

Aural Textiles: From listening to pattern making

The soundscape is a significant component of the embodied multi-sensory landscape: from the buzz of fluorescent tube lights in an office to the intermittent roar of water flowing in a river, no space is ever silent (Schafer 1994). Being inside that aural space provides inspiration in music, art and design; in this case, for the creation of textile patterns. We explore the interaction between what is seen, what is heard, and what is made through a pattern-making process that encourages an attunement to contemporary landscapes. This is done within a participatory and collaborative design research project called *Aural Textiles*, where the soundscape is transformed into textile patterns.

For this phase of *Aural Textiles*, six textile practitioners from across Scotland were brought together to incorporate non-visual stimuli into pattern creation for the purpose of challenging contemporary pattern creation and promote new engagements within Scottish pattern design. Through collective reflective workshops, soundwalks (Butler 2006) and a final exhibition, a showcase of place, sound and form came together in these patterns of environmental encounters.

This essay grounds itself within the ideas of attunement to landscape through listening (Figure 1). It was through listening that three key insights emerged from the project: experimenting, collaborating, and disrupting. We explore these through the imagery of process and pattern making as well as through the narratives and reflections of the practitioners, presenting a collective visual encounter. The images represent a shared endeavour and were selected from practitioner photographs on Instagram, candid shots taken during research workshops, and close-ups of final pieces. This work opens dialogues to collaboratively understand and relate to local soundscape as a source of inspiration for pattern making and begins to formalise a design narrative based on this multi-sensory environment. In turn, the soundscape-inspired designs contribute to the sensory ethnography (Pink 2008, Nakumara 2013) of the contemporary landscape.

Listening and attuning to place

Sound is created through multiple interactions, where changes in currents of the air and vibrations between things are collated on our ear drums and synthesised in our brains. Sound is always around us, its 'presence' enveloping us in the landscape (Nancy 2007). This presence, unlike vision, cannot be simply closed off as with the shutting of eye-lids (Quignard 1991); rather it resonates all around us. Even if you covered your ears the vibration of sound is felt. In listening to this 'sonorous presence' we are active in our making of the world, choosing – consciously and subconsciously – which sounds to take heed of and which to ignore. In listening to sounds, we simultaneously observe their musical qualities (pitch, tone, intensity) while responding emotionally to them (your child laughing or footsteps behind you) (Gaver 1993). Therefore, in listening and through sound our bodies can be more in tune with the environment and sense things that the eyes cannot see.

Listening is key to understanding the landscape requiring a different 'attunement' to seeing or drawing. Nancy (2007) distinguishes listening from hearing as 'a being with' rather than an interpretation of—listening is thus encouraged over and above simply hearing and understanding (Simpson 2009: 2559). Back (2007) writes that listening brings about a sensibility lost within the voyeuristic realm of images, further stating that 'sound makes us re-think our relation to power and in deep listening a deeper dialogue is understood' (Back 2003: 274). Listening is a two-way street and encountered in a multitude of ways from the

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soundscapes of an environment to the music of a symphony. Active listening is not just about receiving a message but 'is a dynamic part of the communication process' (Beard 2009:11) and thus should be a practice that engages with the sound maker, be they person, animal (a bird chirping), or a thing (the siren sound, or the low hum of electricity). Attuning to the multi-sensory landscape is important not only to challenge our visual bias, but to open new inspirational cues in creative practice.

From listening to patterns

In this project, the evolution from sound to pattern is broken down into three main steps: capturing, transforming, and visualising. Participants spent time capturing their soundscape - recording sounds in an attempt to better understand their local environment beyond that which was simply seen. Using smartphones and small audio recorders, we (anyone) can capture the sounds around us. From this point, through the use of audio software, we are able to transform the sound into a spectrogram.

Spectrograms are an audio visualisation where, rather than the pitch and amplitude (as is normally portrayed through wave modulation), the intensity and multiple frequencies are displayed across time. It is a useful tool in understanding phonetic speech and the vibrations of the earth in seismology. Spectrograms are especially useful in the field of bioacoustics (De Oliveira et al. 2015) as different animals that normally cannot be tagged, like large underwater mammals or migrating birds, can be tracked by their specific call (like an audio voiceprint). Spectrograms fully represent the musical qualities of all the sounds contained within the recording. But it is in the act of selecting which sounds to record that the emotional connection to the sound first emerges. The reasons for choosing which of the many sounds around you to embody are many and varied but, in general, are about connection to a place and time that elicits an emotional response; perhaps the nostalgia of lost youth or a place of quiet contemplation

The spectrogram becomes the foundation of the pattern. The image can be digitally manipulated to reduce background noise and simplify the pattern, transforming it into shapes that could be 'read', manipulated and reproduced. From this point it is up to the designer/maker to develop a series of transcriptions as part of process between the listener and the sound (Figure 2). The source data from the audio file and digital image manipulation is one aspect of the textile produced; but the finished piece is also dependent upon the interaction between data and designer/maker. Here again, the emotional response to the sounds collected and the shapes they create influences the transformation from sounds to pattern. This is also dependent upon the creative process and experience of the designer/maker. The result of this is that different designer/makers will create completely different textiles from the same spectrogram. It is through the combination of all these interactions, emotional and technical, that the final patterns and textiles are created.

Furthermore, the interaction between practitioner, landscape and digital machine weaves an intricate co-creative relationship (Sanders and Stappers 2008) and forms the foundation of our project expressed here through three vignettes: experimenting, collaborating and disrupting. The patterns that emerge through these interactions become contemporary interpretations of the landscape.



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Experimenting

The ability to freely experiment is a necessity when it comes to innovation, development and human creativity (Singer 2009). Yet, when it comes to experimenting within a practitioner's 'real' world situation there are commercial and financial pressures that can limit that experimentation. The contemporary practitioner needs time to 'try things out' without the constraints of marketability or consumer needs. This project offered practitioners the physical and intellectual space to attune towards new landscape sensibilities and experiment therein. As one participant stated, "stepping away from forced commercialisation" had been essential to their enjoyment of the project, since this consideration would have "blocked [them] creatively". The sound-to-pattern process provokes an experimental attitude towards pattern creation. Another participant thought about the way that attuning to the landscape provided the opportunity "to take time off from work as a self-employed textile worker" and "to get out and explore the nature around me".

Experimenting was also integral to the ultimate selection of which sounds to work with, and revealed different shapes within spectrograms that lend themselves towards one textile discipline or another, as illustrated in this blog post excerpt from one of the practitioners:

In my own excursions into the hills and along the coast, I found that I needed to capture the moments when water meets an obstacle in order to start seeing patterns I could work with. A burn trickling over rocks; a wave lapping the shore; raindrops falling onto a shed roof: these all create sounds and images which are rich with design potential.

When experimenting with this material I have used weave drafting techniques that are a staple of my practice. Network drafting is a process in which the designer takes a 'pattern line' and maps it onto a basic weave structure, such as a twill. By printing out a spectrogram and tracing over it, I was able to isolate some suitable pattern lines in the sound of a single wave recorded on the beach at Pittenweem."

Cally Booker, weaver, Dundee

Cally combines her familiar and technically intricate approach to weaving with an experimental input of waves crashing on rocks. In this case, experimenting with a range of collected sounds revealed that some contain more "design potential" for Cally's weaving design style than others. The shimmering effect shows the waves coming in and out of phase with each other (Figures 3 & 4).

Another example shows a transformation in rethinking the idea of landscape, where another practitioner noted:

My studio became my landscape and I turned to recording the various sounds of my knitting machine... As I can no longer hand knit, I will be focusing on creating repeat patterns for a punchcard, vintage, manual knitting machine.

Olive Pearson, knitter, Glasgow

Olive's experimentation with spectrograms, attuning to a new type of sensory experience, expands the concept of "landscape" beyond that which is outside to incorporate all spaces with which we interact and opens up a very different set of developing patterns (Figure 5).



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Collaborating

At the heart of the project we promoted an openness to working together. The aim of the research project was to bring practitioners into conversation in person or through digital means. The workshops provided one aspect of collaboration, where practitioners listened to one another shared reflections and ideas, (Figure 6). The discussion below describes a collaboration between the two screen printers:

I've had the pleasure of working with Orla a couple of times since our visit to Plockton and wanted to try working using a similar process to hers, which is very different to mine. Orla makes marks in a very free and loose way whilst referring to the spectrograms and then makes stencils directly from her drawings by scanning them. She then makes up several screens and works quite freely when printing also, overlaying the different patterns on the fabric as she feels. This produces varied and abstract results, she also tends to work fairly large scale. Inspired by Orla, [we] did a session of mark making referring to my spectrogram of a sound file of footsteps in the snow. I then image traced a couple of my favourite drawings to be turned into stencils for printing.[...] I made several samples using these stencils, the final picture below being the most free in the way in which it was printed. It is my favourite as I had so much fun printing it and deciding on the placement of each element.

Beth Farmer, screen printer, Glasgow

Beth shows an openness to experiment and move beyond her standard approach to screen-printing shows the intricate relations that occur through these collaborations (Figure 7). In turn Orla's reflections, provide a counter-point to the experience by Beth, reflecting upon a broader sense of 'purpose' (Singer 2008) and the ability to learn from each other:

The shared nature of the Aural Textiles workshops has provided me with a community rich in its variety of makers, their approaches and textile processes. It has been fascinating having this opportunity to share and learn in detail of one another's practices, which are each so different to the next. Learning of the positive limitations, design/making time and aesthetic of everyone in their techniques has given me a greater appreciation for each skill, which is valuable knowledge I did not have before. I believe that experiences are enriched by the act of sharing.

Orla Stevens, screen printer, Edinburgh

These creative collaborations are not merely happenstance but crucial to the ongoing development of the distributed collective (Figure 8). The lone creator myth is difficult to remove, yet it is these 'creative interactions' (Montouri & Pursar 1995) that support the cause for future collaborative efforts, be they in intimate pairs or larger groups.



Disrupting

Disruption, like experimentation, is a useful tool to challenge the preconceptions of how we understand a place. As stated earlier, the act of listening to landscape—of tuning into the 'sonorous presence' (Simpson 2009)— can provide new ways of perceiving place. The disruption of traditional practices of pattern-making in Scotland is threaded through the project research. An example of this disruption is evident in a reflection of work and process from one of the participants, where an occularcentric understanding of place (Sui 2000) is

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expanded:

My starting point has shifted; my whole creative practice has always been informed by what I see and observe. My observations derive from a mixture of seen, heard and reflective processes, and over time I've developed very particular neural responses which lead to imagery primarily sourced in the 'seeing' of things.

Aural Textiles has diverted these pathways and begun a whole new set of anchor points as I explore and map a new understanding, learning an unknown (to me) language, one derived from hearing and the boundaries of the spectrogram. Whilst on a personal level, I feel myself drawn towards a more visceral interpretation of my recent experience of spending so much time outside in the landscape...

Marie Melnychuk, weaver, North Uist

Marie expresses that a disruption in her visual bias has provided her with a 'new language' with which to understand and interpret the landscape. The image of the chevron shape song of a wren from the machair of North Uist, provides the inspiration for a developing series of iterations towards a woven pattern of the bird song (Figures 9&10).

Perception of place becomes integral to the way that a participant functions, and the way that it influences their practice. This idea carries onto a final participant who expresses a clear change in understanding of her landscape. In this extract from her public vlog (Hopcroft 2018), Dwynwen goes on to explain how the act of designing from spectrograms revealed an absence of heard sounds, and how this absence of sound became an integral part of the pattern design process:

It's not just looking at pretty pictures, for me, and exploring a sound landscape of the lovely place where I live. I've learned for quite a while that my hearing has become compromised and becoming more so over time. That has become apparent when then I am recording and listening. It became very clear at the first workshop and recording ... that I wasn't hearing exactly what was being represented on the screen, because I hadn't seen a spectrogram before, so I hadn't really had it in my face in that way.

I am aware that I am missing some parts of my hearing...I can literally see what I can't hear. One of the things is not to be afraid of that and the process. Show the spectrogram in a pattern form with knitting, and remove the sounds that I know I can't hear to give a visual representation of the soundscape I am missing and give another way of experiencing a soundscape journey...

Dwynwen Hopcroft, knitter, Drumnadrochit

In this approach, the landscape missing through hearing loss goes on to become expressed within the pattern and the final textile (Figure 10). As important to the vibrations of sound is the absence of sound, and the quiet gaps form part of the pattern. This revealed an unexpected way of connecting emotionally with the spectrogram itself.

Reflecting

Taking design inspiration from the soundscape has been a way to exercise a deeper awareness of place and has influenced the ways in which practitioners experience their surroundings on a day-to-day basis. Actively listening to the landscape promotes new approaches to thinking about how we create patterns, but also influences the way that

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landscapes are understood, interpreted and remade through that human entanglement. The learnings described within this essay give voice to the need for further disruption, further experimentation and most importantly further collaboration across disciplines, embedding alternative ways to create (and the results from this) into our experiences of our own environments. Listening can provide that space and will continue to enable contemporary interpretations of landscape.

This visual essay shows a developing sensory ethnography of sound, narrative and pattern. We have created a type of pattern archive with the sounds of landscape, and stories of the people; a fragmentary collection of landscape that is not a complete picture, rather one that seeks the multiple perspective of the senses. This provides a multitude of ways to move forward in creating and thinking about multi-sensory making. From these perspectives, it shows that creative collaboration can be augmented, shared and interrupted when we open up to other senses.

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