

ARTICLE

Listening for futures along Birrarung Marr: speculative immersive experience in environmental education

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Abstract

This paper considers experiences of speculative immersion as artists and children map the multilayered sonic ecology of Birrarung Marr, a traditional meeting place for Aboriginal language groups of the Eastern Kulin Nation. We explore how speculative practices of immersion shaped the mapping of precolonial, contemporary, and future soundscapes of Birrarung Marr, and the ceremonial burial of these sonic cartographies for future listeners. Bringing together Indigenous and non-Indigenous concepts of immersion in mutually respectful and purposeful conversation, we work to re-theorise immersive experience as a process of ecological multiplicity and affective resonance, rather than one of phenomenological containment. By approaching immersion as both a concept and a sensation that ruptures the boundary between body and environment, we follow how immersion ‘drifts’ across porous thresholds of sensing, thinking, dreaming, making, and knowing in situated environmental education contexts. In doing so, the paper stresses the importance of speculative immersive experience in cultivating liveable urban futures under conditions of climate change, and responds to the need for new understandings of immersion that take more-than-human ecologies of experience into account.

Keywords: immersive experience; speculative philosophy; Indigenous philosophy; environmental education; sound studies; post-qualitative inquiry

Listening to the Past

We gather with a group of children on the floor of an old Victorian tram station, now converted to house ArtPlay, a multiarts creative studio for children in the city of Naarm/Melbourne, Australia. Just outside the door lie the banks of Birrarung Marr, an ancient waterway and Aboriginal meeting place or ‘tanderum’ for the Wurundjeri people and many other clans and dialects of the Eastern Kulin Nation. *Birrarung* is the traditional name for this waterway in the Boon Wurrung language, and the term *marr* refers to the mist that has always gathered along its bends.

One of the sound artists working with us at ArtPlay today invites us to imagine what Birrarung Marr sounded like before colonisation. We close our eyes and try to listen. She tells us that Birrarung was once a large waterfall, a roaring burble of sound that separated the river’s freshwater from the saltwater of the bay. This burbling contrast between fresh and salt water sustained the Wurendjeri people with a steady supply of food and drinkable water along Birrarung. When British colonisers founded the city of Melbourne in the 19th century they flattened Birrarung so that they could bring in ships and supplies. The roaring burble of the waterfall sound became a smooth sound. The differential between salty and fresh water was erased, making it impossible to access drinkable water and edible food from the river.

At the beginning of time someone had to talk for the land, it was quiet, nothingness. And then it began with the sound deep within the water, ‘Hmmm hmmm.’ That was the starting point. (Gay’Wu Group of Women, 2019, p. 229)

The Gay’Wu Group of Women is a close-knit collective of Indigenous (Yolŋu) and non-Indigenous (*ŋäpaki*) researchers who also write with the voice of Bawaka Country et al. (2015, 2022), the traditional homelands of the Yolŋu people in Northeast Arnhem Land. Through close readings of their books and articles, the Gay’Wu Group of Women teach us that sound is a starting point for existence within Yolŋu culture: to listen and sing with sound brings the world into existence.¹ Ecosystems are songs, and they only continue to exist because we learn to listen and sing together, humans and nonhumans alike.

As we gather with children to listen for the precolonial history of Birrarung today, we sense how the colonial-capitalistic regime has altered the sounds of the water, the wind, the birds, and the trees that once stood here. So many sounds have been silenced which may never return. But we can still listen to Birrarung stream past in togetherness with the songs that animals, plants, wind, machines, buildings, humans and many others sing in this land. By listening to the pasts, presents, and futures of this place, we become part of the songs that bring this place into existence, and they become part of us.

Drift

The listening experience we recount above was part of the ‘Dreaming’ stage for a project called *Sound Capsule for Future Humans*, commissioned by City of Melbourne as part of a series of four collaborations between artists and children responding to climate change. The proposal for *Sound Capsule for Future Humans* was for children and sound artists to work together to map the complex soundscapes along Birrarung Marr, and bury them for future listeners to rediscover in a hundred years. The project involved a series of speculative and immersive listening activities which not only attended to the sounds of the riverbank under current conditions, but also urged children to listen to the Birrarung’s past and future in relation to concepts of indigeneity, colonisation, and the impacts of global climate change.

We became closely involved with the *Sound Capsule* project as resident artist-researchers in ArtPlay’s New Ideas Lab between 2020–2021. This research residency constituted a new iteration of *Local Alternatives*, an international research project which has seeded an ongoing series of collaborations between children, artists, and researchers responding to climate change in cities (see www.localalternatives.org). For this particular iteration of *Local Alternatives*, we were invited to work with children and families, artists, and ArtPlay staff to track the complex pedagogical dynamics that unfolded as the *Sound Capsule* project took shape. The ‘Dreaming’ stage was followed by a collaborative ‘Making’ stage, and finally, a ‘Showing’ stage which involved a series of public exhibitions, performances, and events. While these stages were intended to be completed in 2020, the impact of COVID-19 severely altered the production schedule and experience of developing these creative works. Our engagements with the project therefore occurred in short periods of free movement in between some of the most severe lockdown conditions in the world. The pandemic itself became an immersive experience that played a significant role in how we collectively sensed and expressed feelings of precarity, restriction, protection, fear, safety, relief, and uncertainty.

Our approach to assembling and writing this article follows a process of sensory and conceptual mapping which has been previously theorised as a postqualitative practice of ‘immersive cartography’ (Rousell, 2020, 2021). This approach to inquiry does not follow a predetermined method, nor does it apply theory from the outside (like a ‘lens’) to interpret what happens during the research. Rather it involves a sensory and conceptual immersion in events as they play out, while

attuning to how different concepts, theories, and practices come to expression through these events in aleatory and indeterminate ways. As resident artist-researchers at ArtPlay we were embedded within complex events through which human and nonhuman concerns regarding colonisation, climate, environment, and sociality came into consequential relation and confluence. Philosophical questions and conceptualisations (both spoken and unspoken) flowed in and out of these events in a spontaneous fashion, and inevitably found their way into our immersive weekly fieldnotes which were circulated back to artists, children, parents, and ArtPlay staff.

As a continuation of this postqualitative approach, this article weaves together our philosophical writings and sensorial experiences along Birrarung Marr with immersive accounts of the development and enactment of the *Sound Capsule* project, generating a cartography of conceptual and sensory movements which try to stay ‘methodology free’ (St. Pierre, 2019). Each section of the article is initiated by events from the *Sound Capsule* project which provoke an open series of theoretical questions, propositions, conceptualisations, and concerns. By approaching immersion as both a speculative concept and a bodily sensation that exceeds the human, we work to theorise how immersion ‘drifts’ across porous thresholds of sensing, thinking, dreaming, making, and knowing in environmental education contexts. Our way of working through these provocations is also a process of ‘drift’ across concepts and sensations of immersion which keeps us dilated to the event of inquiry as a creative process. Resisting normative accounts of immersion as sensorial enclosure within the body as a ‘container’ for experience, the article performs a more porous theorization and practical elaboration of immersion as an irreducibly speculative movement of more-than-human sensation and affective resonance.

Purpose

Thinking across Indigenous and non-Indigenous philosophies allows us to take some steps toward developing an ecological account of immersion that subverts the subject-object binary of Western humanism, and explicitly posits more-than-human relationality as the precondition for experiences of immersion. What comes to matter, for us here in this study, is precisely what emerges in the crossings between Indigenous and non-Indigenous accounts of processual becoming as the ‘ontogenesis’ or ‘coming into being’ of immersive environmental education experience. As migrants to Naarm/Melbourne from North America (author 1) and South America (author 2), we consider ourselves but passing visitors on the unceded Country of the Wurundjeri peoples of the Eastern Kulin Nation who are the traditional custodians of these lands. *Wominjeka* is the Wurundjeri word for welcome, which also implies that you are welcome if you come with a purpose that is thoughtful and respectful.

In this project, we come with a purpose to learn and listen with care. We also come with a purpose of bringing these learnings and listenings into consequential encounter with environmental education practice and research. Specifically, through this article and our ongoing study along Birrarung Marr, we aim to inflect research and practice in environmental education with an attunement to immersion as a concept that has been an implicit touchstone for the field since its inception, but rarely addressed in conceptual and empirical detail. What does it mean to be ‘immersed’ in a riverbank, a piece of music, a book, a work of art, or a research project? Our hope is that this paper helps create a platform for new work in environmental education which enables differential understandings and experiences of immersion to be actively multiplied, rather than reduced, through respectful encounters between Indigenous and non-Indigenous knowledges. Ultimately, this involves the elaboration of a theory of immersion which does not separate human thought and sensation from the environmental manifold which is the condition for life and experience. Sound provides a particularly effective entry point for such a theory because it passes through bodies of all kinds regardless of their provisional boundaries and compositions, demonstrating how immersion breaks down any hard or fast distinction between body and milieu.

Process

To help us develop this theory of immersion we turn to the process philosophies of Bergson and Whitehead who each, more than a century ago, proposed a speculative account of immersive experience which stretches beyond the human condition. In the late 19th century Bergson (1889/2001) introduced a more-than-human account of immersion into Western thought through the concept of ‘duration’. Bergson’s concept of duration is often defined as the subjective experience of a particular passage of time, however duration also implies immersion in the ceaseless movement of time through which life creatively advances and differentiates. Several decades later, Whitehead (1929/1978) introduced the concept of ‘prehension’ to account for the qualitative feeling or ‘affective tonality’ that colours and saturates every event as a singular encounter with the world. The concept of prehension helps us develop a more-than-human theory of immersion because it attributes a subjective intensity to every process through which the world comes into existence, much like Bergson attributes a qualitative dimension to every moment in time. These radical process philosophies broke away from the history of Western philosophy by navigating a return to cosmology and metaphysical speculation beyond the human condition, effectively laying the groundwork for contemporary posthumanism and postanthropocentric thinking. They are what Hansen (2015) terms ‘radically environmental’ philosophies, not in the sense of promoting a normative (humanist) environmentalism, but in the sense of assembling a full ‘naturalisation’ of thought and perception which refuses the transcendent separability of the body (mind, self, identity, or soul) from the environmental field which is its precondition for existence.²

This article builds on recent postqualitative scholarship which draws connections between these Western process philosophies and Indigenous cosmologies of worldly becoming (Cole & Somerville, 2017; Cutter-Mackenzie-Knowles et al., 2020; Rosiek, Snyder, & Pratt, 2020), while remaining careful not to collapse or confuse their very different histories, political stakes, onto-epistemological singularities, and aesthetic orientations toward world-making (Rousell & Williams, 2020). This postqualitative approach opens our thinking and writing process to a series of encounters between Indigenous listening practices (Bawaka Country et al., 2015, 2022) and differential accounts of immersive experience in Western process philosophy (Manning, 2020), media studies (Hansen, 2015), sound studies (Goodman, 2020), and architecture (Gins & Arakawa, 2002). Here we heed MacLure’s (2021) caution against the tendency to appropriate Indigenous ontologies to serve the purposes (however well-intentioned) of postqualitative Western scholarship, advocating instead for a speculative approach that assembles ‘its own pragmatic arts and fashion[s] its own situated practices—ways of thinking and of reading the world that are grounded in . . . the problems addressed by those involved’ (p. 504). Our fashioning of speculative immersive practices within the context of this study involves listening carefully and respectfully to Indigenous concepts of immersion, precisely because those concepts are contextually relevant and ontologically germane to our study. We acknowledge that it matters what concepts we use (and how we use them) to think other concepts (Strathern, 1992). We work to stay mindful of the conditions from which concepts arise, how they circulate through multiple milieus, especially Indigenous concepts that carry particular, even sacred, relations with Country or place (Rose, 2013). As Métis scholar Zoe Todd (2016) suggests, this means staying alert to how academic concepts (perhaps especially *ontological* concepts) can be colonising in the ways they reproduce the terms of value through which they make the claim to know.

Listening to the Future

We are sitting with the children on the floor of ArtPlay. One of the sound artists explains that we will be listening to the sounds of Birrarung Marr to create a series of artefacts to be buried behind the ArtPlay building, and re-opened by future humans in 100 years. These artefacts will include a series of graphic scores and sound maps, letters to the children of the future, and a vinyl record

accompanied by an analogue listening device consisting of a metal needle and cone (in case there is no electricity in 100 years). ‘If humans are even still *alive* in 100 years’, one of the children sitting beside us whispers to herself quietly. Another child raises her hand and asks: ‘Will there still be COVID around in 100 years?’ Another child wonders: ‘Will they still speak English? If not, who will translate it?’ And another: ‘Robots and androids will be taking over human jobs.’

The sound artists seem keen to get the discussion back to the sonic artefacts and our future human listeners, but the children are more interested in the nonhuman inhabitants who will populate Birrarung Marr in 100 years. ‘Maybe people will have robot pets’. ‘The robot pets won’t sound the same as real pets’. ‘Maybe the robot pets will start to speak like we do’. ‘There might be people protesting in the streets to get their real dogs back’. ‘Like in Astroboy. Robots will run the city’. ‘I heard they’re giving robot pet koalas to elderly people now. If it makes a sound you like then you hug it, but if it makes a sound you don’t like, you smack it. That’s how the robot pet learns to talk.’

The workshop has only barely begun, and the children have already hijacked it with their own concerns about posthuman futures. Moreover, it has already become unclear how much of the children’s discussion is grounded in ‘facts’, ‘values’, ‘concerns’, or ‘imaginings’, or even if they perceive any clearcut distinctions between these. What is clear is that the children are articulating the need for a speculative posthuman ethics (see, for instance, Puig de la Bellacasa, 2017). They are insisting that *listening to the future* and *imagining future listeners* are both deeply political and ethical propositions that demand vivid speculation rather than fast and clear-cut ‘answers’.

The children’s speculative questioning also teaches us how thinking with sound can enable us to encounter time as a multiplicity. Are we hearing the future and the past listening to us now, in the passing present? Can sound flow backwards, from the future into the past? In *Matter and Memory* (1911/2004), Bergson proposes that every event generates its own ‘image’ of what happens regardless of whether that image is perceived by humans or not. This allows him to describe the universe as an ever expanding ‘totality of images’, with each image carrying a ‘pure memory’ of the event that it witnesses in every detail. What would be the equivalent for sound? Perhaps, learning from Bawaka Country et al. (2020, 2022), we can begin to think of past, present, and future as a series of spiralling songs (‘songspirals’ or *millkari* in the Yolnu language), each opening onto the resonant whole of which it forms a continuously evolving part. As we learn from reading the works of Bawaka Country, songspirals are immersive attunements to the more-than-human sound field that brings Yolnu life into existence.

Songspirals are Yolnu life—they are the doing, being, thinking, understanding of Yolnu life-worlds. They are a generative ontological manifestation of relationality, of the ongoing emergence of everything in relation with everything else, of the co-becoming of time and place. (Bawaka Country et al., 2022, p. 3)

Importantly, within the Yolnu onto-epistemology, songspirals are highly specific configurations of knowledge immersed in particular places and shared between human and nonhuman singers. ‘Animals, plants, trees, the wind, all the beings of Country sing. They sing for themselves and they sing to us’ (Bawaka Country et al., 2022, p. 4). For example, the Wukun songspiral shared by Bawaka Country et al. (2020) is described as ‘an embodied and affective co-constitution of peoples, places, times and complex weatherings including clouds, winds, mists and seasons’ (p. 296). Bawaka Country choose to share this particular songspiral because it offers a Yolnu perspective on time, climate, weather, and seasonality as ‘spiral, non-linear and affective’ (p. 297), and can therefore help non-Indigenous readers to think about climate change outside of linear temporality and cause-and-effect models that dominate Western discussions of climate change.

Immersion

While Yolŋu, Wurundjeri, and many other Aboriginal peoples have developed complex and immersive understandings of Country for more than 50,000 years, Western environmental education also has its own much shorter history of cultivating immersive learning experiences since its formalisation as a field of practice and research in the 1970s. Outdoor learning excursions, hikes, camps, and other adventures have figured largely within this history of immersive education (Gough, 2007, 2016), while environmental educators have also explored the immersive possibilities of children's literature (Burke & Cutter-Mackenzie, 2010), art (Gray & Birrell, 2015), filmmaking (Rousell & Cutter-Mackenzie-Knowles, 2020), and more recently, mixed reality technologies (Liao, Hsieh, & Wei, 2021; Ou, Chu, & Tarng, 2021; Rousell, 2019) as sites of environmental learning and pedagogy. However, the question of how immersion is actually conceptualised, and indeed what constitutes a state or process of immersion, has not often been explored in environmental education research in any detail. This leaves the concept of immersion implicitly open to assumed or normative working definitions that typically fall back on colloquial, phenomenological, or psycho-reductive divisions between inside and outside, body and mind.

Notable exceptions to this include Chang's (2021) recent engagement with the Zen Koan as a method of immersive environmental pedagogy, in which he explicitly theorises immersion as 'somatic contact . . . that invites total participation, calling to a noesis that precedes the voice of reason and a form of immersion that enlists the body's affinity with the corporeal world' (p. 27). Chang exemplifies this kind of immersion through the Zen Koan or parable as a heuristic that transcends the binary between inside and outside.

With a hand gently placed on the wet, mossy bark of a tree, a student may ask: 'How am I connected or separate from the forest?' By way of response, there is the sensation of moisture on the fingers, the roughness of the bark, the rooted stillness of the tree — the sensate contact with the tree is in effect a Koan-like response to the initial question. When warm skin meets cool moss, the 'answer' to the question of oneness and separateness rises and dissipates in the sensuous contact with the material world. (Chang, 2021, pp. 26–27)

While Chang refers to immersion as a corporeal state that 'transcends' discursive binaries and rational thought, Rousell (2021) conceptualises immersion within an immanence of events that precondition the possibilities for thought and sensation through an 'open series of interpenetrating fields of experience' (p. xvi). This forms the basis for 'immersive cartography' as 'an ongoing project of developing a more-than-human aesthetics, pedagogy, and ecology of inquiry' (p. xviii). Building on the radically environmental thought of Bergson, Whitehead, and Deleuze, there is no predetermined boundary between human and nonhuman modes of existence in Rousell's immanent account of immersion. The speculative challenge for this postqualitative approach is to develop ways of 'sensing the intensities of felt experience . . . when concepts of "feeling", "sense", and "experience" are no longer limited or modelled on human subjects, selves, or individuals' (p. xxix). Rather than seeking 'transcendence', as in Chang's account, for Rousell (2022) immersion involves a process of 'drifting down' to speculative realms of ecological co-existence where categorical distinctions between subjects and objects dissolve into an immanent field of intensive forces and relations. Immersive cartography aims to develop new conceptual and empirical equipment for sensing and mapping these submerged intensities, much like a diver requires specialised equipment to begin mapping unknown oceanic depths (see also, Stengers, 2011).

Balance: *bala go' lili, pono, kaitiakitanga*

At ArtPlay, the sound artists bring the discussion back to the physics and vibratory materiality of sound. They describe how sonic vibrations pass through walls, bodies, cells, molecules, matter. There is mention of how noisy environments make it difficult to hear distinct sounds because

the frequency range of vibrations gets overcoded. We begin to sense how there is only so much 'room' in a given frequency range. The sound field turns to vibrational mush if the frequency gets too crowded. To get a sense of this vibrational quality of the sound field the sound artists play some recorded tones from the computer. The first one sounds like a jackhammer, both machinic and violent, verging on torturous. It takes over and saturates the entire sound field immediately. Children cry out: 'It sounds like an ongoing disturbance!' 'It's deafening!' 'Beating!' 'Sounds like something trying to escape, trying to get out!' The sound artists tell us that it's just a recording of the crossing signal at the nearby intersection of Swanston and Flinders St.

This example demonstrates how sound is effectively an intermixture of physical vibrations and intensive qualities. This is one of the reasons why it's hard to make clear distinctions between proximity and distance when you are dealing with sound. Physically, sound reverberates off everything it encounters, even microscopic particles in the air (Gershon, 2013). What we hear is never a 'straight shot' from a locatable point of origin which meets our ears from a measurable distance. Rather than trying to locate the origin of a sound with respect to a human 'receiver', we might consider a sound field without any clear points of origin and reception: a field of vibrational variations, waves, resonances, intensities, passing and rerouting one another continuously. Every sound is a relay of frequencies from some indistinct environmental origin, an errant rerouting of sensation from one field of resonance to another.

Different Indigenous cultures have long recognised the need for a precarious balance between different frequency ranges (Hernández et al., 2020; Lewis, Arista, Pechawis, & Kite, 2018; Mika, 2007), and there are many different words for this state of environmental balance: *bala go' lili* in the Yolnu language (Gay'Wu Group of Women, 2019), *pono* in Kānaka Maoli language (Lewis et al., 2018), and *kaitiakitanga* in the Te Reo Māori language (Kawharu, 2000). These concepts do not appeal to balance according to transcendent values or quantities, but rather to a *felt sense of balance* that arises from far-from-equilibrium states of immanent relation and intermixture. Bawaka Country et al. (2022), for instance, explain the concept of *bala ga' lili* through the intermixing of salty and freshwater in Northeast Arnhem Land.

Bala ga' lili is balance, the balance that emerges from the water flowing from the land and meeting the salt water, the balance of the brackish water, which is where the knowledge is. Bala ga' lili sustains and nourishes us, it ensures our existence as we live with each other, and with and as the world (Bawaka Country et al., 2022, p. 8).

Writing from the Indigenous Hawaiian context, Lewis et al. (2018) describe how Kānaka Maoli ontology 'makes it difficult and outright unrewarding to reduce *pono* [balance] to a measure of one . . . Healthy and fruitful balance requires multiplicity and that we continually think in and through relation even when—perhaps particularly when—engaging with those different from ourselves' (p. 4). These Indigenous concepts gesture toward an incalculable balancing of differences that can help us understand the role that the sound field plays in the balancing of ecological relationships. At ArtPlay, a child raises his hand to ask a question as we discuss different sonic frequency ranges. 'I think the Wurundjeri language is missing from the sound field. It's been buried by other frequencies. But I hope we can hear it more in the future'. Perhaps, if we listen closely enough, we can hear submerged elements in the sound field which have been overshadowed and colonised by other parts, and even find ways to restore balance in the sound field through counter-practices of listening and sounding otherwise.

Sonic Cartographies

Next, the sound artists introduce the 'sonic map' that the children will use to record what they hear along Birrarung Marr. 'There's no right way to do it,' they explain. The sound map is based on a proxemics that places 'you' (e.g. the child's body) at the centre. Around this centre-point are a



Figure 1. Working on the sonic map to place sounds in proximity to the listener's body.

series of rippling circles. In one sense this could be read as a privileging of the phenomenological human listener as the centre of the sound field. But we can shift this anthropocentric perspective if we blur the boundaries between the body and everything that composes the environment as a field of relations. From the environmental perspective of the sound field, your body is just another meaty, absorbent buffer that vibrational sound waves can pass through and resonate. There is, from this perspective, no separability between 'you' and the sound field. If everything is the resonating centre of its own vibrational field, including the billions of 'centres of experience' that make up our own cells and molecular configurations (Whitehead, 1968), then the idea that 'you' are the centre of the sound field becomes an arbitrary distinction. From a radically environmental perspective, everything in the environment is already *part of what you are* because your body is directly in touch with everything that saturates the field of sensation (Ruyer, 2018).

As we exit the ArtPlay building and step out onto the ochre surface of Birrarung Marr, children are invited to draw what sounds closer or farther away as we stop at different points along the waterway (Figure 1). It is a Sunday afternoon, and pleasure-craft drift listlessly by on the Birrarung as we listen and record what we hear along its banks. We are in an odd lull between lockdowns, and the Australian Open is somehow still happening nearby. People are walking and biking around somewhat aimlessly. No one is rushing. This is the sound of leisure, the sound of so-called 'free time' in a 'smooth space' where capital has flattened all the differentials and blockages (Deleuze & Guattari, 1987), at least for those who profit from it. Children listen to the sounds of Birrarung Marr from a series of locations along the Birrarung waterway and record what they hear:

1st Location: Princess Walk facing towards Birrarung

Sound related to silence: the water is present but surrounding noises make us strain our sense to hear its flow.

2nd Location: Corner Swanston Street (St Kilda Road) with Princess Walk

Sound related to movement: some sounds or noises are produced by static bodies (music emanating from the public bar, a crossing light for pedestrians) others by bodies in movement (trams, luggage wheels, the sound of a woman walking with high heels on the concrete sidewalk).



Figure 2. Children, sound artists, and Future Bob listening to the sound field outside of ArtPlay along Birrarung Marr.

3rd Location: Under Princes Bridge with Flinders Walk

Sound related to the built environment: the strange acoustics under the bridge, the steel and stone structure producing an echo between the sounds of human and non-human voices: people, water, boats, gulls, and the tram crossing above.

4th Location: Wooden Pier over Birrarung

Sound related to proximity: standing on the floating pier over the water, it is possible to listen to people laugh from the other side of the river.

5th Location: Train yards between Flinders Station and Richmond Station

Sound related to open space: children play-with their voices to listen to the echo-sound produced within space of the train yard. The size of the space allows children to break their possible fear of screaming, and again and again they test the impact of their voices on this massive open space full of surfaces made of steel and concrete. Here children are not just listening, they are also producing noise.

As we try to listen closely to Birrarung Marr, it is not the mist off the river that confounds our senses but the noise of human infrastructures that colonises the sound field. *Los sonidos de hoy opacan los de ayer. Como rescatar los sonidos, de ayer, o como generar una equidad de sonidos.* The sounds of today overshadow those of what came before. How do we learn to generate an equality of sounds? To cultivate a life of sonic balance (*bala go' lili, pono, kaitiakitanga*)?

Future Bob

'Future Bob' accompanies us as we move from place to place along Birrarung Marr. Future Bob is a binaural proxy, a surrogate, or 'stand-in' for our future listener. An expressionless black (male?) head of a mannequin mounted on an adjustable tripod, with condenser microphones implanted in ears that mimic the normative auditory faculties of the 'human' listener (Figure 2). We are fascinated by the inclusion of Future Bob as an attempt to fabricate a normative image of a listening/hearing body according to ableist imaginings of the standard and 'fully functional' human model.

Oddly enough, this standard model of human hearing takes the form of a nonhuman and non-living black mannequin that gets carried around the city. The idea is that future listeners (will they even be human?) will want to hear what the city sounded like to people living in 2021, and that Future Bob has been designed to 'hear' this way. But does Future Bob actually hear anything? And if so, what does he hear?

Numerous sound studies scholars have argued that binaural field recording typically assumes a standard of hearing to which all human ears should be compared, that there is a universal model of binaural sensation which can be replicated and, to varying extents, achieve a standard of sonic naturalism, fidelity, or 'truth' (see, for example, Gallagher, 2015; Gershon, 2013; Shannon, 2019). What does the sonic standard of binaural recording (re)produce as we carry Future Bob around the city? And how do we (children, artists, researchers) find ourselves immersed in a differential relation with this standard? Does carrying the cyborg listener actually emphasise our capacity for differential audition, and paradoxically multiply our capacities to hear by departing continuously from the binaural standard? Ultimately the presence of Future Bob makes us question whether the future will be binaural. In other words, whether technologies of listening and hearing (and indeed all body capacities) will continue to be modelled on a universal image of the (able, normative) human. What would a technology of listening be that affirmed the more-than-human potentiality of difference, rather than continuing to model a universal image of the same?³

Approximate Proximity

The next weekend, children have returned to ArtPlay and sit listening to the sounds they had collected from Birrarung Marr at the previous workshop. They make small markings which 'score' each sound on pieces of paper. These marks are then collected in a metal container and mixed around. As each scrap of paper is drawn out, everyone tries to guess which mark belongs to which sound. We are intrigued firstly by the speculative nature of this activity. At first glance, this seems to centre on practices of *translation*, for instance, translation from sonic frequency, to 'heard' sound, to graphic score. But is this really a 'translation' from one mode or medium to another? Or is this the production of something new each time?

In recent work, artist and philosopher Erin Manning (2020) develops the concept of 'approximate proximity' as 'a way of speaking about two divergent planes, not converging as though they could become one, but meeting at the differential of their potential for the approximate' (p. 6). We had considered the concept of approximate proximity last week when trying to elaborate the meeting of different vibrational patterns in the sound field, while paying attention to a proxemics or 'closeness' of the sound field which is never fully measurable. This week we re-encounter approximate proximity as a way of attuning to incalculable and barely perceived relations that gather around and between bodies, sounds, and things. As the children create their drawings there is a sense that the marks on the scraps of paper are *gathering* around each sound (Figure 3). A gathering of approximate sensations, partial and anexact relations, never fully articulated, referable, or commensurable. Approximate proximity helps us express an immersive gathering of *potential* relations between sounding and listening-> listening and marking-> marking and seeing-> seeing and sounding, and so on.

Approaching the relation between sounding and marking through approximate proximity necessarily disrupts any firm distinction between discrete *modalities* of sensation, for instance, of vision, hearing, taste, hapticity, kinaesthetics, and so on. What we encounter as the 'sound field' cannot necessarily be distinguished from a field of vision, olfactory, or tactile sensations. Even if we consider sound specifically in terms of its vibratory physicality (particular frequencies and wavelengths), sonic vibrations always presuppose a sensory 'milieu', 'atmosphere', and 'surround' through which they modulate, resonate, and attenuate (Figure 4). In the children's transition from sonic vibrations to mark-making, the body seems to perform the role of a medium or instrument of translation from one modality to another. But this differential mediation through the body is



Figure 3. Translating the sounds of Birrarung Marr into scores that can be transposed onto maps of the riverbank for future listeners.

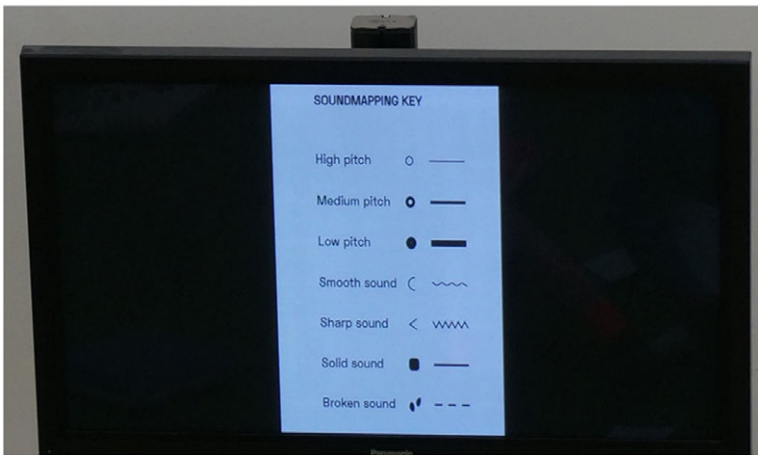


Figure 4. Example of a key showing the translation of different sonic intensities provided by artists, however children were encouraged to develop their own gestural translations of what they heard along Birrarung Marr.

only *approximate*, and never fully realised. Approximate proximity therefore gestures toward a certain ‘amodality’ of sensation (Massumi, 2002), closer to synaesthesia than any direct translation between modalities of perception. The term ‘attunement’ also carries this sense of amodality, as an environmental awareness that is not reducible to one sense or another.

As children gather on the floor in ArtPlay, we get a sense of this amodality as the marked scraps of paper get mixed up in the metal container. The marks are no longer tethered to the sounds they had gathered around. They have become a collection of bits and scraps of sensation, a floating system of asignifying expressions. But then, one by one, the bits are drawn out of the container by a child and held up for the rest to see. The connections between specific sounds and markings are rearticulated, but with a new vocabulary. ‘This one’s got a consistency to it’ one child says. ‘It’s chaotic!’ says another. ‘Exciting!’ ‘It’s really intense.’ ‘This one’s got a full intensity to it!’

Intensity

Children keep raising the concept of ‘intensity’ in this series of workshops. What do they mean when they say that a sound has ‘a full intensity’? Our sense is that a study of intensity can help us get closer to the felt experience of immersion and its implications within environmental education contexts.⁴ Often intensity is used to express a certain *dynamic quality* (contrast) and *degree* (magnitude) of sensation and feeling associated with some aspect of an event or experience as it registers in the body. We might think, for example, of the intensity of the sound and light of a police siren coming up behind us, or the heat of an argument beginning to rise from a calm background. In relatively simple terms, we could say that something registers as intense when it stands out from a background, or ‘differs’ from a set or series of associated things within a particular field of relations. Media scholar Mark Hansen offers a helpful elaboration here, drawing on Whitehead’s process philosophy:

Intensity differentially expresses the qualitative dimension of sensibility across all levels of experience. . . it is through intensity that the sensibility of the world is first felt: intensity is the first qualification of worldly sensibility or, more precisely, of the ‘shocks’ or ‘primal impressions’ that inaugurate it. (Hansen, 2015, p. 103)

Intensity, in this sense, can be indexed to the sensation of a felt contrast, as a sensible quality or ‘shock of difference’ that suddenly comes to the foreground of experience. Hansen uses the term ‘worldly sensibility’ to describe the teeming totality of sensations that make up the ecological background against which any particular intensity comes to the fore. Yet it’s also helpful to consider instances when intensity lurks in this background. Consider the intensity of quiet. Quietness is intense precisely because there is a backgrounding or attenuation of noise. Perhaps this is because quiet is full of potential for what *could be* sounded, but isn’t heard. There is a speculative or submergéd intensity to what is backgrounded as inaudible, just as there is a palpable intensity to that which is foregrounded and therefore ‘audible’. Importantly, the thresholds of audibility can range wildly across different bodies and recording technologies, which means that quiet for one might be very noisy for another.

To investigate questions about the role of intensity in generating experiences of immersion during the *Sound Capsule* project, we turned again to Bergson as an ‘early adopter’ of intensity as a concept that has continued to resonate and provoke research in the contemporary posthumanities. Writing at the turn of the 20th century, Bergson was already critiquing the emerging field of ‘psychophysics’ which was attempting to measure the intensity of sensations through reductive models of stimulus-response. This psychophysical model still persists today in psychology and the cognitive neurosciences (cf Alcaro, Carta, & Panksepp, 2017), where intensity is typically indexed to the degree of internal response to a discrete external stimulus (e.g. louder sound = higher intensity response in the ear/brain/body). Bergson challenged this simplistic model by proposing that intensity is not only related to a measurable *quantity* of stimulus, but also to the incalculable *quality* of an affective environment that colours the feeling of a particular sensation. He referred to this as ‘intensive magnitude’, as it includes both the measurable (extensive) quantity of sensation (brightness of light, warmth of air, loudness of sound) and the *intensive* quality of feeling that gives the sensation its particular affective texture, tonality, and ‘colour’.⁵

In the Sound Capsule workshops, children’s translation from sound to image can be related to Bergson’s critique of stimulus-response models that try to ‘measure’ intensity as quantity of stimuli. We might suggest, for instance, that children’s use of the term ‘intensity’ as they transpose a series of sounds through mark-making is in keeping with Bergson’s notion of intensive magnitude. Their engagement with this activity acknowledges the complex intensive relationships between sensations as expressions of an intensity that is environmentally dispersed rather than personal (de Freitas, Rousell, & Jager, 2020; de Freitas & Rousell, 2021), thus challenging any simplistic and reductive association between external stimulus and internal response.

Let's Listen

How then does this discussion of intensity inflect our understanding of immersive listening within the *Sound Capsule* project? Importantly, it means that listening is treated as an intensive *composition of sensation* (cf Deleuze & Guattari, 1994) through the environment or milieu, rather than just a passive reception of signals from the outside world. Artist and researcher Andrew Goodman makes a similar argument in a recent paper drawing on Whitehead's speculative empiricism:

I want to propose that the act of listening or audition is an autonomous act of composition not reception . . . audition is an autonomous activity that draws on but is not defined by the independent sound event. This involves a resonance with a difference, indeed a resonance *defined* by difference, whose beauty lies in the *intensity* of this difference. (Goodman, 2019, p. 44)

As Goodman suggests, the *intensity* of a particular sound or set of sounds is located in the difference between the physical sound event itself (as vibration) and its co-composition with the affective states (or, more accurately, *transitions* between states) of the listener(s). These listeners could be human or nonhuman, and so the question remains as to who or what constitutes a listener. Does a building listen to the sounds that pass through and reverberate its walls? Does a microphone hear the sounds that pass through its diaphragm? Regardless, if we hang on to this concept of intensity as 'resonance with a difference', we can see that intensity is capable of *passing through* one sensation into another. As exemplified in the *Sound Capsule* scoring activity, *sound* (as intensity) can become *image* (as intensity). One is an extension of the other (intensity is physically extended in space and time, what Bergson calls 'extensity'), but the difference produced by this extension is accompanied by a *new quality* of intensity that wasn't there before.

This 'propagation' of intensity from sound to sound, image to image, space to space, body to body, sensation to sensation, feeling to feeling, is akin to how many Aboriginal cultures understand and partake in complex ecological worlds of immersive experience. The act of listening is often a crucial tool for attuning to these propagations of intensity across an ecology of more-than-human sensation. Again, Bawaka Country invites us to come and listen to Country with care, as a place where everything speaks in many different voices.

Let's listen. Do you hear the wind in the trees? The water on the beach? The splash of the fish? That is the wind, the trees, the water, the sand, the fish communicating. They have their own language, their own Law. Sometimes they are sending a message to humans. Sometimes they are sending a message to each other. Humans are not the centre of the universe, you see. Humans are only one part of it. Humans are part of Country along with the mullet, the tides, the moon, the songs and stories, along with the spirits, the plants and animals, the feelings and dreams. (Bawaka Country et al., 2015, p. 273)

Back at ArtPlay on Wurundjeri Country, children's mappings of what they hear along Birrarung Marr could also be considered immersive cartographies of more-than-human sensations and intensities. They are maps that show how intensities propagate and gather within a shared sensory ecology or immanent 'plane' of worldly sensation (Figure 5).

Landing Sites

The following weekend we return to the same sites along Birrarung Marr that we had visited before. There is a sense that the sites recompose themselves as we enter them, snapping back into very similar sound signatures as before. Deleuze and Guattari (1994) used the musical concept of



Figure 5. Children's multilayered mapping of sonic intensities along Birrarung Marr.

the 'refrain' to describe the rhythmic repetition of environmental elements in the composition of a space or territory. How might we consider the very instantiation of 'site' as a living refrain rather than a simple 'location'?

Speculative architects Gins and Arakawa (2002) used the term 'landing sites' to describe the co-constitution of situated environments and bodily experience. For Arakawa and Gins, a site is not a simple location but a set of possibility conditions for landing the 'architectural body', a body that includes its processual extension and intensification in/as space and time. A landing site is defined not as an identifiable location, but as a zone of confluence where 'what emanates from bodies and what emanates from architectural surrounds intermix' (Gins & Arakawa, 2002, p. 61). In other words, a landing site occupies a zone of approximate proximity between body and environment, a zone shot through with and sustained by affective forces and intensities. Manning and Massumi (2014, p. 24) elaborate on how body and site 'land' each other under certain conditions, such that the body and the surrounding environment apportion themselves out for the other. The landing site is, in this sense, not simply 'there' waiting to be discovered. Rather it occurs suddenly, 'in a flash' (Gins & Arakawa, 2002), as a confluence of body and surrounds that instantiates in just this way, at just this time.

Arakawa and Gins also describe landing sites as nested. 'Landing sites abound within landing sites' (p. 9). One landing site gives way to another. In the Sound Capsule workshop we notice this especially when we step out onto a pontoon that is suspended just a metre or so from the banks of the Birrarung (Figure 6). We have been there several times before to listen with the children, but today there is a palpable sense that everything changes as soon as we step onto the pontoon. The sense of wobbling movement, the detachment from 'land', the quieting of urban noise, and the sudden foregrounding of the water's watery sound, smell, and tactility. A place of bodily refuge and sensory suspension nested in the midst of an urban confound. The pontoon lands the body *at the very moment* that the body lands the pontoon. The pontoon lets our wobbling bodies enter into confluence with the wobbling flux of the water. The pontoon becomes a landing site for immersion which generates a 'resonance with a difference' (Goodman, 2020), as a propagation of intensity from water to wood to ear to hand to paper, and so on. Landing sites help us understand how immersion is not just expansive (like throwing seeds to the wind) or insular (like curling into a blanket), but also *intensive*: spiralling, nested, circulating through space-times, landing again and again, but differently every time.



Figure 6. Children, sound artists, and 'Future Bob' listen to the sound field on the 'landing site' of the pontoon.

Burial

Several months later we reconvene with children and their families, the sound artists, and members of the public to bury the sound capsule in a grove of trees behind the ArtPlay building. The burial is accompanied by a polyphonic orchestra of children playing found instruments as the artefacts are carefully transported from ArtPlay out to the burial site: a vinyl record and M disc (composed of ground rock) containing recorded sounds of Birrarung Marr; letters to the children of the future; and a graphic scoring and multilayered visual map rendering past, present, and imagined future sounds of Birrarung Marr. The artefacts have been vacuum sealed in a steel capsule to preserve them for at least 100 years. Four children carry the sound capsule over and solemnly lower it into a hole in the ground, as the disparate percussive rhythms of the child-led orchestra fill the air (Figure 7).

These speculative immersive experiences are opportunities for children to perceive themselves not as individuals that precede every temporal experience as moments in time, but as the emergence of bodies in relation. These events teach us that experience is not something you 'have' but rather something that *happens*, something that makes it possible for the world to become what it is (always becoming). Drawing on Whitehead, Mazzei (2021) similarly concludes that 'without experience (sensing), there is no being, without a sensing of experience by an entity, there is no becoming. Without becoming, there is no existence' (p. 562). Through a process of listening and learning with the more-than-human sound field, children learn to perceive themselves as sensing bodies not preceding the immersive experience, but rather existing or emerging from encounters in an environment out of which they and other bodies collectively sense and become. This experience of immersion is not just here and now, and for *us*, but also for (and *in*) the past and future as constitutive material elements of the present as (nothing but) an environmental field of more-than-human experience.

Bawaka Country et al. (2015, 2022) teach us that the sound field acts as a river water song that animates becoming in all its forms. Speculative immersive experience through sound is, was, and always will be a relational starting point for co-existence. Immersive listening helps us sense ways to shift habitual patterns of perception, it nourishes more-than-human relationships of care, and brings new intensive contrasts and qualities of life into existence. Here, along the banks of the Birrarung, children learn speculative practices of *listening for the future*, of listening for the 'what else' and the 'not yet' which are the immanent touchstones of postqualitative inquiry (St. Pierre, 2019).



Figure 7. Burying the Sound Capsule as a gifting of speculative immersive experience to future listeners.

Conclusion: Seeding and Letting Go

This article has followed a process of conceptual and sensorial drift across a series of immersive listening experiences along the banks of the Birrarung Marr in Naarm/Melbourne, Australia. We have navigated an open series of confluences between Indigenous and non-Indigenous philosophies of listening and becoming as ways of rethinking the role of immersion in environmental education. Thinking with Bawaka Country et al. (2015, 2020, 2022) and the Gay'Wu Group of Women (2019), we have considered how the sound field constitutes a spiralling plane of immanence within Aboriginal philosophies and lifeways that have sustained balanced relationships within more-than-human ecologies for millennia. To the extent that the *Sound Capsule* project cultivates practices of speculative attunement to the sound field as *more-than* what is audible to human listeners, it offers ways for children to engage with a sensorial and conceptual regeneration of the Birrarung waterway as a confluence of more-than-human intensities and 'novel togetherness' amongst creatures (Whitehead, 1978, p. 21). And yet this event of novel togetherness is also subject to what Whitehead terms a 'perpetual perishing'. The burial of the sound capsule effectively channels its intensity into a future beyond our lifespans. It is, quite literally, a gift of intensity to the future

and to a people who are yet to come (Deleuze & Guattari, 1994). In this way, the *Sound Capsule* project creates an event of intensive confluence where many sounds meet and are let go, much like the Birrarung itself.

In his book *Emergent Ecologies* (2015), Eben Kirksey writes that younger generations are learning to care for multispecies worlds as ‘emergent assemblages by seeding them, nurturing them and ultimately letting go’ (p. 15). These constitute wild and emergent environmental pedagogies that resist attachment, ownership, and control in favour of regenerative ecological practices that produce ephemeral materials and creations. The speculative ethic that animates such emergent ecologies invites us to participate in these wild ecologies, *but always to let them go their own way*.⁶

Learning to let ecologies go is perhaps also one of our greatest challenges in facing the violent consequences of climate change caused by the colonial-capitalistic expropriation of Earthly life. In the context of environmental education, this calls on us to find ways of cultivating diverse educational communities capable of regenerating damaged and decaying ecosystems and lifeways *without attaching ourselves to them*. Our work with children and artists along the banks of Birrarung Marr offers a small set of sonic openings for crafting immersive experiences that respect the value of more-than-human life beyond present uses, needs, desires, and circumstances. These openings gesture toward a new and different trajectory for environmental education that is grounded in philosophies of immanence rather than transcendence, where the focus is on listening, seeding, cultivating, and *letting go* of the immersive experiences we share with so many others.

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Notes

1 We would like to thank the Gay’Wu Group of Women and Bawaka Country for sharing their knowledges with us through their article contribution to the *Qualitative Inquiry* special issue on Posthuman Creativities (co-edited by Daniel X. Harris and David Rousell). It is important to acknowledge that songspirals are traditionally ‘women’s business’ within Yolnu culture, and that as non-Indigenous (*napaki*) researchers our engagement with songspirals, *bala go’lili*, and other Yolnu concepts only reflects the very surface layer of this knowledge which has been generously shared by Gay’Wu Group of Women (2019) and Bawaka Country et al. (2015, 2022) through their publications.

2 If nature *thinks*, as Whitehead and Bergson propose, then what we are accustomed to calling the ‘environment’ is as much a plane of thought as a field of material forces and vibrations. This notion of an atmospheric or environmental thought has been conceptualised as ‘environ/mentality’ in Rousell’s work on immersive cartography (2021).

3 See also Shannon (2020) on the pathologisation of neurodiverse children with respect to hearing, sound, and noise, as well as Manning’s (2020) recent collaborative work with members of the deaf-blind community, including deaf-blind poet and philosopher John Lee Clark.

4 In the contemporary field of affect studies (a field broadly focused on studies of emotion, feeling, sensation, and perception), the concept of intensity is often defined somewhat differently depending on whether researchers are drawing on philosophical (Bergson, 1889; Manning, 2020; Whitehead, 1978), psychological (Blackman & Venn, 2010), sociological (Clough, 2018), anthropological (Strathern, 2020), or media/arts (Goodman, 2020; Hansen, 2015) approaches. Yet process philosophy continues to offer primary resources and applied conceptual toolkits for research into affective intensity, as a field that has been (at its best) capable of creating concepts that deftly manoeuvre across the sciences, arts, humanities, social sciences, and everyday life, without reducing any of these domains to an essential or universalising truth (see, for example, Deleuze & Guattari, 1994).

5 In his first book *Time and Free Will*, Bergson (1889) describes how intensive magnitude saturates the environment in two coextensive ways. For instance, the intensity of air temperature can provoke particular affective states (getting angry on a really hot, humid day!), but the intensity of an affective state can also shift the whole feeling of any number of sensations which it permeates (anger makes the hot day feel even hotter!). More specifically, Bergson suggests that the quality and quantity of environmental intensity can be intertwined according to particular sets of sensuous and experiential characteristics. In other words, the differentiated modalities of the senses (hearing, seeing, tasting, smelling, touching) are continuously interwoven with the *amodality* of affective feelings and pervasive emotional atmospheres.

6 Elsewhere, in his book *Poetics of Relation*, Antillean poet and philosopher Eduard Glissant (1997) writes of an ethics of 'giving-on-and-with' which grew as a mode of survivance under the most brutally immersive conditions of colonial violence. For Glissant, the gesture of giving-on-and-with resists the coloniser's seeking 'grasp' for transparent knowledge of the Other and the urge to 'grab their surroundings and bring them back to themselves' (p. 192). Glissant proposes an 'ethics of opacity' as an alternative to the colonial grasp for transparency and control over the environment, suggesting that it is the networked complexity of Relation which 'expresses the ethics' while remaining opaque to the probing grasp of Western knowledge structures (p. 193). Glissant's gesture of giving-on-and-with offers a way of respecting the 'right to opacity' within ecological relationality as 'an open totality evolving upon itself' (p. 192).

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