, Fantasy Personas: Making the Everyday into the Future. *Proceedings of Creativity and Cognition Conference*, Berkeley, CA.

Lord, A.B. (1960). *The singer of tales.* Cambridge, MA: Harvard University Press.

Lury, C. (1998). *Prosthetic Culture*. New York, NY: Routledge.

Lyotard, J.F. (1984). *The Postmodern Condition: A report on Knowledge*. Minneapolis, MN: University of Minnesota Press.

MacDougall, D. (2001). Renewing Ethnographic Film: is digital video changing the genre? *Anthropology Today*, 17(3), 15–21.

Makagon, D. G. & Neumann, M. (2009). *Recording culture: Audio documentary and the ethnographic experience.* Thousand Oaks, CA: Sage Press.

Malinowski, B. (1979). *The Ethnography of Malinowski: The Trobriand Islands 1915-18*. Routledge & Kegan Paul.

Manovich, L. (2001). *The language of new media*. Cambridge: MIT Press.

Manovich, L. (2003). The Poetics of Augmented Space. In A. Everett & J. T. Caldwell (Eds.). *New Media: Theories and Practices of Digitextuality* (pp. 75–92). New York: Routledge.

Marchessault, J. (2005). *Marshall McLuhan*. London, UK: Sage Publishing.

Maynor, N. (1994). The Language of Electronic Mail: Written Speech? In G. Little & D. M. Montgomery (Eds). (1994). *Centennial Usage Studies* (pp. 48–54.). Tuscaloosa, AL: Alabama University Press.

McCartney, A. (2005). Performing soundwalks for Journees Sonores, canal de Lachine. In G. Giannachi, & N. Stewart (Eds.). *Performing nature: Explorations in Ecology and the Arts* (pp. 217-234). Bern, Switzerland: Peter Lang Publishing.

McCartney, A. (2010). Soundwalking: creating moving environmental sound narratives. In S. Gopinath & J. Stanyek (Eds.). *The Oxford Handbook of Mobile Music Studies*. Oxford University Press.

Paquette, D. and McCartney, A. (2012). Soundwalking and the Bodily Exploration of Places. *Canadian Journal of Communication*, 37(1), 135-145.

McGary, C. (2012, December 8). Nielsen Report: Social media sucking up most of our time. *Tech Hive*. Retrieved from http://www.techhive.com/article/2019194/nielsen-survey-social-media-sucking-up-most-of-our-time.html

McQuire, S. (2006). The Politics of Public Space in the Media City. *First Monday*, Special Issue 4, Retrieved from http://www.firstmonday.org/issues/special11_2/mcquire/index.html

McLuhan, M. (1962). *The Gutenberg galaxy: the making of typographic man*. University of Toronto Press.

McLuhan, M. (1964). *Understanding Media: The Extensions of Man*. New York: McGraw-Hill.

Mead. M. (1975). Visual Anthropology in a Discipline of Words. In P. Hockings (Ed.). *Principles of Visual Anthropology*. The Hague: Mouton.

Merleau-Ponty, M. (1962). *The Phenomenology of Perception*. London: Routledge.

Mendelsohn, H. (1964). Listening to Radio. In Dexter & White (Eds). *People, Society and Mass Communication*. New York, NY: Free Press.

Metz, C. (1985). Aural Objects. In E. Weis & J. Belton (Eds.). *Film Sound*. Columbia University Press.

Meyer, C. & Shareika, N. (2009). Participant Audition: Audio-recording as ethnographic method. *Working paper No101 Prepared for the Institut für Ethnologie und Afrikastudien*, Mainz, Germany.

Miller, S. (2013, November 5). Aesthetics and the Art of Audio Field Recording. *Trebouchet Magazine*. Retrieved from http://www.trebuchet-magazine.com/aesthetics-art-audio-field-recording/

Mitchell, W. (2001). *The Reconfigured Eye: Visual Truth in the Post-photographic Era*, *Fourth Edition*. Cambridge, MA: The MIT Press.

Murphy, D., Marontate, J. & B. Truax (2011). Listening and Value Systems: Towards an Axiology of Soundscape Documentation. Presented at the *World Forum for Acoustic Ecology 2011*, Corfu, Greece.

Murray, J. (1997). *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*. Cambridge, MA: The MIT Press.

Nancy, J. L. (2007). *Listening*. Fordham University Press.

New London Group (2000). A Pedagogy of Multiliteracies: Designing Social Futures. In B. Cope & M. Kalantzis (Eds.). *Multiliteracies: Literacy Learning and the Design of Social Futures* (pp. 9-38). London, UK: Routledge.

Nichols, B (2001). *Introduction to Documentary*. Bloomington & Indianapolis, Indiana: Indiana University Press.

Nielsen (2012, November 11). *State of the Media – The Social Media Report*. Retrieved from http://www.nielsen.com/us/en/insights/reports/2012/state-of-the-media-the-social-media-report-2012.html

Norman, K. (2011). Beating the bounds for ordinary listening. Keynote presented at the *World Forum for Acoustic Ecology 2011*, Corfu, Greece.

Norman, K. (2012). Listening Together, Making Place. *Organised Sound*, 17(3), 257 – 265.

North, A.C., Hargreaves, D.J. & Hargreaves, J.J. (2004). Uses of music in everyday life. *Music Perception*, 22(1), 41-77.

Nuckolls, R. (2004). Language and Nature in Sound Alignment. In V. Erlmann (Ed.). *Hearing Cultures: Essays on Sound, Listening and Modernity*. Oxford: Berg.

O'Connel, J. (2011, August 8). Social content curation – a shift from the traditional. Retrieved from http://judyoconnell.com/2011/08/08/social-content-curation-a-shift-from-the-traditional/

O'Neill, P. (2012). *The Culture Of Curating And The Curating Of Culture(s).* Cambridge, MA: The MIT Press.

Oliveros, P. (2005). *Deep Listening: A Composer's Sound Practice*. Lincoln, NE: iUniverse.

Olson, D. (1977). From utterance to text: the bias of language in speech and writing. *Harvard Educational Review*, 41, 257-81.

Olson, D. (1985). *Literacy, language, and learning: the nature and consequences of reading and writing*. CUP Press.

Ong, W. (1958). *Ramus, Method and the Decay of Dialogue*. Cambridge, MA: Harvard University Press.

Ong, W. (1970). *The Presence of the Word*. New York: Simon and Schuster.

Ong, W. (1982). *Orality and Literacy: The Technologizing of the Word*, London: Methuen.

Orchard, I. (1974). Tape Recordings in Radio Documentaries. *Sound Heritage*, 3, 29-40.

Parry, M. (1971). *The Making of Homeric Verse*. Oxford: Clarendon Press.

Paul, C. (2008). *New Media in the White Cube and Beyond: Curatorial Models for Digital Art*. Berkeley, CA: California University Press.

Penley, C. & Ross, A. (1991).*Technoculture*. University of Minnesota Press.

Pennock, M. & Clark, C. (2011). Saving the Sounds of the UK in the UK SoundMap. *Ariadne,* 66. Retrieved from http://www.aridane.ac.uk/issue66/pencock-clark

Pequini, E. (2012, February 14). Secondary Orality, Twitter and the press. *After Print Journalism*. Retrieved from http://afterprintjournalism.wordpress.com/2012/02/14/secondary-orality-twitter-and-the-press/

Perec, G. (1997). *Species of Spaces and Other Pieces*. London: Penguin.

Péres-Sabater, C. (2012). The Linguistics of Social Networking: A Study of Writing Conventions on Facebook. *Linguistik Online*, 56(6).

Petrusich, A. (2007, December 10). The Art of Field Recording Vol 1: Dust-to-Digital. *Pitchfork*. Retrieved from http://pitchfork.com/reviews/albums/10964-the-art-of-field-recording-vol-1/

Pink, S. (2007). *Doing Visual Ethnography*. London, UK: Sage.

Pink, S. (2009). *Doing Sensory Ethnography.* London: Sage.

Pink, S. (2012). *Situating Everyday Life*. London, UK: Sage.

Plant. S. (2002). *On the Mobile: The Effects of Mobile Telephones on Social and Individual Life.* Report for Motorola.

Poster, M. (1995). *The Second Media Age.* Cambridge, MA: Blackwell.

Prensky, M. (2001). Digital Natives, Digital Immigrants, *On The Horizon, 9(5), 1-6.*

Raab, J. & Tänzler, D. (2005). Video-Hermeneutics. In H. Knoblauch, B. Schnettler, J.Raab & H.G. Soeffner (Eds.). *Video Analysis: Methodology and Methods: Qualitative Audiovisual Analysis in Sociology* (pp. 85-97). Frankfurt: Peter Lang.

Rabinow, P. (2003). *Anthropos Today: Reflections on Modern Equipment*. Princeton University Press.

Radio Advertising Bureau (RAB) (2006). *Discovery and Recovery: the complementary roles of radio and iPod.* London: RAB. Retrieved from http://2011.rab.co.uk/archived-pages/Discovery-and-Recovery---Radio-and-the-iPod#discovery

Rice, T. (2002). Soundselves: An Acoustemology of Sound and Self within the Edinburgh Royal Infirmary. *Diffusion*, London: Sonic Arts Network, 2-7.

Richardson, I. (2009). Audile Telepresence: a sonic phenomenology of mobile phones. Proceedings of ANZCA09 *Communication, Creativity and Global Citizenship*. Brisbane.

Ricoeur, P. (1971). The model of the text: Meaningful action considered as a text. Social *Research*, 28, 529-563.

Ritchin, F. (2008). *After Photography*. W. W. Norton & Company.

Roche, C. (2011, June 5). Audioboo in the Classroom. *Edublogs*. Retrieved from http://techmeetsed.com/2011/06/05/audioboo-in-the-classroom-pt-1/

Roszak, T. (1994). *The cult of information: The folklore of computers and the true art of thinking, Second Edition*. Berkeley, CA: University of California Press.

Rueb, T. (2007). Core Sample. Retrieved from http://www.terirueb.net/core_ sample/index.html

Scanella, C. (2008, April 9). The Orality of Twitter. *Extensions*. Retrieved from http://cscannella.wordpress.com/2008/04/09/the-orality-of-twitter/

Scifo, B. (2005). The Domestication of the camera-phone and MMS messaging. In K. Nuíri (Ed.). *A Sense of Place: The Global and the Local in Mobile communication* (pp. 305-317). Vienna: Pasagen Verlag.

Schaeffer, P. (1967). *Traité Des Objets Musicaux*, *Revised edition*. Paris: Seuil.

Schafer, R. M. (1970). *The Book of Noise.* Wellington, New Zealand: Price, Milburn.

Schafer, R. M. (1977). *The Tuning of the World.* New York: Knopf. Reprinted as *Our Sonic Environment and the Soundscape: The Tuning of the World*. Destiny Books, 1994.

Schafer, R. M. (1986). *The Thinking Ear.* Toronto, Ontario: Arcana Editions.

Schafer, R.M. (1993). *Voices of Tyranny, Temples of Silence.* Toronto, Ontario: Arcana Editions.

Schatzki, T. (1996). *Social Practice: A Wittgenseinian Approach to Human Activity and the Social.* Cambridge, MA: Cambridge University Press.

Schine, J. (2010). Movement, Memory and the Senses in Soundscape Studies. *Canadian Acoustics*, 38(3), 100-101.

Schwartz, H. (2011). *Making Noise: From Babel to the Big Bang and Beyond*. Zone Books.

Sheringham, M. (2006). E*veryday Life: Theories and Practices from Surrealism to the Present.* Oxford: Oxford University Press.

Sherk, S. (2012). Phonography: Art or Documentation? *Field Notes*, 3, 14-24.

Shilston, S. & Lund, J. (2009). Audioboo: A New Medium For Ubiquitous Microteaching (1070-1075). *Proceedings of International Conference of Education, Research and Innovation*, Mardid, Spain.

Shove, E. et al. (Eds.). (2009). *Time, Consumption and Everyday Life: Practice, Materiality and Culture*. Oxford: Berg.

Scott, D. (2013). Mimetic Machines And The Sensuous Soundscape. Presented at the *Symposium on Acoustic Ecology*, University of Kent, UK.

Slack, J. (1996). The Theory and Method of Articulation in Cultural Studies. In D. Morley & D. H. Chen (Eds.). *Stuart Hall: Critical Dialogues*. New York: Routledge.

Sloboda, J. A., O'Neill, S. & A. Ivaldi (2001). Functions of music in everyday life: an exploratory method using the experience sampling method. *Musicae Scientiae* 5(1), 9–32.

Smith, D. (1987). *The Everyday World as Problematic: A Feminist Sociology*. Northeastern University Press.

Smith, S. (2004). Listening to the Wild Blue Yonder. In V. Erlmann (Ed.). *Hearing Cultures: Essays on Sound, Listening and Modernity*. Oxford: Berg.

Squire, K. (2009). Mobile media learning: Multiplicities of place. *On the Horizon*, 17(1), 70–80.

Squire, K. & Dikkers, S. (2012). Amplifications of learning: Use of mobile media devices among youth. *Convergence: The International Journal of Research into New Media Technologies*, 18(4), 445-464.

Sterne, J. (1997). Sounds like the Mall of America: Programmed Music and the Architectonics of Commercial Space. *Ethnomusicology*, 41(1), 22-50.

Sterne, J. (2003a). *The Audible Past: Cultural Origins of Sound Reproduction*, Durham, NC: Duke University Press.

Sterne, J. (2003b). Bourdieu, Technique And Technology. *Cultural Studies*, 17(3/4), 367-389.

Sterne, J. (2006). The MP3 as a Cultural Artefact. *New Media & Society*, 8(5), 825–842.

Sterne, J. (2011). The Theology of Sound: A Critique of Orality. *Canadian Journal of Communication*, 36, 207-225.

Sterne, J. (2012a). *MP3: The Meaning of a Format*. Durham: Duke University Press.

Sterne, J. (Ed). (2012b). *The Sound Studies Reader*. London & New York: Routledge.

Stoller, P. (1997). *Sensuous Scholarship*. Philadelphia, PA: University of Philadelphia Press.

Stone, A.R. (1996). *The War of Desire and Technology at the Close of the Mechanical Age*. Cambridge, MA: The MIT Press.

Strauss, A. & Corbin, J. (1998). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. Sage Publications.

Street, B. (1988). Literacy practices and literacy myths. In R. Saljo (Ed.). *The Written Word: Studies in Literate Thought and Action* (pp. 59-72). Heidelberg: Springer-Verlaag Press.

Svec, H. (2013). Folk Media: Alan Lomax's Deep Digitality. *Canadian Journal of Communication*, 38, 227-244

Théberge, P. (2005). Sound Maps: Music and Sound in Cybercartography. In F. Taylor (Ed.). *Cybercartography: Theory and Practice* (pp. 389-410). Amsterdam: Elsevier.

Thibaud, J.P. (2003). The Sonic Composition of the City. *The Auditory Culture Reader.* In M. Bull & L. Back (Eds.) (pp.329-342). Oxford: Berg.

Thibaud, J.P. (2011). The Sensory Fabric of Urban Ambiances. *The Senses & Society*, 6(2), 203-215.

Thompson, E. (2002). *The Soundscape of Modernity*. Cambridge, MA: The MIT Press.

Thompson, E. (2004). Wiring the World: Acoustical Engineers and the Empire of Sound in the Motion Picture Industry, 1927-1930. In V. Erlmann (Ed.). *Hearing Cultures: Essays on Sound, Listening and Modernity*. Oxford: Berg.

Thulin, S. (2013). Mobile Audio Apps, Place and Life Beyond Immersive Interactivity. *Sound Moves: Journal of Mobile Media*, 7(1).

Tonkiss, F. (2003). Aural Postcards: Sound, Memory and the City. *The Auditory Culture Reader*. In M. Bull & L. Black (Eds.) (pp.303-310). Oxford: Berg.

Truax, B. (1984). *Acoustic Communication.* Norwood: NJ, Ablex.

Truax, B. (2001). *Acoustic Communication, 2nd Edition,* Norwood: NJ, Ablex.

Truax, B. (2013). Voices in the Soundscape: From Cellphones to Soundscape Composition. In D. Zakharine (Ed). *Electrified Voices: Medial, Socio-historical and Cultural Aspects of Voice Transfer*. (pp.61-80). V&R Unipress.

Turkle, S. (1984). *The Second Self.* New York: Simon and Schuster.

Turner, F. (2013, December 20). Interview with Fred Turner. Figure/Ground Communication. Retrieved from http://figureground.org/interview-with-fred-turner/

Uimonen, H. (2010). The moving microphone: social media and acoustic communication. Paper presented at *Ideologies and Ethics in the Uses and Abuses of Sound*, Koli, Finland.

Uimonen, H. (2011). Everyday Sounds Revealed: Acoustic communication and environmental recordings. *Organised Sound,* 16(3), 256–263.

Verbeek, P.P. (2005). *What things do: Philosophical reflections on technology, agency, and design*. University Park, Pa.: Pennsylvania State University Press.

Wagstaff, G. (2002). *The Sounds of Harris and Lewis: Machair Soundwalks*. Scotland: Earminded.

Waldock, J. (2011). Soundmapping: Critiques And Reflections On This New Publicly Engaging Medium. *Journal of Sonic Studies*, 1(1).

Walker, B. (Producer). (2014, May 17). A Better Tomorrow. Theory of Everything [Podcast]. Retrieved from https://medium.com/@benjamenwalker/a-better-tomorrow-720445a4d8d7

Wang, C. & M. Burris (1994). Empowerment through photo novella: portraits of participation. *Health Education Quarterly*, 21(2), 171-86.

Wang, C., Yi, W.K., Tao, Z.W. & K. Carovano (1998). Photovoice as a participatory health promotion strategy. *Health Promotion International*, 13(1), 75-86.

Weis, E. & J. Belton (Eds.). (1985). *Film Sound*, Columbia University Press.

Weissman, S. (2013, September 9). 15 Stats You Need to Know about Vine & Instagram Video. *Oracle*. Retrieved from http://digiday.com/brands/15-stats-vine-and-instagram-video/

Wershler, D. (2008). Sonic Signage: [murmur], the Refrain, and Territoriality. *Canadian Journal of Communication*, 33, 405-418.

Westerkamp, H. (1974). Soundwalking. *Sound Heritage,* 3(4),18-27.

Westerkamp, H. (1990). Listening and Soundmaking: A Study of Music-as-Environment. In D. Lander & M. Lexier (Eds.) *Sound by Artists*, Art Metropole & Walter Phillips Gallery.

Westerkamp, H. (1994). The Soundscape on Radio, In Augaitis, D. & Lander, D. (Eds) *Radio Rethink, Art, Sound and Transmission,* Banff: Walter Philips Gallery.

Westerkamp, H. (1996). *Transformations*, Montréal: DIFFUSION i MéDIA, 19-20.

Westerkamp, H. (1998). Speaking from Inside the Soundscape: Proceedings from *Stockholm Hey Listen! Conference on Acoustic Ecology*, Stockholm, Sweden: The Royal Swedish Academy of Music.

White, A. (2008). The Return to Orality: Digital Texts and their Impact on Literacy. In G. Mitrano & E. Jarosinksi (Eds.). *The Hand of the Interpreter: Essays on Meaning after Theory.* Peter Lang Publishing.

Willinsky, J. (1984). The Bounds of Literacy. *Interchange*, 15(4), 40-52.

World Soundscape Project. (1973). *The Music of the Environment Series.* Schafer, R.M. (Ed.). Vancouver: A.R.C. Publications.

World Soundscape Project. (1977). *European Sound Diary (Reprinted).* Schafer, R.M. (Ed.). Vancouver: A.R.C. Publications.

Zakharine, D. (Ed.). (2013). *Electrified Voices: Medial, Socio-historical and Cultural Aspects of Voice Transfer*. V&R Unipress.

Zarro, M. & Hall, Z. (2012). Exploring Social Curation. *D-Lib Magazine*, 18(11/12). Retrieved from http://www.dlib.org/dlib/november12/zarro/11zarro.html

Appendix A. Informed Consent Form

S I M O N F R A S E R U N I V E R S I T Y
Informed Consent By Participants in a Research Study

The University and those conducting this research study subscribe to the ethical conduct of research and to the protection at all times of the interests, comfort, and safety of participants. This research is being conducted under permission of the Simon Fraser Research Ethics Board. Should you wish to obtain information about your rights as a participant in research, or about the responsibilities of researchers, or if you have any questions, concerns, or complaints about the manner in which you were treated in this study, please contact the Director, Office of Research Ethics by email at xxxx or phone at xxxx.

Any information that is obtained during this study will be kept confidential to the full extent permitted by the law. Knowledge of your identity is not required. Collected data will be kept in a locked cabinet and all digital data will be stored on an external hard-drive in a secure location and kept for 4 years after the completion of the study.

Project Title: **Epistemology and Aurality in the Post-Literate Soundscape: An everyday ethnography of listening– application # 2010s0402**

Duration: June 30, 2010 – June 1, 2011

Principle Investigator: Milena Droumeva

Investigator Department: Faculty of Education

Project Description:

This project is about exploring the *epistemological* dimensions of (mediated) aurality by creating a framework to map out contemporary soundscapes by way of an "auditory inventory" or "sound cartography," specifically focused on designed sound signals and designed sound environments. A significant part of that will involve an ethnographic exploration of ways of listening to these soundscapes, with the help of a small group of dedicated listeners, and situate that within larger discourses around listening, voice and the role of sound and listening in society.

Benefits of the Study:

The research benefits of this study include better understanding the role of designed sounds and soundscapes in our lives, and particularly the relation of listening as a cultural practice to our epistemological notions and conceptions of knowledge. Additionally, this project contributes innovating methodologies to the study of multimodal forms of communication and cultural expressions.

Procedures:

What you will be expected to do is meet with me in a small group first, for a soundwalk and a discussion afterwards. You will be given a folder with materials explaining the study and directions as to how to journal about your personal experiences with everyday soundscapes. Along with the folder, I will give you a recorder to use for the duration of the study, to make illustrative field recordings and pictures. The folder will also contain a survey that you could fill out at your convenience and return to me. I'll ask you to journal about your daily listening experiences for two weeks, and return the materials to me. Then after two more weeks (a month in total duration) – I will contact you for a touch-base refresher group meeting and ask everyone again if they have noticed any change in their listening habits or if they have any new reflections

on the subject. Group discussions will be audiotaped, and potentially transcribed. The digital materials you collect will be stored in a secure location and on an external hard-drive. Your confidentiality and anonymity will be ensured at all stages of data analysis and storage.

By consenting to participate in the focus group, you confirm that any information you encounter will be kept confidential and not revealed to parties outside the focus group. By consenting to participate in the study you agree to being audiotaped during the group discussions.

Risks: None anticipated.

Thank you for allowing me to involve you in my study!

Anonymity and Confidentiality: I understand that my anonymity and confidentiality will be ensured and any data collected during this study will be kept in a secure location and retained for four years.

For any questions about this research and for obtaining copies of the results of this study, upon its completion, please contact the principal investigator of this study.

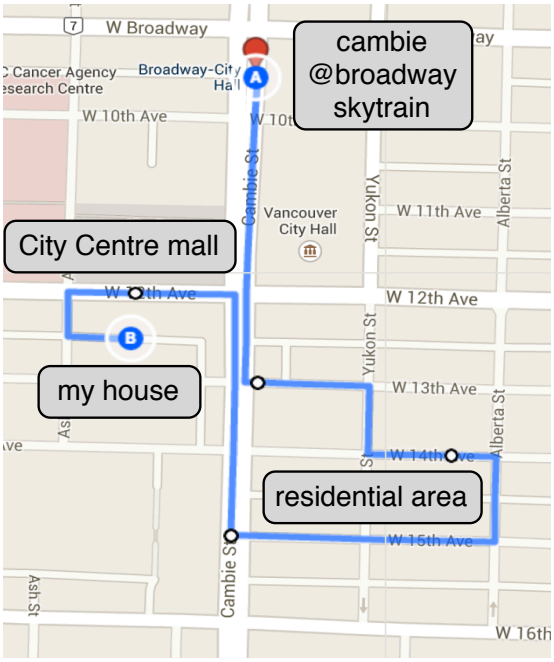
I certify that I understand the procedures to be used and that I have been able to receive clarification of any aspects of this study about which I have had questions. I have read, understand and agree with the above, and have been offered a copy for my records. I understand that I have the right to withdraw from the study at any time, and that any complaints about the study may be brought to the Director, Office of Research Ethics by email at xxxx or phone at xxxx. I understand the risks and contributions of my participation in this study and agree to participate:

First and last name of participant	Phone and/or email Contact

Signature	Witness (signature):

Date

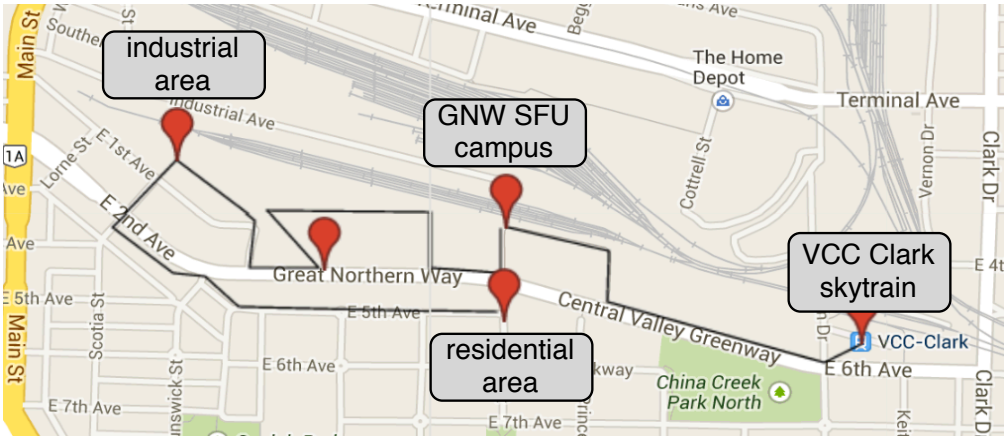
Appendix B. Soundwalk Routes



Soundwalk Route 1 (to the left)

This 45-minute route took participants from the skytrain station at Cambie St. and Broadway St. through the residential areas south of 12th Ave. back through the small park at the City Hall building, across the street through the City Centre mall (inside) and back outside, across the street and into my house for our first group meeting. The route contained indoor and outdoor spaces; heavy-traffic and quiet residential spaces; and a small city park.

Soundwalk Route 2 (below)



This 45-minute route took participants from the VCC Clark skytrain station along the back roads behind Central Valley Greenway, through a large parking lot away from traffic noise, in through the Great Northern Way SFU campus building, behind the Justice Institute and into an area of industrial art/work studios; back to the bike route along Great Northern Way, across the street and along E 5th Ave to one of the participant's homes to have our first group meeting.

Appendix C. Study Information Package

1. The Everyday Listening Project

Thanks for agreeing to be part of my study!

This project is about exploring the role of the soundscape in our everyday lives through journaling about our listening practices and experiences. What I'll be asking you to do is make at least one entry each day for two weeks about a listening experience, a particular sound or sound environment. Please use the iPod Touch provided in this package to document these experiences. You are free to take videos, still photos, audio recordings and decibel measurements with the applications provided (see the Supplementary Materials sheet for instructions and clarification on how to use them). Whenever possible, I ask you to provide verbal commentary while you are recording soundscape experiences, and if it is not possible, you may record a reflection afterwards, preferably in oral form, however, written reflections are always welcome in addition.

In two weeks time I will contact you to collect the iPod with all the data on it as well as a filled our survey and any other materials that are part of your study package. Then in two more weeks I will check in with you individually about any longer-term reflections on the experience of participating in this study. For participating, you will receive a honorarium of $100 and at the end of the study your name will be entered in a draw to win an iPod Touch 4.

Audio journaling

It will probably take you a little while to get used to paying attention to sound and listening in this way. You may find in the beginning it is difficult to find situations to document, and the more you do it, you might want to document several soundscapes in a day. Also, at first you might not have much to say, but as you think and experience more, your journaling reflections may become longer. This is all part of the process.

If you are at a loss about what to record or what to comment on, here is a loose structure to the activity - think about answering these questions in relation to each listening experience:

- What kinds of sounds do you hear? Try and become aware of them, and acknowledge them.
- How do you listen? How were you listening before you started documenting, and how has your attention shifted?
- What kind of listening do you think is expected there?
- What is this space intended for?
- How does the soundscape support or not support social relationships, communication, conveying of information?

2. Supplementary Materials: How to use your iPod Touch

For those new to the iPod Touch interface, here are a few starting points: In order to active your screen or to exit an application, click the big round button under the screen. In order to open an application tap on it. To click on any buttons or perform actions within an application, tap the buttons and links inside. To return to the main menu screen, click the round button under the screen.

To use your dB application, activate it by clicking on its icon, then you'll see this screen (right). Tap Tag to capture a snapshot of the environment's sound level in decibels (dB) at which point you'll be able to either take a picture or choose one from the library. Then you'll be prompted to write a caption and the application will put it all together for you.

To use the audio Recorder application, tap to open, and you'll see this screen (left). Pressing Record once starts a recording and you'll see a graphic audio meter (second screen on the left). Pressing Pause pauses the recording and you can continue it. When you are done, you could press the > arrow on the name of the recording and change its name and view the waveform. Please give your recording a representative name because it is easy to forget what you recorded if you generating many recordings.

3. Aural Postcard Example

I was recently at a Blenz downtown studying with a friend and noticed the ambience, so I decided to record a bit of it. I especially wanted to measure the super-duper hand dryer in the washroom. I've seen it before and it is head and shoulders louder than any other regular hand dryer. But the thing that made me want to comment on this coffee shop's ambience was the weird owner who sat near us. This particular Blenz in Yaletown has a large oblong conference-style table with individual plugs obviously adapted for laptop users to come in and work. The owner himself was sitting at the table all spread out, loud on his phone, and 'performing' on his computer. Sonically this was reflected in the choice of "background music". Now, every cafe has background music, I know that, but in this case it was clear to me that this guy chose it. It was rave/techno turned quite high up. It's like he wanted to pretend this is a nightclub instead of a Blenz with a workstation table for study and work. So, my main observation is this clash of worlds that I perceived (completely subjectively, obviously) between the image the owner wanted to portray and the atmosphere he wanted to surround himself with, in opposition to the intended practical purpose of the space which was for people to quietly work on their machines, maybe meet in study groups, for which, presumably, they'd need at least relative quietude. Instead, the ambience, combined with music and the regular sounds of a coffee shop – loud steamers, espresso makers and blenders – was quite busy (hear below). There is a vicious circle with noise – whenever there is an elevated background sound, all other sounds have to compete to rise above it, and other sounds have to rise above those, and so on.

Blenz

Appendix D. Media and Technology Use Questionnaire

Please fill out this brief questionnaire and submit it along with your package at the end of the study period.

1. What electronic/digital devices do you own and/or use regularly (check all that apply):

- ☐ television set
- ☐ radio
- ☐ computer - desktop
- ☐ computer - laptop
- ☐ iPod or other MP3 player
- ☐ iPhone or other smartphone
- ☐ cell phone
- ☐ game console(s)
- ☐ other - list

_____

2. How do you mainly interact with other people? Please provide a rough estimate of how often you are likely to communicate:

●	face to face	never	rarely	sometimes	often	mostly
●	by email	never	rarely	sometimes	often	mostly
●	by phone	never	rarely	sometimes	often	mostly
●	by chat/instant messaging	never	rarely	sometimes	often	mostly
●	by texting	never	rarely	sometimes	often	mostly
●	other - list					

_____

3. What is the main way in which you travel or commute in the city:

- ☐ on foot
- ☐ by car
- ☐ by public transit
- ☐ by bicycle

4. How do you inform yourself about current affairs, news:

●	watching the news	never	rarely	sometimes	often	mostly
●	web news sites	never	rarely	sometimes	often	mostly
●	talking to friends/family	never	rarely	sometimes	often	mostly
●	through Facebook/Twitter/etc	never	rarely	sometimes	often	mostly
●	listening to radio/podcasts	never	rarely	sometimes	often	mostly
●	through newspapers	never	rarely	sometimes	often	mostly
●	other - list					

_____

5. How often do you listen to:

radio or podcasts	never	occasionally	few times a week	daily
music - at home	never	occasionally	few times a week	daily
music - on a portable device	never	occasionally	few times a week	daily
audio books	never	occasionally	few times a week	daily
live concerts or performances	never	occasionally	few times a week	daily
cinema soundscapes	never	occasionally	few times a week	daily

6. On average how often would you say you are exposed to the following soundscapes:

- electronic alerts, beeps and signals
  never 1-2 times/month 1-3 times/week 1-3 hrs/day 6-8 hrs/day
- television soundscapes
  never 1-2 times/month 1-3 times/week 1-3 hrs/day 6-8 hrs/day
- telephone conversations
  never 1-2 times/month 1-3 times/week 1-3 hrs/day 6-8 hrs/day
- car soundscapes
  never 1-2 times/month 1-3 times/week 1-3 hrs/day 6-8 hrs/day
- shopping mall or store soundscapes
  never 1-2 times/month 1-3 times/week 1-3 hrs/day 6-8 hrs/day
- coffee shop or restaurant soundscapes
  never 1-2 times/month 1-3 times/week 1-3 hrs/day 6-8 hrs/day
- game soundscapes
  never 1-2 times/month 1-3 times/week 1-3 hrs/day 6-8 hrs/day
- silence or relative quietude
  never 1-2 times/month 1-3 times/week 1-3 hrs/day 6-8 hrs/day

7. How would you characterize the soundscape in/around your home (please describe all the sounds you can think of)

_____
_____
_____

8. The following is true for you in terms of listening habits (click as many as apply):

- ☐ I am an active and attentive listener to the sounds around me
- ☐ I pay attention to sounds if I need to and ignore them the rest of the time
- ☐ I usually tune out most of my surroundings
- ☐ I use earplugs to tune out sounds and concentrate
- ☐ I prefer to listen to my own music/audio when I am out and about
- ☐ At home I control the sounds I listen to
- ☐ Even at home, unwanted noise intrudes in my space
- ☐ Other (describe)

_____

9. In your daily life, do you find the soundscape around you mostly: (click all that apply)

- ☐ pleasant to listen to
- ☐ gives me information, it's important
- ☐ neutral in nature
- ☐ uninteresting, unimportant
- ☐ annoying
- ☐ noisy
- ☐ distracting
- ☐ other

_____

10. If you had to express yourself about something how are you likely to do it: (click as many as apply)

●	write/journal about it	not likely	on occasion	most likely
●	talk to someone about it	not likely	on occasion	most likely
●	blog about it	not likely	on occasion	most likely
●	make pictures, recordings or video	not likely	on occasion	most likely
●	post on your social media site(s)	not likely	on occasion	most likely
●	use artistic or creative expression	not likely	on occasion	most likely
●	other (list)			

_____

11. What is your age group, gender and general occupation?

●	My age is in this range	under 25	25-30	30-40	over 40	over 50
●	My gender is	other		male		female
●	My general occupation is:	student		working		other:

_____

Appendix E. Final Group Discussions: Participant Transcripts

November 1, 2010 Final discussion (P1-P4)

Researcher memo: It seems, from what they expressed, that most people approached this task purposefully - took the iPod specifically to document an experience or space they were planning to be in their daily routine that day; sometimes they intended to and forgot it. Right after the first meeting, everyone was really keen to share their recordings and impressions, and at the final meeting they were excited to tell each other about the kinds of recordings they made. There was some discussion about narrating versus not narrating recordings; some participants found their voice sounded "funny" on tape, or they expressed that they just wanted to feature the sound itself, and only introduce it. All participants described their collections as a personal thing, like a digital scrapbook, a personal archive.

Milena: So how did you approach creating aural postcards overall?

P3 – "I took a few walks…and during my walk I would walk through downtown, beautiful picturesque houses, and then I would have to cross the train yard, and I would have to go through the train tracks and climb through the trains, and I so thought 'what if I record this venture?' So one time I did, and you can hear me walking through, and the hands and hear me climbing through the trains, and I have to walk through this marsh, and you can hear a bunch of birds and me rustling through the vegetation."

Researcher note: P2 said he approached the activity as a hypothesis building/validating activity. He exclusively used the dB application and the recorder, but often didn't end up recording on the spot, at the location; instead talked about it later or recorded at a different time. By collecting and comparing the dB measurements, he said he was proving or disproving mental hypotheses, building theories about different spaces, why some were louder, not louder, etc. and what that means. He shared that he planned the aural postcards ahead of time, not anything outside his schedule but perhaps situations he specifically felt were interesting or worthy of documenting. He specifically referred to establishing a "routine" or "approach" of using the apps, a "process" of documenting. P1 said that she also wanted to do comparisons. She took measurements of different spaces she spends time in and used those to validate her experiences of liking or disliking spaces for studying, work, etc.

Milena: So what is the difference between ‘personal documentation’ and ‘creating a work’ ?

P3 – “Given the nature the project has an emphasis on incidental audiography, I’d say that’s my priority. Like, I have very good ears and am very aurally focused on my surroundings. I observe all the time. That’s why I’m a big proponent of incidental recording and the randomness of sound, we give it an association that it doesn’t otherwise have, that we put in, an intention. And that’s why I’m a big believer in the first take. Most of the time we can pull something really awesome on the first take. If I was working on a documentary, I’ll shape it, it’ll be intentional, deliberate, I’ll choose what I want and present it. Sound, is much more inviting of form rather than content.”

P4 – “When I was travelling, I really became aware of the difference in noise levels. The amount of noise that exists, near and far, the city soundscape is so much, so profoundly different than the urban landscape. Just drastic. I know it’s different, but just to document that and see the levels. Just the pace, the amount of noise but it’s quick noise, the pace of it, it makes you feel stressed. I became very aware of my stress levels, through the levels I was hearing and the tempo of it. It’s very difficult, almost impossible to find a quiet place in the city. Just that’s what I became aware - I’ve always been aware - but I’ve never done documentation of it - just the levels of noise. I brought my iPod everywhere and turn it on intentionally or without intention, didn’t really matter to me. Like, well…I’m just about to walk and maybe you’ll hear something, you can hear me walking and eventually you might hear other sounds, I’ll see what would develop if I turn on the recorder and forget about it.”

Milena: So how was the experience of recording itself?

P3 – “I felt nervous, wasn’t sure if it was ‘good’. Mostly I felt guilty that I recorded too much and took too many pictures.” P1 – “I think it’s great - it’s an awesome experience to record, because you always have this intention of keeping a diary. Taking pictures is one way of doing that, writing on paper too, but sound is great.” P3 – “Keeping a diary for me has always been an important thing, but I don’t always do it, it’s not always convenient. Taking pictures is convenient, I have a ton of pictures, and I don’t ever take them off because I like going through them, but it’s convenient but not always representative of my feeling, like I want to remember how I was feeling at the time, and sounds - I’ve always found myself wanting to record certain sounds, like I have a lot of sounds, similar sounds I’ve taken on my iPhone, like I’ll find myself in a place, like interesting music, it’s just opportunistic sounds, I’ve taken advantage, recorded things that give me pleasure.”

Researcher memo: The discussion ends with participants expressing that they really enjoyed the experience and were excited to attend to and record the soundscapes of their everyday lives. There is some concern over whether I (the researcher) would 'like their sounds' as they are not sure they 'did the right things'. There was definitely a lot of interest in potentially having a lot more group work and collective activities as part of the study.

March 12, 2011 - Final discussion (P5-P8)

Researcher note: P5 is curious right away about the different ways people went about doing the study - she says she did it the only way she can, and it's the way it's natural for her by "recording something I'd be doing normally". In terms of how they chose sounds P5 explains that this was "an investigation for myself." P6 adds, "I made a lot of recordings that are like significant to me, like a personal diary, so I wouldn't mind having them back." P7 explains, "Definitely while I was recording I tuned my ears a little more. Maybe a little less so as time went on."

Milena: So how did you think about documenting sound?

P5 – "I basically thought about what I'll record in the beginning of the day, realizing that almost everything I do has a sound to it that's interesting. And because my inclination is to do long recordings of a process, so I was taking a snapshot of things that I do in my daily life, as opposed to, oh there's an interesting sound right now and gonna grab it. It's more about the process of things I do, like what I look back at my recordings and what I've named them I realized my life is crazy, like ridiculous, and I learned that - I guess I already knew that!"

P7 – "I guess my recordings are all under five minutes, except for physio, I let it roll then. I guess I did things that are usual, the dog; the house. I did a few things that tend to irritate me, like noise pollution, the construction next door and you know, a few things like that, and just things that were significant to me, typical but not uninteresting to me sound-wise. Different environments, like my physio is over by Broadway…so mine are just a variety of snippets of daily life, outings and things that have significance to me, like one day we went to Jericho and just getting away from traffic noise and things like that. Ahhh…and I did commentary on all of them. I did an intro on the first one and after that I didn't do it; I just recorded, let it roll, and then after several days I paused, listened back to them and did a commentary. And, ya, small things that happen often like making tea, repetitive things but also unusual outings."

Milena: How did you find or select sounds to record?

P7 – “I’m always really, really aware of sounds, sometimes to a fault if things bother me, so it was a combination of things, sounds I’m usually aware of, but also that construction there, I’d pause and think ‘oh, those chains sound really cool coming down the side of the wall’, you know, I’ll pause on things like that. So ya, I guess part of it, there were artistic moments in the sounds, the overall arc is more documentary I guess. And then, using the decibel meter I found interesting - like, some restaurants went into the app and [the dB value] was really high and a construction site was the same height, and just thinking about what we tolerate and what’s irritating and what isn’t, what the tone is. Like in my car sometimes I crank the stereo, I made sure I got a good car stereo, I love that but it’s higher than the construction site. Sometimes that volume is a good thing.”

P5 – “Loved the dB meter because you can tag photos in it. I pay attention to sounds a lot but I’m also very visual. I really wanted to do, it made visual sense. So I really wanted to do an aural postcard like you said, it made perfect sense to me to have a decibel reading, with the photo and the note underneath and a sound attached to it - like it would come in a nice little package that i give back to you, each of my postcards has a picture, aural notes and an audio recording. Ya, I like it - here’s a sound, here’s a picture of the sound and here’s my notes. I want them all to be attached to each other or linked to each other somehow. And I can title it. It just appealed to me visually. And it was a good reminder - I constantly went back and looked at my recordings and looked at my photos.” P7 addressing P5 – “Did you listen back? That’s one thing I didn’t mention. I listened back to quite a few of them, and there were interesting things I didn’t notice during the recordings or just it was nice to, ducks in the pound on Jericho.” P6 – “Oh ya, I listened to all of them! Sometimes I didn’t have a chance to listen on the spot if I was throwing it in my pocket but I would listen to them repeatedly later on at home, it’s nice. It’s interesting.” P7 – “There’s no ‘wrong way’…that’s why it’s an anthropological study.”

P5 – “I do think it’s interesting the different styles, makes me realize the reason why, what comes naturally. I mean I did them the same way I take photos, like a snapshot, I mean, I almost resisted even giving commentary cause I’m very much like … let the viewer decide.” P8 – “Like, I didn’t shy away from mostly quiet or subtle noises, because it seems like a pretty strong recorder, but I would just think about something that reveals a process or a sound that’s unique to something that I do. And always a sound I have a particular feeling about - even if it’s ambivalent.” P6 – “I started out like P7, but then I followed exactly what you had in your notes. Not on purpose, that’s just how it happened, I happened to do it. I started out recording just the mundanities of my life, like brewing coffee. because that happens every day, the noisy dog barking, and I wasn’t

commenting that much. But then I started working on this film project and then I'd have more recordings, like four or five every day, but short little bits, like samples of different sounds, commenting more, and then the last little bit I just started using it as a diary. It ended up morphing into a real journal - with sounds, but lots of talking…I had things to say."

P8 – "I did like a bit of a mix of everybody's. At first I was wondering what to record but you just wanted recordings of our lives sound like, so everybody goes through different things, different daily processes, like I play soccer so I recorded a soccer game and I bought a motorcycle so I recorded that, like just different snippets and then a bit of work, like the first week I was concussed so I didn't go to work, so I did lots of walks about my neighbourhood, different things around my neighbourhood, and my house, but when I went back to work and recorded a bit of work, it was like - i did a little bit of an introduction, and then I'd ramble on in the middle and most of them are around 10 minutes and one is like an hour and most of them are under 5 minutes. But I would actually talk about what it is to start, like an introduction. And I would always sign off in the end, like "that's it", like I was talking to you. "

Milena: Did you use the iPod in any other way besides recording sound?

P8 – "I used a lot of Fruit Ninja, a seemingly boring game, but I became very addicted to it." [everyone says they loved Fruit Ninja – P6 imitates the sound: "slice, slice, slice"] P6 - I love the sound - although I had to turn it down cause it was too noisy, but ya! P5 - it's a really productive sound. P6 - I really felt like I was squishing that fruit. P5 – "One thing I had a hard time with, is you have to stop the recording to take a photo. So me, the queen of photos, I didn't take any because I like to take long recordings. I knew there was a decibel thingy but that wasn't my interest, my interest was in capturing the slice." P6 – "I mainly used it so I have a picture of the thing I was recording. I also enjoyed the decibel readings but ya, I wanted the picture." P7 – "It's nice to be able to add to recordings, instead of just pausing them, like if there was something that was grouped thematically in a similar way, then, oh I can add to this file to these types of sounds to the snippets of 'domestic sounds' to be a collective kind of soundscape." P6 – "I would have liked being able to upload my stuff to a website because I wanted to organize it [the group agrees with collective "Yaaa"] I wanted to give it, I wanted control I guess. I wanted to make a presentation, because I thought it was a whole. It started out random but then it became something. I wanted to give you something that looked like what I wanted it to look like."

Research note: There is a discussion on decibels - P7 brings up the loudness of her bathroom fan. P6 brings up the loudest recording being of a restaurant. P7 has a dB reading from a live band, which is over 100db. P6 plays one of her sounds directly through the iPod speakers. P8

plays one sound of a mailroom warehouse and explains a bit “Like, some of my recordings are long because there’s no one specific sound, there’s this “shshshshssh….” and something explosive would happen like a forklift or some big kafuffle in the environment will happen, and some people are bullies and you can really hear that” […] "Its people talking, it just echoes, it’s a huge station. Think I was disappointed there wasn’t a lot more rambunctiousness. […] "It’s just really loud. People are constantly moving, dropping stuff. And everything echoes.”

P5 – “Reminds me of Cafe Deux Soleil, actually. I just stopped going there, cause it’s so echo-y and there’s this loud fan. It sounds like a school cafeteria. It actually sounds like the Emily Carr cafeteria.” P5 – “The high ceilings - I’m against that, hahah.” P5 – “Ok I have one, me getting ready for a sleepover on a weeknight. [the group listens to the recording fro a while] Ok we’re gonna stop soon because I’m sure it’s very boring. It’s totally interesting to me though!”

[P7 plays another recording of dogs arriving at the beach] P7 – “Then we got away from traffic and it’s nice … “[collective silence appreciating the quietness of the soundscape] P6 - "It’s funny how some birds sounds are instantly relaxing because they hearken of places that are relaxing. Like ducks, I find that very calming. And the loon - I find that very calming, like Ontario cottage country. And then there’s the little birds in the spring that are really noisy. I find the sound of pigeons really annoying. It’s a fairly gentle sound but I don’t like it. I don’t mind crows in the country.” P7 – “In the city it can end up being constant chatter if it’s a bunch of them.”

Milena: So how was the experience of doing the study for you overall?

P5 – “Made me more mindful, even if it was an afterthought at the end of the day. Like thinking about what sounds did I encounter today; what sounds might I record tomorrow? Even in the moment, like having to think about why a sound was interesting to me, made me notice it more on an ongoing basis and inspired me for a final location project for a photo, I’m going to do a long-exposure pinhole photo of a space that I’m in. That came out of the sound project. Just the idea of like, recording an interval and noting things about the location and space which is very much about sound and light, so recording that.”

P8 – “Ya it was very interesting. I think I listen to a lot of the sounds around me but I think you know, the biggest thing that I recognized after this was the amount of sound energy makes - like the electricity cars, everything to do with making money, it’s constant.” P6 – “Ya, I also paid attention, I mean I already pay attention to, but I really realized wow, it’s noisy, really noisy.” P7 – “Looking forward to getting the recordings, there’s some I’d really like to get on the big speakers you know, like the snow, the dog in the snow.”

Appendix F. Media Ecology Postcards Legend

Icon	Description
	Uses desktop computer mostly/often
	Uses smartphone mostly
	Uses mobile phone mostly
	Listens to radio often / Is exposed to radio soundscapes often
	Watches TV often / Is exposed to TV soundscapes often
	Uses camera/cameraphone often
	Plays games often (computer, console, mobile)
	Uses laptop mostly/often
	Uses/communicates by Facebook mostly/often
	Uses/communicates by Twitter/Tumblr mostly/often
	Uses/communicates by email often
	Uses the web mostly/often
	Follows/visits blogs or RSS feeds often
	Reads the newspaper often
	Talks to people face-to-face mostly/often
	Talks on the telephone often / Is exposed to telephone conversations
	Listens to music often / Is exposed to music soundscapes often
	Uses headphones/earphones mostly/often
	Uses iPod often
	Walks on foot mostly
	Drives a car mostly / Is exposed to car traffic noise

Icon	Description
	Takes public transit mostly/often
	Rides a bicycle mostly/often
	Experiences beeps and alerts often
	Experiences café soundscapes often
	Experiences silence often
	Creates/experiences movie soundscapes often
	Communicates by Skype
	Records video/audio often
	Writes mostly/often
	Is a student/in university
	Is a working professional
	Reads often
	Is an artist/creative expression
	Has a disability
	Delivers mail
	A self-rating of listening attention (0-3 ears)
	Feels overall positive about everyday soundscapes
	Feels overall negative about everyday soundscapes
	Listens primarily for information