Situated Composition in Emerging Mobile Sound Production Technologies and Practices

SAMUEL THULIN

Centre for Mobilities Research, Department of Sociology, Bowland North, Lancaster University, Lancaster, LA1 4YN
Email: samuel_thulin@yahoo.ca

This article introduces the concept of 'situated composition', examining it in relation to developments in mobile sound production technologies and practices. Situated composition draws attention to the specific circumstances in which sound production and compositional activity take place. With mobile devices and apps offering heightened mobility and ease-of-use, ways of working with sound increasingly may be undertaken in a wide range of contexts outside of controlled environments specifically designed for sound work such as studios. Situated composition emphasises the interconnections between the situation in which composition unfolds and the process of composition, approaching composition as inherently distributed and collaborative in multiple ways. This article begins by considering how to situate mobile audio production apps, then moves on to elaborate the concept of situated composition and investigate specific practices. Drawing primarily on interviews carried out with fourteen composers, sound artists, musicians and producers who use mobile devices and apps in their sound work, as well as on podcasts, forums and my own work as a sound artist, I identify seven approaches to using mobile interfaces, focusing particularly on practitioners' relationships with the surroundings where compositional activity unfolds.

1. INTRODUCTION

This article introduces the concept of 'situated composition', examining it in relation to developments in mobile sound production technologies and practices. In recent years, there has been a steady proliferation of mobile apps for working with sound on smartphones and tablets, from sound recording apps, to MIDI controllers, to effects processors, to samplers, to synthesisers, to notation software, to multitrack editors, to experimental one-offs and more. In 2008, analysing the changes to working with sound ushered in by the laptop and emerging applications, Nick Prior identified the significance of mobility for new approaches to sound production and performance. Prior also discussed the laptop as 'matter out of place', an object revealing long-standing ambivalences around the integration of machines and music (Prior 2008: 925). Eight years later, the laptop has gained status as an established and legitimate means of producing and performing (though jokes about checking one's email on stage are perennial). The newcomer technologies for sound and music are mobile phones and tablets. As composer and spatialised audio specialist Tony Doyle puts it: 'Anything I used to have or that I still do have on a laptop, I have a facsimile of it on the iPad.'[1] Mobiles and tablets heighten the dynamics of mobility that the laptop put into play; they are devices that are almost always on one's person. Moreover, apps offer ways into working with sound that many times do not rely on previous musical training or technical knowledge. This combination of a highly mobile object and the ease-of-use of software means that sound production increasingly may be undertaken by a wider segment of the population in a wider range of contexts.[2] This diffusion of practices can be used to draw attention to the situatedness of compositional processes. In this article, I elaborate the concept of situated composition, and explore it in practice drawing primarily on interviews carried out with fourteen composers, sound artists, musicians and producers who use mobile devices and apps in their sound work, as well as on podcasts, forums and my own work as a sound artist. I focus in particular on how practitioners relate to their surroundings while carrying out compositional processes using mobile tools.

Throughout the article I concentrate on situatedness in terms of embodied and emplaced aspects of working with audio. In recent years there have been myriad projects and developments in this area, including: Janet Cardiff's audio walks; Christina Kubisch's electrical walks; Teri Rueb's GPS-based sound walks; Jeremy Hight's narrative archaeology; Shawn Micallef, James Roussel and Gabe Sawhney's [murmur] project; Steve Symon's Aura project; Lalya Gaye, Ramia Mazé and Lars Erik Holmquist's *Sonic City* project; platforms for location-aware audio guides (such as Calvium's AppTrails, Soundwalk.com and My Tours); experimental locative audio platforms (such as Manchester-based Locativeaudio, Bluebrain's location-aware album apps and Radio Aporee's

[1]This and all subsequent references to Doyle: interview conducted 6 August 2015.
[2]These developments can be understood as part of what Keller, Lazzarini and Pimenta refer to as Ubiquitous Music: 'music (or musical activities) supported by ubiquitous computing (or ubicomp) concepts and technology', focusing particularly on the capabilities and availability of mobile devices (Keller, Lazzarini and Pimenta 2014: xiii).

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Miniatures for Mobiles); and multiple gatherings and workshops investigating diverse aspects of mobile music (Kirisits et al. 2008). While all of this activity is appropriate to situated composition, in this article I focus on a realm of practice that is equally, though not always as obviously, embodied and emplaced: mobile audio production apps (such as recording apps, multitracking apps, sampling apps, synthesiser apps and effects apps). My contention is that although the practices associated with these apps are not necessarily consciously directed at producing or consuming a particular situated experience, they are nonetheless irrevocably situated in multiple ways. Moreover, this situatedness has important implications for compositional processes. Resonating with Slater and Martin (2012) and Order (2014), I argue that environmental context and creativity are thoroughly entangled, such that the ways in which practitioners are situated in place become constitutive parts of the compositional process, while reciprocally the compositional process becomes constitutive of how practitioners are situated in place. Drawing on interviews, primarily with practitioners either based in or visiting the northwest of England, I identify seven approaches to situated composition using mobile audio production apps. Before taking up these specific approaches, however, it is necessary to first situate mobile devices and apps, and to explore the concept of 'situated composition' more generally.

2. SITUATING MOBILE AUDIO PRODUCTION APPS

Mobile devices and apps can be approached as convergent media at the interstices of multiple sound technology trajectories. For instance, when situated within the history of devices such as the portable radio and mp3 players, audio production apps could be framed as entailing a transition from listening to music on-the-go to actively producing music on-the-go. Or these mobile apps could be situated in relation to musical instruments, as tools for performance, as Steve Jones (2013) has done in his exploration of the mobile device as 'a new folk instrument'. Or yet again, such mobile apps could be situated in relation to the sound studio, with its history of portable technologies such as the Portastudio. And of course, as I have already done, they can be situated in relation to prior computing technologies such as desktops and laptops and their associated software.

These various precursors and resonant histories provide different ways of framing mobile devices and apps, shaping how they are perceived and utilised. The idea of a shift from mobile listening to mobile sound-making, for instance, suggests an active participation on the part of the user that ties into contemporary ideas of media participation expressed through terms like 'produsage' (Bruns 2008) and 'participatory culture' (Jenkins et al. 2009). The idea of the app as instrument, however, brings up some of the same issues Pinch and Bijsterveld (2003) identify around music and machines in their analysis of the synthesiser. In this case, rather than moving towards active involvement, the use of apps as instruments might be interpreted not dissimilarly to the player piano craze during the early twentieth century, which Roell (1989) has characterised as part of a shift away from a producer ethic and towards consumer society. In relation to the studio and to prior sound production technologies, mobile devices and apps may be viewed as more mobile yet less powerful, and as an objects still in need of legitimation. In reality these frames of reference are not cleanly isolatable, and discourses on mobile devices and apps bounce around between them, variously celebrating accessibility and agency, and condemning the lack of creative input arising from too-easy, or fully automated, processes built into these tools.

Audio production apps also need to be situated within the idea of the mobile app itself. A diminutive of 'application', 'app' suggests something that, to quote Ian Bogost, has been 'shortened and slanged' (Bogost 2011: n.p.). Bogost argues that the days of the software suite are numbered, as purpose-built apps each designed to serve a particular function take over. These individual units, he says, 'are *meant* to be isolated from one another' (ibid.). Yet many audio production apps are notable in the degree to which they connect to one another. While there remain numerous standalone audio apps with their own communities of users, there is also a growing community focused on the interconnectivity of apps, as evidenced for instance from the continual activity on the Audiobus forum. Allowing MIDI and audio to flow between various sound production apps, Audiobus and apps of its kind have contributed to possibilities for modular workflows comprising multiple combinations of tools. As a result, the Audiobus forum acts as a meeting ground for discussion not only of Audiobus itself but also of other apps, interconnectivity, devices, operating systems and user projects. In podcasts and in the interviews I conducted, the advent of audio app interoperability is described repeatedly as a 'game-changer'.

For users who are aware of the pre-coded limits of apps, interoperability offers one way of navigating the tendency of apps to operate as 'prescriptive technologies' – technologies in which user decision-making is minimised as 'the goal of the technology is incorporated *a priori* in the design and is not negotiable' (Franklin 2004: 19). As Howard Gardner and Katie Davis note in *The App Generation*, apps simultaneously present creative opportunities and circumscribe the act of creation through the underlying code (Gardner and Davis 2013: 152). Apps such as

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AutoRap and Songify, which convert speech into auto-tuned pop music, are clear examples of this approach. But even apps that seem more open can exhibit these tendencies, as underlying assumptions and exigencies guiding development manifest at the level of interface through elements such as tempo settings, grids, quantisation, tunings and types of sounds available to be worked with.[3] On podcasts and in interviews, users describe chaining apps together as one way of regaining a sense of agency as they design their own unique systems. In such instances, apps are not cut off from one another but are situated within an architecture of possible (though still limited) interconnections that blends the built-in constraints of interfaces and the ingenuity of users.

The dynamics of 'prescriptiveness' in apps, though potentially heightened in many cases through developers' aims for ease-of-use, reveals a more general truth around practitioners' engagement with sounding technology, whether it be physical or digital: we are situated with our tools. Possibilities and approaches to working with sound emerge from our interactions with interfaces.[4] Rather than approaching these interactions as struggles for mastery, however, it is productive to consider how they might be viewed as negotiations and collaborations. This does not mean unquestioningly accepting the tools available; reflection on how technologies shape ways of doing things and how power operates in their design remains vital, as do channels to inform design decisions. Several app users I have interviewed have been in contact with developers to request modifications that have since been made to the apps. What is important is to deflate the extremes of the myth of the composer as master, on the one hand, and the notion of the technology as dictator, on the other. Andra McCartney (2006) has brought out this point in her examination of electroacoustic composers. She cites Daphne Oram's comparison of the role of the composer to that of 'a yachtsman in fierce mid-Atlantic' who guides the vessel but is also taken along with the sea, and must be open to making changes and adjustments (cited in McCartney 2006: 27). Similarly, sample-based musician and scholar Owen Chapman thinks of his work with sound, particularly for an experimental project called the Icebreaker (in which piezoelectric pick-ups were frozen into a variety of ice formations) as comparable to flying a kite: 'Simply put, the joy of flying a kite has to do with setting up the equipment, and then letting it go' (Chapman 2009: 87).

This collaborative approach to technology – viewed as something we can situate in divergent ways by emphasising certain precursors and affordances over others, and as something that situates us by offering a limited number of possibilities for ways of doing things – is indicative of the collaborative, entangled, relationships suggested by situated composition more generally. Users, interfaces, sounds and environments all inform one another and are constitutive of composition. In the following section I elaborate the concept of situated composition, before moving on to examine some of the ways that these combinations unfold in emerging mobile audio practices drawn from interviews with composers, sound artists, musicians and producers.

3. WHAT IS SITUATED COMPOSITION?

Situated composition has both descriptive and conceptual vectors. One the one hand, it can be used as a term to describe some of the transformations in sound production and compositional processes that directly utilise the mobility of current technology, exploring the affordances of things such as portable recorders, tablets and smartphones for engaging in practices of composition that attend to the specific situations in which they unfold. On the other hand, as a concept, situated composition is not confined to describing a particular engagement with technology and place. Instead, it is a lens or filter through which to approach any act of sound production and composition. The current proliferation of mobile devices and apps highlights some of the core aspects of situated composition, but the concept itself can be applied to any instance of composition in which one wants to draw out the situatedness of the process.

Situated composition shares with the growing field of studio studies an interest in 'how cultural artefacts are brought into the world and how creativity operates as a situated practice' (Farías and Wilkie 2015: 1). At first blush, mobile devices and apps appear to differ from studios precisely in the way that they move outside traditional studio spaces, offering miniaturised and digitised versions of many of the same tools that would be found in a sound studio. However, while it is possible to make a case for the difference between the controlled, soundproofed environment of a professional studio and the far less predictable spaces in which sound production may take place using mobile technology, the relationship between the two is better theorised as entangled and emergent than strictly dichotomous. This is especially true when creativity and creation are approached as distributed activities (Glăveanu 2014) – among actors, over time, through space – and the idea of studio is not limited to an

[3]Ferraz and Aldrovandi express a similar anxiety over the way procedures are built-in to fully fledged computer applications: 'Even the process of the composer's conception of music is put aside, replaced by the assurance of a pre established idea of music, imposed by software design or by modes of programming' (Ferraz and Aldrovandi 2000: 83).

[4]There remain issues of the political economy of technological blackboxing. It is beyond the scope of this article to address this in detail. For an examination of apps, blackboxing and commodification see Patricia Ticineto Clough's (2014) 'The Philosophical Carpentry of the App: Criticism and Practice'.

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architectural understanding of the term (Farías and Wilkie 2015: 14). While acknowledging the topological variations of studios and the overwhelming significance of studios for sound production and composition, situated composition does not take studios as a privileged site of focus. Rather it is the particularity of *any* situation that is focused on, and how that situation and the processes of composition relate to one another.

The concept of situated composition does not delineate a specific a priori definition of what activities constitute 'composition'. For instance, some sound practitioners might consider their practice of field recording a compositional one, while others might consider it more documentary or archival. Speaking of recording while moving through a landscape, Andrea Polli has noted that 'the composing then becomes the microphone's movement through space' (cited in Lane and Carlyle 2013: 19). Lisa Whistlecroft echoes this sentiment in her comments about an electroacoustic piece she created by perambulating an outdoor space while recording. Yet Whistlecroft also exhibits ambivalence about her role as composer for this work, stating that much of it could not be attributed to her, and suggesting that she was simply recording what was already there.[5]

The unclear boundary between recording and composing is matched by the equally unclear boundary between composing and listening. Works such as Iannis Xenakis's *Polytopes* and Max Neuhaus's *Drive In Music* present sound spatialised over large areas, allowing listeners to 'compose' the piece by their movements through space. More recently, works for mobile devices tap into GPS data and other sensors of smartphones and tablets to create works that change based on the user's location and interactions with the device. Teri Rueb's *Core Sample* provides different aural experiences depending on the paths one takes to explore Boston's Spectacle Island, while the album apps of Bluebrain offer a sonic 'choose-your-own-adventure' located in areas such as New York's Central Park (Holladay cited in McKinley 2011: n.p.). As the listener is given a degree of agency in controlling the piece through mobility, these works resonate with Umberto Eco's idea of the 'open work', which he also calls a 'work in movement', where 'the author offers the interpreter, the performer, the addressee a work *to be completed*' (Eco 1959/2004: 172).

Combining listening, performing and composing, such developments recall R. Murray Schafer's exhortation to consider the soundscape of the world as a musical composition, and ourselves as simultaneously the audience, the performers and the composers (Schafer 1977: 205).[6] Composition does not operate in contrast to other practices, such as listening, performing or improvising, but in multifaceted relationships with them. Such relationships may be theorised through Douglas Hofstadter's (1979/1999) concept of the 'strange loop' in which moving in one direction through a hierarchical system eventually results in finding oneself back at the beginning. Composing subsumes listening, performing and improvising while simultaneously being subsumed by them.

The *Oxford English Dictionary* entry for composition provides definitions that fall into three categories: 1) composition as product – a composition; 2) composition as process – the act of composition; and 3) composition as the mode in which things are joined together – how something is composed or the relationality of composition (*OED* online 2014). These three definitional valences and their intersections provide useful avenues for thinking about the multifaceted nature of composition. Attending to the potential for slippage between product and process avoids constructing or reifying a clear-cut binary between being and becoming. A composition may be approached as a finished product, a thing that is in the world, but it may also be viewed as a temporarily congealed process. And, of course, any apparently finished work may be drawn on in the process of creating further compositions (remixing, sampling and plunderphonics are some obvious examples of this). Product and process loop into one another. This looping involves complex relationships, not only between sonic materials, but also with world at large. Such extra-musical relationships connect with Barry Truax's concept of 'context-based composition' in which 'knowledge of specific contexts shapes the composer/designer's work and invokes the listener's knowledge of those contexts' (Truax 2013: n.p.). The unavoidable relationality involved in the concept of situated composition means that even the idea of 'pure' or 'autonomous' music is approached not as a self-sufficient system, but as a particular relationship constructed between a perceived inside and outside of composition. Put differently, to posit the autonomy of music is to construct a particular type of relationship under particular circumstances.

The inevitability of relationships not only within sound composition but also between sound composition and other elements such as material, social, virtual and digital elements is central to the situatedness of situated composition. Situated composition draws on Donna Haraway's (1988) concept of 'situated knowledges', which stresses the importance of social, historical and political circumstances for the production of knowledge, arguing that there is no objective all-seeing view from above. Identifying the flaws both in totalising claims to knowledge and in relativism – views from nowhere and everywhere, respectively – Haraway points to the partiality and particularity of knowledges and how they are grounded in specific

[5]Interview conducted 29 June 2015.

[6]This approach is evident, for instance, in soundwalking practices, which involve simultaneously listening to the soundscape and attending to one's active participation in it.

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situations. Andra McCartney (1999) has worked with Haraway's concept of situatedness in her engagement with Hildegard Westerkamp's compositional practice, bringing out the conversational, collaborative aspects of Westerkamp's process of attending to place, the situation and her own situatedness. Haraway's concept of situatedness, and McCartney's use of it to explore Westerkamp's practice, extends beyond ideas of one's immediate physical environment to include issues of gender, class, ethnicity and more. Haraway has insisted on the multiplicity of her concept of situatedness, describing it as a 'way to get at the multiple modes of embedding that are about both space and place', suggesting the need to bring approaches into resonance rather than dichotomy (Haraway and Goodeve 1999: 71). Likewise, the concept of situated composition should take situatedness as multifaceted and expansive, while also providing possibilities for honing in on particular aspects.

In the following examination of situated composition among practitioners using mobile audio production technologies, I focus in particular on users' relationships with their surroundings. While a panoply of other ways of being situated are inevitably at play, the mobility of emerging audio production tools has contributed to approaches to working in novel environments and contexts outside the physical studio that are at the centre of the current investigation. Rather than taking environments and contexts as backgrounds against which composition happens, how can they be approached as constitutive agencies in compositional activity?

4. SEVEN APPROACHES TO MOBILE SOUND PRODUCTION

Through interviews carried out with sound artists, musicians, producers and composers who use mobile devices and apps for sound production, I have identified seven approaches involving multiple ways of relating to the surroundings where compositional procedures take place. These categories have been developed from a process of comparing and contrasting participants' descriptions of their working methods in different situations. The identified approaches are neither mutually exclusive nor intended to comprise a list of all possible approaches. Rather, coming from my engagements with fourteen practitioners, these approaches are intended to give a sense of the variety of methods employed and to provide a typology to aid future investigation.[7]

[7]These approaches may also be thought of as a counterpart to Michael Bull's identification of a 'spectrum of strategies' for using personal stereos elaborated through a typology of nine functional uses (Bull 2006: 135), the obvious difference being my focus on audio production.

Whereas some users tap into the possibilities of mobile devices and apps in a way that engages directly and purposefully with their situatedness in particular environments, others use the mobility of tools logistically to carry out audio production work on-the-go, with little concern for their surroundings other than the degree to which they support or infringe upon their concentration. One approach is not more situated than another, but the differences reveal tensions between ways of practising situatedness, ranging from a total embrace of one's surroundings, to feeling that one's surroundings impede creativity, to obliviousness to one's surroundings. These are not just tensions that exist as points of disagreement *between* interviewees but may also arise *within* the approach of a single practitioner. In my own work, for example, it has become apparent that the romantic idea of composing on a mobile device in the forest, attentive to one's surroundings, can be troubled by the cold, the incessant scolding of a squirrel, or the thirst of mosquitoes.

The seven approaches I have identified from interview responses may be summarised as follows:

1. Using the miniaturisation and mobility of audio production apps tactically to fit compositional activity into one's busy schedule.
2. Using mobile tools to improve comfort, convenience and workflow.
3. Using audio production apps to modulate one's attention, mood, or well-being.
4. Taking advantage of the mobility of audio production apps to seek out places that are conducive to compositional activity.
5. Using the mobility of apps to work in specific places and use sounds from those places in the compositional process.
6. Using networked interconnectivity to make connections between places during the compositional process.
7. Approaching the app itself as a situated composition.

4.1. The tactical approach

This approach involves taking advantage of the miniaturisation and mobility of tools to work on sound in times and places that would be difficult with other instruments or types of equipment. It is about fitting compositional activity into one's busy daily life. For instance, artist and flamenco guitarist Alan Fitzgerald noted that the deciding factor for beginning to work with a tablet was the birth of his daughter. He could not hold the infant and play guitar at the same time, so he opted to continue his sound-making using the less physically demanding interface of the iPad.[8] Of course, the two activities – looking after an infant, and working with sound – are situationally linked here even

[8]Interview conducted 24 September 2015.

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though their relationship is not part of a purposeful project focused on composing while fathering. Fitzgerald's practice is directed at finding a way to continue musical activity tactically, even while much of his attention and the physical resources of his body (his arm and hand) are occupied elsewhere. His sound work is then situated within parenthood and the contingent spaces, actions and relationships that constitute his performance of his role as parent. Fitzgerald notes that, in fact, experimenting with sound on the iPad while rocking the baby turned out to be more difficult than he originally anticipated. The act of caring for someone while simultaneously working with sound feeds into the compositional practice, just as this engagement with sound technology feeds into and modulates the act of caring – the two are not isolated, but rather by virtue of their temporal and spatial proximity are more likely to be mutually influential.

Another example of this tactical use of mobile devices and apps comes in the form of compositional activity carried out during travel. In forums and podcasts, such as Chip Boaz's *iOS Music and You* (2013, see especially episode 6), the practice of composing during the daily commute becomes apparent. From my interviews, sound artist and musician Matt Wand notes that when he is travelling somewhere to do sound work, especially by plane, he often uses the travel time to prepare. Again, this involves tactical use of time and the affordances of the mobile device rather than an active and directed engagement with his surroundings.[9] Nonetheless, permeation of the environment and the compositional activity is unavoidable. Jean-Paul Thibaud contends that the ambiance of a situation exerts an influence even if it is not consciously perceived, as it 'specifies the conditions under which phenomena emerge and appear' (Thibaud 2011: 212). At the same time, he notes that ambiances are generated through social practices and daily activities that include engagements with mobile devices (213).

4.2. The convenience approach

A second approach, closely linked to the tactical approach, takes advantage of the miniaturisation of audio tools for convenience, comfort and workflow. This approach is partly about fitting compositional practices into one's daily life, as above, but it involves a greater degree of choice as the practitioner is situated somewhere in which they have access to multiple tools, but they choose to use a mobile device for specific reasons. Composer and specialist in spatialised audio Tony Doyle explains:

> What I really like about it is, if I'm sitting in my studio and I'm working away at the desktop and I've got the iOS device there, I can just unplug it and go and sit on the couch and keep working … And then if I want to go back into my studio, I can just take it with me back in and continue working. It's not like there's a break in your workflow or you have to be stuck in this little room or stuck in a chair in particular.

Here the tablet facilitates changes in setting and body posture, from being seated upright in a small room to sitting on the couch in another part of the home. Though the tablet carries its own 'media choreographies' inscribed in code and hardware design that the body must conform to (Bench 2014: 254), these are different from the demands of the computer and offer alternate bodily positions and gestures to be taken up.

This is smaller scale mobility from train journeys and other forms of transportation often involved in the tactical approach to working with mobile devices. Wand sums up this small-scale mobility and its significance for domestic space and composition by championing the possibility of working in the bathroom. He also notes that he frequently does audio work on his iPad on the sofa, but says that he goes upstairs 'to where the speakers are' to do 'some real things'. The iPad then changes the topology of the home studio, like a tentacle wending its way through the other spaces of the home. But while it instantiates changes in the spaces and body postures that are used in sound production, a sense of hierarchy remains intact. The studio is still the place where the 'real' stuff gets done, the homebase the iPad slips in and out of as an extension – offering conveniences that change the compositional process – but not a replacement.

4.3. The modulatory approach

A third approach to using mobile devices and apps involves consciously modulating one's experience of a situation through composition. Here the goal is less to create something (composition as noun) and more to use the process of working with sound in itself (composition as verb) as a means of regulating one's mood, attention and well-being. Sound artist and academic Linda O'Keeffe relates her fear of flying and the way in which she uses the app Animoog for comfort. As she puts it, 'I get so lost in it making sounds in it that I stop thinking about flying and about crashing, and all the bumps and things because it just so wraps me up.'[10] The app's ability to allay O'Keeffe's fears is directly related to her active involvement in producing sound: 'I can't just let a sound happen. It doesn't just happen, you have to engage with it. It's a synthesis application. So you're constantly engaging with transforming the sound. And so it's performance.' The work of sociologist Tia DeNora has shown the immense potential of

[9]This and all subsequent references to Wand: interview conducted 14 July 2015.

[10]This and all subsequent references to O'Keeffe: interview conducted 25 May 2015.

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music to act as a resource for people to marshal in the 'ongoing constitution of themselves and their social psychological, physiological and emotional states' (DeNora 2000: 47). The heightened impact of active participation in music is supported by research showing that physically making music during a workout can make strenuous activities seem less exhausting, even more so than listening to music, which has long been used for this purpose (Fritz et al. 2013).

While O'Keeffe's actions could be characterised as a way of disconnecting from her surroundings – wrapping herself up in an auditory bubble of compositional agency in the midst of a situation she has little control over – such actions are also entirely dependent on her surroundings. O'Keeffe is very active as a sound artist and frequently uses mobile devices and apps in her work, but of Animoog she says 'it's just for flying – that's it'. Clearly O'Keeffe has different ways of engaging with sound depending on environment, and while flying, rather than being geared towards a finished composition her practice connects more to a processual understanding of composition and is directed at modulating her experience of a particular situation.

4.4. The conducive approach

A fourth way of engaging with one's surroundings during composition involves consciously seeking out places that are conducive to the kind of work one wants to accomplish. This approach has many resonances with Michael Liegl's (2014) notion of 'care of place', which arose from his study of the ways mobile workers move about the city in search of the ideal location to carry out creative work. As Liegl puts it: 'The aesthetic and affective dimensions of creative work then entail a heightened awareness for one's surroundings in terms of design, atmosphere, styles as well as one's internal reactions to those impressions' (Liegl 2014: 168). Liegl notes that this is not about finding *one* ideal environment for specific kinds of work, but about 'being situationally aware of "what feels right" location wise', which may mean changing one's location as qualities of a place change, such as the level of activity, light, sound, smell etc., and as one's mood and goals shift (Liegl 2014: 179). O'Keeffe has commented on needing to feel a sense of space while she is working with sound, but this sense of space is not anchored to any particular location: it may be her kitchen table, or it may be the café down the street. Her office at the university is not conducive as she feels it boxes her in, and she notes that a studio space she once had was far too cold to provide the conditions for creative work to take place.

While Liegl's research is focused on creative workers in city spaces, several of my interviewees discussed projects that took advantage of the mobility of devices to work in more rural and remote settings. The duo Hugs Bison (Shaun Blezard and Phil Powell), for instance, have released an album entitled *Remote* based on a one-day tour they did around Cumbria in Northern England, using tablets and smartphones to create improvisations in locations such as a local commons, a beach, a wind farm and at a park. Shaun Blezard comments, 'If you're in a nice place and it's sunny I'd hope that's gonna completely change you from playing somewhere that's a bit, I dunno … a multi-storey carpark in the rain is gonna feel totally different.'[11] Composer, producer and new media artist Antye Greie (aka AGF, poemproducer) has led collaborative projects where multiple sound producers get together in outdoor locations in northern Finland to create sound work ranging from electroacoustic improvisation to electronic dance music. Greie says 'I don't see a reason really why techno has to happen in the night at 4am in Berlin in a club.'[12] For Greie, a forest in the daytime is an equally if not more conducive environment for working with sound. Such projects are very directed in their engagement with the particularities of situations, drawing on place as an enveloping inspiration for composition.

4.5. The environmental sound approach

Often the conducive approach overlaps with a fifth kind of relationship to place: drawing on and incorporating the actual sounds of the place in the work. Utilising field recordings and environmental sounds as compositional material is certainly nothing new. Examples of this practice are too numerous to discuss here in any detail, but include works from those such as Walter Ruttmann, John Cage, Pauline Oliveros, Luc Ferrari, Hildegard Westerkamp, Barry Truax and Andra McCartney, among many others. What is different in the practices of situated composition that I am identifying is the ability to engage in complex editing and processing of those sounds in the same environment in which they are recorded, rather than taking them back to a dedicated studio space or other controlled environment. This approach blends a directed engagement with the environment in which one is working on sound with the use of sonic aspects of that environment in the composition. It is not only that the place is conducive to creativity, but also that its acoustic character is specifically tapped into for the sound work.

Antye Greie encourages this approach in her collaborative projects in Finland, as participants both sample sounds from the environment and actively coax sounds from nearby objects, such as stones and branches. Hugs Bison also incorporate the sounds of their surroundings, and musician and academic Steve

[11]Interview conducted 7 September 2015.
[12]Interview conducted 29 September 2015.

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Jones (2015) has written about his mobile sound-making practice with ambient sounds. During the same period as I was carrying out the interviews for this research, I used this approach, visiting locations in and around Lancaster, UK, creating sonic sketches in situ. In an earlier project set in Montreal, I set myself the task of composing one minute 'ditties' using only field recordings, created in three hours or less on location at various places in my neighbourhood.[13] Incorporating sounds of one's environment is often undertaken in a single session, but a composition could also be created by returning to a location repeatedly, or by building a piece from sessions in multiple locations.

4.6. The networked approach

Resonating with the idea of expanding locations, a sixth approach to working with mobile devices for sound production and composition taps into networked interconnectivity. Hugs Bison, for instance, broadcast their remote improvised performances in real-time to be streamed anywhere by listeners online. Sound artist and academic Ximena Alarcón has been experimenting with telematic performances between multiple locations, aiming to move outside of typical spaces, such as university labs and studios, that have the resources that are often thought necessary for bi-directional real-time audio collaborations. She envisions the mobile phone as a useful technology for her work, not only because 'it's an instrument that almost everyone has' but also because 'it's very linked with migration' as it is used for keeping in touch across long distances.[14] Alarcón's conceptual interests for her sound work are precisely in dis-location, in-betweenness and migration. As she puts it: 'So my ideal app is an app that invites people from different locations to engage with their voices, which are informed by the environment where they are, to play with others in real-time. But also playing with the delays that are part of the communication, and that helps to create kind of patterns or sequences between them.' Here, the work is situated in the technologically mediated relationships between people in multiple places rather than in a single, obviously identifiable location.

4.7. The app-as-composition approach

Finally, a seventh approach adopted by some of my interviewees uses the mobile interface as conveyance for a composition. This approach begins to extend beyond my focus on audio production apps, moving into the idea of app development as composition. Ron Herrema's Infinity app (in-development), operates as a composition-instrument, something that can be both listened to and played by the user (Herber 2008). Focusing on the device itself as the situation, Herrema refers to the mobile interface as a 'touchable venue' for presenting works.[15] Lucy Frears meanwhile has created site-specific, GPS-based audio works for the mobile phone that depend on extensive walk testing in situ. Sound production is carried out both on and off site, and peregrinations around the site are central to the process of composing the intended experience, as in her Hayle Churks app, which provides a non-linear oral history.[16] Jessica Thompson is working on an app project called Borderline that is not tied to a particular site, but encourages the user to 'play' the city through gestures that filter and augment the sounds of his or her environment. Data produced through users' interactions with the app and their sonic environment will be stored and interfaced with other data, such as noise complaints, demographics, crime statistics, traffic patterns etc. and may be used for subsequent creative purposes.[17] These various approaches to the app as a kind of composition or artwork in its own right are all attentive to different aspects of the situatedness of the experience and create open systems of composition, which blur the boundary between listening to a work and actively changing it.

5. CONCLUSION

The concept of situated composition offers a way of examining the particular circumstances in which compositional practices take place. Focusing on the new possibilities for mobile compositional activity made available through devices such as tablets and smartphones, this article has investigated seven different types of approaches that entail multiple relationships between practitioners using mobile interfaces and their surroundings. These approaches range from the pragmatics of fitting sound-making into one's daily life, wherever one happens to be, to purposeful engagement with particular places and the unique affordances of specific apps and hardware. Vitally, the concept of situated composition posits that all composition is situated and enacts relationships with the world that both feed into the process of composition and perform in the ongoing 'constellations of trajectories' (Massey 2005) that constitute our shared spaces. The situation of composing on a train affects the process of sound composition, but it also affects the composition of the space of the train as one of the many activities different people may be doing (others include reading a book, listening to music, talking on the phone). The sound composition that arises from this situation brings with it, either implicitly or

[13]These appear as part of the collaborative mapping project *Detours: Poetics of the City*: www.agencetopo.qc.ca/detours/main_en.html.
[14]This and all subsequent references to Alarcón: interview conducted 4 July 2015.
[15]Interview conducted 4 July 2015.
[16]Interview conducted 1 March 2016.
[17]Interview conducted 4 February 2016.

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explicitly, this interplay of affects. Throughout this article I have concentrated most on the immediate, physical situatedness of composition with mobile devices. But of course, situatedness encompasses far more than this, such as historically, socially, culturally and politically situating factors. It also recognises that what constitutes 'composition' is contingent, purposefully blurring the lines between listening, performing, improvising, sound designing, sound production and other sonic activities, and refuting the idea of a definite inside and outside of composition. Again, it is about understanding how composition as open system – as distributed, collaborative and emergent – affects and is affected by relationships with the world. Attending to developing technologies and practices is one way of gaining new points of audition on these processes.

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