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Provocations: Design and the socio-materialities of dynamic climates in the everyday

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Abstract

Adapting to the extremes of rapidly changing climate often relies on datafication, measurement, and calculation, resulting in 'solutions' modelled on business as usual. Rarely does the conversation about adaptation stray into the territory of everyday experimental practices that explore the social imaginaries of coolth, weathering and dynamic hormones. In this paper, we propose that interrogations of intimate scenes between people and things—where change is rehearsed—are too often neglected in design debates on climate action. Abby Mellick Lopes reflects on porous household objects designed for practices of coolth that have fallen out of use with the advent of air-conditioning and refrigeration. Alison Gill explores embodied wearing experiments within the architecture of fashion artefacts, for what they can tell us about the sensations of the weather to come. Katherine Moline asks questions about barely perceptible edges through a robotic wall mobile titled 'The Invisible Threshold' and tests whether we can recover a language of movement from a starting position of stillness and inertia. We propose these objects form coordinates for a new dialogue about the socio-materialities of the weather that reconnect embodied experiences, spatial practices and dynamic climates in the everyday.

Keywords: dynamic climates, dynamic hormones, coolth, weathering, gender politics

Introduction

As a new collaboration we are exploring dynamic climates that extend from the interior experience of bodies to the intimate scene between people and things to the dwellings that 'clothe' us and protect us from a climatic environment that is increasingly politically charged. Our starting position for the collaboration was to better understand the logic of dynamic hormones, spaces and experiences and reframe how our research connects relationally to the climate 'out there'. This paper outlines a scene we believe is missing from the public discourse about dynamic climatic change (inside and out), which tends to hover above rather than participate in the worlds in which people actually live, move and breathe.

The paper brings together our research practices across different projects related to dynamic climates in the everyday as background for our project that seeks to expand the socio-material, climate and climactic imagination from a perspective informed by gender politics. As a starting point we reflect on a series of provocative objects that 'speak' to the dynamic climate in the everyday. Abby Mellick Lopes reflects on porous household objects designed for practices of *coolth* that have fallen out of use with the advent of air-conditioning and refrigeration. Alison Gill deconstructs the clothed boundaries of our sensing wearing bodies for what they can tell us about our capacities to weather the 'weather to come'. Katherine Moline asks questions about barely perceptible edges through a sensored and responsive robotic soft sculpture titled 'The Invisible Threshold' to consider whether we can recover a language of movement from a starting position of stillness and inertia. We propose these objects form coordinates for a new dialogue about the socio-materialities of weathering that reconnect embodied experiences, spatial practices and dynamic climates in the everyday.

Our collaboration is made up of diverse threads. Rather than creating friction, often the coincidences and alignments between our differences spark new angles for reflecting on our research. Two observations by JK Gibson-Graham and Jacques Rancière go some way towards showing the productive tensions interwoven in the Socially Engaged Design Research Network that we shall elaborate in the following provocations:

> If to change ourselves is to change our worlds, and the relation is reciprocal, then the project of history making is never a distant one but always right here, on the borders of our sensing, thinking, feeling, moving bodies. (Gibson-Graham, 2006, 127)

> The aesthetic revolution dismissed the opposition of the active person and the passive person on the side of the "end in itself." As defined by Schiller, free play is an activity that is an end in itself but it is also an activity available to everybody. It can also be thought of as a mode of collective action. (Rancière, 2019, 13)

Sensing practices of coolth

In the following section, I'll introduce three household objects in wide use before mid-century, each a material convergence of diverse histories of production, practice and meaning. I will then explore how each object discloses an everyday world attuned to the dynamics of climate in ways that contest the "thermal monotony" (Healy, 2008, 315) of climate-control and technical cooling that produces bodies habituated to stillness and inertia.

My exploration works with ideas of *wearing* and *weathering*; *comfort* and *coolth*. The first couplet is drawn from my previous work with Alison Gill; in particular the article 'On Wearing: a critical framework for valuing design's "already made"', in which we think through the double movement of wearing: the social practice of wearing designs, and the material traces of wear that remind us that in spite of the separation of design disciplines, objects of design are never alone in the world but rub up against each other in telling ways, creating indices of use, cultures, worlds. *Weathering* introduces into this dynamic the

weather as a volatile actor with its own animate and animating force and agency regarding social practices. My use of the terms *comfort* and *coolth* draw on my work with the Cooling the Commons research program, which critiques climate-control as an adequate response to climate-change and positions *coolth* as an expression of local, relational and ontological sensitivity, shifting from a view of things as objects toward things as participants in social commons. Coolth is a late nineteenth-century term that has fallen out of common usage. It is associated with *feeling* cool and *being* cool, linking a state of mind, bodily experience, practice and place. We seek to recover the plurality of coolth from its commoditised manufacture via air-conditioning, to describe and defend the creative effort of *making* coolth as a habitual attunement to dynamic environmental conditions and atmospheres (Mellick Lopes and Healy, 2021).

The objects

My three objects were in everyday use before the mid-20th century, when the magnitude and rate of the "human imprint" on Earth systems both in terms of industrial capacity to produce more stuff and globally move materials and people, accelerated dramatically (Steffen et al., 2015, 82). In the mid-1950s products like single-use plastics, antibiotics, artificial fertilisers and air-conditioning became much more widely available, inaugurating big changes in everyday life and economic activity underwritten by massive expansion in the extraction and burning of fossil fuels. The objects I have chosen to reflect on, conjure a world before the "great acceleration"; before the idea of the environment as something outside the human was made possible by a "will to enclose" (Foucault, 1984, 7).

These objects all point to humble efforts to actively create coolth in the face of unrelenting heat in a place – the continent now known as Australia – where continual discomfort was perhaps a troubling reminder that this was not our place to inhabit but was stolen from Indigenous custodians of Country.

The Ice box

The ice box or 'refrigerator' is a timber box with two interior compartments that was used to prolong the life of perishable food and was in common use in cities and rural communities in Australia from the mid-nineteenth century to the 1950s. The one I am scrutinising is sitting next to the fridge in a semi-rural kitchen in the Hunter valley, 130 km north of Sydney. It now keeps a box of Weetbix, Lebanese bread and a paper bag of flour out of reach of mice. A hinged lid on the top of the box opens to a zinc-lined compartment that once held a block of ice, with space for insulating material such as charcoal, hair, wool or later asbestos, to help slow the melt (Smith, nd).

The lower compartment was where perishable food was stored; a cast iron latch – still a pleasure to use – seals and secures the box firmly at the front. A door at the bottom of the box would have led to a tray to catch piped drips from the slowly melting ice block. Ice that had once been cut from ice-lakes around Boston in the US and imported to Australia, was manufactured locally from the 1890s (Isaacs, 2011). Standard 30cm blocks of ice were delivered to households on the back of a horse-drawn cart once or twice a week; the sound of the approaching horse no doubt also meant fresh, creamy milk was close by. The

'iceman', wearing an open-sided hessian sack over his head, carried the drippy block into the house on his shoulder (Simpson, 2017, np). I imagine the lush and alien quality of the ice-block arriving in this uninsulated weatherboard house during the summer one hundred years ago, a precursor of the "white efficiency" (Shove, 2000, 309) that would arrive in the decades to come and that now hums away alongside the repurposed ice box, a missive from another time.

Figure 1. Icebox. Photography: Abby Mellick Lopes.

The Meat Safe

The meat safe is a perforated cylindrical cupboard made of sheet iron and galvanised mesh, designed to hang in a cool, shady place such as breezeway, verandah or in the branches of a tree. Its purpose was to keep meat (in the 1920s this was likely to be mutton or rabbit) cool and protected from flying insects. Air would flow through the little holes, cooled by wet cloth hung over the safe, and circulate around the meat. A tin funnel that could be filled with water was soldered onto the hanging hook to keep ants at bay (Simpson, 2015).
The object evokes a thermal architecture that rapidly disappeared with the advent of air-conditioning and the economisation of the house 'envelope' after the second world war. The verandah and breezeway provided shade and room at the boundary of inside and out, creating a "river of air" (Rahm, 2024) through the house and a ventilated living space in summer; later, flyscreen might have been added to create a more comfortable outdoor room.


Figure 2. Meat Safe; Photography: Abby Mellick Lopes.

Uncle Ernsts' Chair

I'm an Australian woman with Lebanese and English heritage. My English mother was born in Bangalore, India under the British Raj, the shameful period of British colonial rule in India which began in the mid-nineteenth century and ended after the second world war. This chair, which was always known in my family as Uncle Ernst's chair, is now in my lounge room in an inner western suburb of Sydney but was once in the family home in a tea plantation in Bangalore. It is a troubling object in this respect, conjuring an image of Uncle Ernst dressed in climatically appropriate colonial whites, sitting on the verandah, sipping tea from Royal Worcester fine bone china, and surveying 'his' plantation. This is a reminder of colonial histories that I am connected to, and a reminder also of British cultural imperialism more generally: the chair, which as designer Ralph Caplan said "is the first thing you need when you don't really need anything" (Caplan 1978 cited in Ingold 2004, p.323) was an object of civility, that the British thought distinguished them from the 'uncivilised' Indians. The use of cool rattan tells us that while the chair was made in Britain, it was designed for the hotter and more humid climate of India. I can't help but respect its durable qualities, lasting in use through several generations and sea voyages from England to India, back to England and finally to Australia.

Figure 3. Uncle Ernst's Chair. Photography: Abby Mellick Lopes.

My three objects are not ends in themselves, but mediators that call up bodies, practices and places. They are signs of the improvisory potential of coolth. They are also colonial objects, demonstrating the importation of climatic design and social practices from one place to another, where the weather constantly threatens to overwhelm. Nonetheless, these objects are designed to breathe. They are open to their situation in ways that assertive climate control is not. The contemporary posture regarding the weather is to retreat indoors into the 'anywhere' environment of air-conditioned comfort set at a standard 22 degrees (Shove, 2003, 36). Within this artificially isolated environment of set and forget coolth, recurring patterns of practice generate micro-hostilities and aggressions that compromise our capacity to move and breathe, often under the ironic guise of delivering *comfort*. But as researcher on disability and architecture David Gissen (2006) argues, the effort to thermally disconnect interior and exterior space in the history of architecture was largely ideological. The circulation of people, breezes, animals, smells and various exhalations of buildings is impossible to suppress.

In my reflection on a time before the great acceleration of the mid-1950s, I resist a nostalgia for past ways of being and the many socio-cultural and technical discomforts we would not seek to revive. Instead, I aim to learn from a more improvisory way of being in the world, a way of being that tolerates mild discomforts and the political ways of being that originate in our sensing, situated bodies. In full recognition of the historical world we have created with the 'already made' (Gill & Mellick Lopes, 2011) there is no going back, but there might be something to learn for the design of more convivial environments in which we can all breathe and move.

Deconstructed experiments with the intimacies of clothing architecture

This section offers clothes-oriented perspectives about everyday adaptations to weather, drawing from the conceptual coordinates of my research about deconstructed, experimental fashion, and wearing clothes as architecture for bodies. Like 'Uncle Ernst's chair's' travelled and porous past, any engagement with the present fabric of the everyday will be un-seamless in acknowledging the cooling 'intelligences' of already-made clothes. To call attention to how clothes slowly adapt in the everyday, appear to 'hold' experience and intelligence, is to go against the grain and pace of an ever-accelerating global system that 'imparts' new trends and smart looks for fashioning 'now' with replacements coming from a fashion-forward direction, whereby tomorrow's fashion turns today's into yesterday (Vinken, 2010, 143). In the spirit of our collective concerns for supporting diverse embodied life in climate extremes, and learning from coolth's more improvisory and deferred way of being in the world, I turn to the boundaries of our sensing moving bodies to explore change by moving backwards towards future selves, cultures, and worlds (after Gibson-Graham, 2006). So often called a second skin, clothes are the most intimate, external 'dwelling' for our bodies that attend mutually to the inside and out at a barely perceptible boundary. i.e interacting with the outside environment as the surface expression for identities, and as an inhabitable architecture for the body inside.

I reflect on the capacity of everyday and experimental fashion to expand a social imaginary about wearing and weathering as materialising actions, and a dialogue about adaptation by design to dynamic climates. That is, I think of everyday dressing as experimental practice where adaptation to climate variation is rehearsed, on the one hand, by everyone (within their financial means to put together a 'wardrobe' that balances concerns of personal creativity, style, sartorial conventions and requirements, comfort, and 'survival'). On the other hand, everyday dressing is a deeply political individual and collective socio-material achievement and a mark of economic difference, in the troubling, inequitable conditions of climate emergency and political polarisation between the haves and have-nots needing thermal comfort and shelter.

Like many, I live with increasing humidity in Sydney, moving between climate-controlled work and inside public spaces, and hot or steamy outsides, and experience an internal thermal dynamic punctuated by flaring sensations of heat and chill. A so-called 'hot flush' can challenge the boundaries with clothing unexpectedly and intensely, 'testing' how quickly a garment can be removed or ripped open to ventilate the surface body from heat flares arising from within. Always 'unsettling' at the very least, a flush is a radiant reminder that 'living a feminist life' is not about adopting new codes of conduct for the workplace, but rather asking ethical questions about how people can reside better in spaces and dwellings that are not intended for us (Ahmed, 2017). It was not fluctuating thermal comfort that motivated deconstruction fashion's purported liberation of clothing from the utility of 'wearability', yet I'm frequently thinking about their experimental fashion of broken seams, hacked armholes, aged and holey fabrics, and detachable sleeves as improvisory 'coolth hacks' with a renewed utility in the climate challenged everyday; as a weather-marked, adaptive, and resilient wardrobe. How might the experimental reworkings of fashion allow

the cooling spots on the body – like wrists, back of neck, armpits, and the inside of elbows, knees, and ankles – to receive ventilation?

Figures 4-7; Experiments in wearing a white cotton shirt to catch the breeze. Clockwise top left to bottom left; the pleated opening across the back shoulder seam is used to ventilate the back-body; inside seam of sleeve showing buttons from the elbow to armpit that do not open; demonstration of sleeve opening to the elbow and the clipping of wings. Photography: Alison Gill.

I've recently re-engaged with a long-sleeved white cotton shirt – purchased five years ago for its deconstructed aesthetic of exposed seams – because of an 'opening' in a wide pleat

across the back which I appreciate as a 'structural intelligence' and an affordance of dressmaking (or *un*-making in this case) to ventilate my back and catch a cooling breeze (See Figure 4). I perceive the limitations of the sleeve design to be that the buttoned 'exposed' seam isn't hacked enough (it doesn't open above the forearm), even though the buttons appear to extend from the wrist beyond the elbow towards the armpit (Figure 5). This constraint has clipped my wings at the elbow (Figure 6 & 7) and yet my imagination soars on that cooling breeze to consider 'what if' ventilation could reach the underarms. To think of our clothes as experienced design 'brackets-out' the clothes so often taken for granted in the everyday, to look more at their barely perceptible edges of coolth improvisation – such as the pleasurable cooling sensation of a worn fabric on contact with the skin's surface – and to underscore the 'hybridising work' of wearing as design adapting through use (Gill & Mellick Lopes, 2011, 309).

Writing on the vocabulary of deconstruction fashion techniques in 2016, 2020 and 2025, I've argued that an exposed seam in garment de(con)struction is a radical element, a productive third term, whose undecidable hinging and double movement can take us to both sides of an interface – inside and outside, depth and surface, meaning and material, past and present – when 'double-thought'. Such a radical seam is engaged here not only to think about the relationship of living, settling in a place, with its other of unsettling, becoming out-of-place or needing to leave a place. It's also prompted me to imagine what's made possible, and not, through dis-inhabiting, overheating, displacement, un-residing in a place. For example, new guidelines from the Equality and Human Rights Commission in the UK stipulate workplace 'reasonable adjustments' for people going through menopause, "amid concern over the number of women leaving their jobs due to symptoms" (Badshah, 2024). This change program will require a readiness for widespread listening to the experiences of what Moline's important research undertakes in *EEASI: The Change@work*. The double-movement of de(con)struction, or the bidirectionality of *un*-making within the garment, is a barely perceptible deferral of time and space to listen so that the experiences, improvisations and intelligences of wearing can be revealed and acknowledged such as experiences in the workplace.

In abstract terms, *un*-making is both an acknowledgement of the dressmaker's labour (usually seamlessly concealed in the finished garment) and un-doing the experienced garment through wearing to reveal how this labour is underpinned by knowledges of garment de(con)struction; seams can never be fully concealed, essential dressmaking techniques which are defining traces of a garment's structure and shape, at once holding the fabric's surface and embodied depths together, and opening the inside to the outside. Just as de(con)struction is written in this way to highlight two terms in one, the privative '*un*' in *un*-making is italicis ed to show that its work is to suspend or 'hold' in wearing the oppositional nexus of making and destroying, accumulations and weathering, in paradox. By simply calling attention to this work, an exposed seam is one that reveals this double movement, like the white shirt with buttons accentuating the seam on the inside of arm as if opening its inside to outside conditions of weathering, and the sleeve's adaptability of accumulating new shape and ventilation like a long wing. If the sleeve opened to the arm pit it could make the difference of leaving a place or not, because the shirt can't be removed in

a workspace. Included within this double-movement are the conditions of possibility for alternative understandings of a garment's agency, and of failure, or the risk that garments are simply left ravaged or misinterpreted as an intentional destruction, a nihilistic, uncompleted and an unwearable wing or cape. So, any ecology of wearing can make available both possible failings and alternative practices.

But this white shirt's seam is only aesthetically 'exposed' rather than an actual opening beyond the elbow. Unsettled by this constraint, I want to *un*-make the seam and add working buttons, holes or clasps all the way to the underarm so that the fabric opens. Opening and re-attachable sleeves could also address a recurrent problem of soiling at the armpits from perspiration, which can be more pronounced in a white shirt (a second limitation of a white cotton shirt often appraised as a cooling colour and fabric). What Cowan refers to as the "senseless tyranny of the spotless shirt" (cited in Shove, 2003, 126), such prophylactic measures of erasing any accumulative marks of wear – what we could call in this instance 'weathermarks' after Neimanis and Hamilton (2018, 82) – are part of the restorative labour of cleaning. The labour of laundering which 'recovers' a worn item to at least appear unused is a socio-culturally appropriate expression of care, and even symbolically necessary, as Shove shows (Shove, 2003). When we wash and iron our clothes within the fabric of expression of everyday life, we are visually demonstrating our care of the bodies, things and spaces in our charge (Gill & Mellick Lopes, 2011, 315), to which we stress the considerable concerns around resource intensity of care practices (e.g. responsibility for water used in laundering). What's more, we have come to appreciate how good it feels to put on clothes that are "nice and crisp and perfectly in shape" (Shove, 2003, 149), and the sensations of clothes being 'worked on' to appear as new. Cleaning and whitening are efforts to recover garments to what they were before wearing, rather than see these wearing practices as adaptation, reinvigoration, or re-pairing of human and non-human relations according to the intelligences and weathermarks of design in use. And in doing so, we are habitually practicing an intolerance to wear – to rubbing, discolouration, stains, creases, tears or impressions in fabric – and inattention to fibre's weave and placemaking, that instead should become important indices and weathermarks from which alternative wearing ecologies can be built, as Mellick Lopes and I have argued elsewhere (2011; 2015). In the words of Neimanis and Hamilton, weathering climate is "learning to live with the changing conditions of rainfall, drought, heat, thaw and storm as never separable from the 'total climate' of social, political, and cultural existence as bodies" (2018, 81).

EEASI: TheChange@Work and The Invisible Threshold

This section provides some background to the research and activism project *Expanding Experimental Aesthetics in the Social Imaginary: TheChange@Work* or *EEASI* for short, that I have contextualised in this forum (Moline 2020) and elsewhere (Moline, 2022; Moline & Clerke 2023; Moline, Drysdale & Newman, 2023; Drysdale, Moline & Newman, 2024, Drysdale, Burton Clark & Moline 2025, and Moline, 2026, forthcoming) as socially engaged research that draws on the radical imaginaries of the everyday. My exploration of experiences of peri-menopause, menopause, dynamic hormones and acute hormonal fluctuations in the workplace emerged from earlier research *Expanding Experimental Aesthetics in the Social Imaginary: A toolkit for co-designing narratives with big data*, a

workshop that invited participants to explore uncertainty about urban myths concerning data and the potential futures it creates (2018). The *EEASI* research and workshops aims to test the limits of design's overdetermined ethos when discussing complex challenges that people find difficult to put into words. To counter assumptions that design's sole focus is problem solving according to an instrumental logic governed by efficiency and profit, the *EEASI* workshop in November 2018 encouraged free play through the misuse of technologies, such as a 360 camera, a PARO therapeutic robot and participants' mobile phones, within the frame of design games defined as 'provisional spaces of co-exploration' (Brandt, Eriksen, Binder, Redström 2015: 235). On the day of the EEASI workshop in 2018 the unexpected temperature of 38.9 degrees shaped the images we created (Fig.8). Our exploration of the uncertainties surrounding the 'unusual extended period of heatwaves' initiated on that day, and which lasted until January (Bureau of Meteorology 2019: 4), prompted me to rethink embodied knowledge while writing about a range of experiments with Ethnographic Surrealism (Moline 2022).

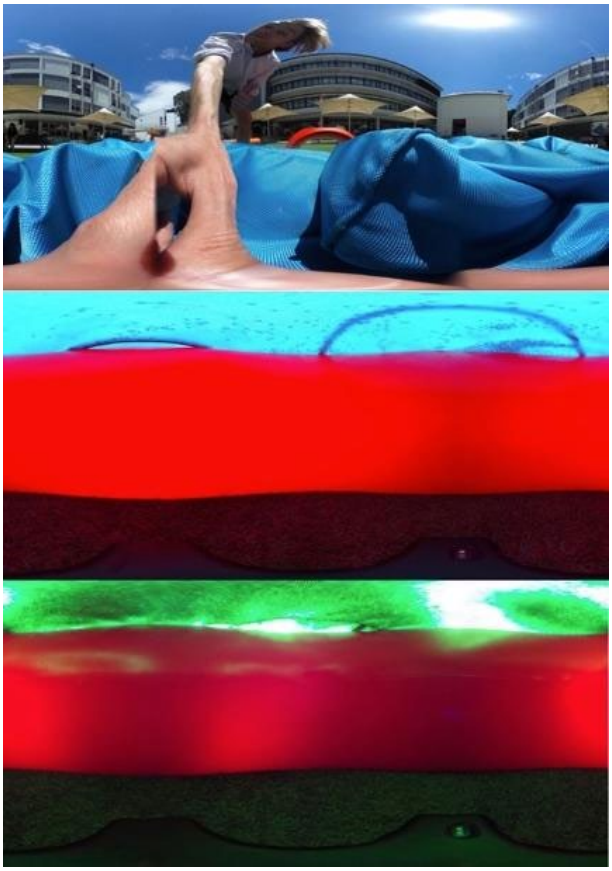

Figure 8. Misusing technology for image making with a 360 camera, a PARO therapeutic robot and mobile phones in the workshop *EEASI: A toolkit for codesigning narratives* (2018). Photography: EEASI participants (2018) and Katherine Moline.

EEASI: TheChange@Work

The title of the EEASI workshops *TheChange@Work*, like a previous series *Myths of the Near Future,* draw on Simone de Beauvoir's insights about the performativity of gender, as summarised in her widely quoted observation, 'One is not born, but rather becomes, a woman', which was initially published in the monograph *Lived Experience,* and later

republished with an earlier monograph *Facts and Myths* as *The Second Sex* (de Beauvoir [1949] 1997). Focussing on the social construction of gendered identities, as elaborated by Judith Butler ([1990] 1999; 2024), in collaborative 'indisciplinary' experiments that explore Jacques Rancière's rejection of sociological reductions of aesthetic practices as merely the expression of taste and class, the Change@Work workshops co-created colours, collages and costumes, supporting participants to express their subjective and unique experiences of the social constructions of hormonal shifts. For example, the colours mixed by participants and the names they gave them in the *EEASI* workshop activity 'What Colour is Menopause?' (Fig.9), exhibited at the UNSW festival *ADA x Health* (2023), go some way to show the diversity of experiences of dynamic hormones by the workshop's participants who identified as cis, non-binary and queer and worked in the arts, technology industries, a food factory, and as outpatients and health workers at the Chris O'Brien Lifehouse, Camperdown. The activity involved participants in mixing and naming colours and was structured to support collaborative action that evaluates social norms and resonates with de Beauvoir's and Butler's observations of the social construction, adaptation and becoming of gender and Rancière's observation of 'free play as a mode of collective action' (2019, 13). Public workshops, such as the *EEASI* research, have been described by Claire Bishop as 'pedagogic projects' which she defines as participatory interventions that 'foreclose the traditional idea of spectatorship and suggest a new understanding of art without audiences, one in which everyone is a producer' (Bishop 2012, 241). More recently she attributed the performativity of interventionist workshops to a tradition of 'art activism, a label for practices that seek to bring about social change' (Bishop 2024, 120). On this basis, the Socially-Engaged Design Research (SEDR) Network that has grown from *EEASI* has been conceptualised as an experimental approach to rethinking adaptation in the context of dynamic climates (inside and out) in the everyday.

Figure 9. 'What Colour is Menopause?' A sample of the 140 colours developed and named by participants in the workshops titled *EEASI: TheChange@Work* (2020 – 2021). Colours: EEASI participants and Katherine Moline.

The SEDR network builds on the partnership of the EEASI project with cultural studies researcher Kerryn Drysdale and sociologist Christy Newman in the workshop '*Queering menopause: adapting creative workshops with queer and trans people experiencing menopause'*, which framed the project as a 'speculative codesign exploration of the social and radical imaginaries of menopause' to 'expand the diverse meanings of menopause with queer and trans people' and find new terms to describe menopause beyond the symbolism of the hot flush (Moline, Drysdale and Newman 2023). The subsequent sociology workshop *Reimagining Menopause: Mobilising radical imaginaries across social, creative and clinical domains* (Drysdale, Moline & Newman, 2024) continued to counter the dominant narratives of acute hormonal fluctuations as difficult and mysterious as this characteris ation elides diverse experiences and conceals the sense of emancipation hormonal change can bring. Reviews of the literature in 2023 (Moline & Clerke) and 2025 (Drysdale, Burton-Clark & Moline) revealed the disservice to queer and trans people, as well as cis people, of current social framings of hormonal wellbeing. Weathering stigma and biases about dynamic and acute hormonal fluctuations involves two kinds of weather (internal and external) and raises questions about whether the dominant metaphor of *hot flush* can become more nuanced to provide space for discussing the transformative experiences that dynamic hormones can bring about. Reflecting on the connections between internal and external climate-change, Abby's discussion of *coolth* and adaptive low-tech and Alison's observations of the double movement of wearing experimental garments resonated with my ideas about fashion as a kind of architecture for dynamic climates, shown in the 'Performing Hormones' activity in the *EEASI:TheChange@Work* (Fig.10). 'Performing Hormones' involved participants in modifying garments and making costumes to perform or act-out their worst moment they or someone they knew had experienced during hormonal shifts.

Figure 10. 'Performing Hormones' through costume making, *EEASI: TheChange@Work* (2021). Photography: EEASI participants and Chantelle Baistow.

***The Invisible Threshold*, 2024**
While reflecting on inter-generational activations towards more expansive understandings of the social construction of dynamic hormones I developed the sensored soft robot *The Invisible Threshold* in collaboration with engineer and systems developer at the National Facility of Human-Robot Interaction Research Marc Katzef. The robot is composed of two high-end motors attached to a CAN-Bus motor controller that drive the movement of a swathe of silk on a pulley. A magnet attached to each motor's axle communicates to the motor controller through pulses that coordinate the robot's responses to inputs from three movement sensors embedded in the wall. If someone approaches the robot it responds as a programmed actor to either move in the opposite direction with a synchronised soundtrack of a thunderstorm, or move towards the person with a synchronised soundtrack of birds singing at dawn or shimmy with small movements left and right to a soundtrack of crackling heat on a hot summer's day (Figs. 11-12). The robot components make it programmable for many behaviours so that it can operate as a dynamic mobile projection screen for the colours, collages, images, images of costumes and excerpts from the transcriptions of the recorded *EEASI* workshops. The combinations of movement, sound and colours create a complex choreography of silk that resembles dancing.

Developing the robot while discussing Socially-Engaged Design Research with Abby and Alison has provoked reflections about the role of aesthetics in action research and Rancière's account of aesthetics that oppose social and disciplinary divisions between theory and practice, thinkers and doers. Although it is not apparent in the photo and video-documentation of *The Invisible Threshold* installed in the National Facility for Human-Robot Interaction, the space is a large high-technology unit (120m^2) that detects movement and limb position through sensors unobtrusively embedded in the walls. As a temperature-controlled space without windows, there are no clues as to the everyday, not even whether its day or night or the weather conditions outside. *The Invisible Threshold* in effect brings the everyday into the facility with colours and images developed by participants in the EEASI workshops projected into the silk and soundtracks that accompany the silk robot's movements; a thunderstorm, dawn, and midday on a hot summer's day. In *The Invisible Threshold***,** installed at the National Facility for Human-Robot Interaction, data on movement and posture is reinterpreted to create a sensorial experience—flipping the usual way affect is measured and understood in the facility. The installation corresponds with Rancière's reframing of aesthetics as founded on ideas of free play 'as an end in itself' and by definition an inclusive activity that 'can be thought of as a mode of collective action' (Rancière, 2019, 13). Rancière's revision of aesthetic theory is particularly resonant for our discussions on the need to unsettle siloed disciplines or sealed-up interiors and find ways to make it possible to think and adapt to dynamic climates (inside and out) collaboratively and creatively. His proposition that 'indisciplinary' practices that explore the 'poetics of knowledge' are necessary interventions to thwart the disciplinary logic that may ultimately be the undoing of knowledge (Ranciere, 2006, 9; 2019, 25; 2016). A poetics of knowledge that 'refuses disciplinary logic, its alleged specialisation in fields, objects, and methods' and that recognises 'there is a capacity for thinking that does not belong to any special group, a capacity that can be attributed to anybody' is significant for the urgent need for ways to produce knowledge in the current context of multiple and competing political and

environmental tensions (Rancière in Honneth et al, 2016: 149-150).

The most creatively satisfying iteration of *EEASI: TheChange@Work* was the workshop at a food manufacturing factory, Rutherglen, Victoria (2021). This was due to the initiative the participants took to wear their costumes back to work and *keep the conversation going with their colleagues* in their words. The carnivalesque mood of some participants wearing tutus and bras painted with emojis and decorated with party tinsel and others wearing modified garments that demonstrated high-level dressmaking skills along with their required uniform of hard hats and high-vis vests was spectacular. The most rewarding workshops for the sense they gave of making a real difference to people experiencing acute hormonal fluctuations were at the Chris O'Brien Lifehouse, Camperdown, New South Wales (2024). The activities involved identifying supports and barriers to returning to work (paid and unpaid) with participant groups that comprised people who had experienced medically-induced early and premature menopause and their healthcare providers and administrators at the hospital (2024). On reflection, my perceptions and memories of the Lifehouse workshops may be due, in part, to a guest lecture and discussion with postgraduate oncology nurses at the University of Sydney, at the invitation of research collaborator Shannon Philp, a month prior. In that discussion healthcare providers discussed that given the pressure and high stakes of saving lives in a cancer hospital they rarely had time to consider what the emotional consequences of menopause due to cancer treatment felt like for healthcare consumers. Alive to the perspective of healthcare providers from this discussion and the perspectives of people who had experienced medically-induced menopause in previous EEASI workshops and The Reimagining event with sociologists and healthcare experts in May 2024 as well as my own experience of not thinking about menopause until perimenopause hit, I discussed menopause in terms of dynamic hormones at the Lifehouse EEASI workshop. The response to this recoding of hormonal changes as possible at any age made the workshop directly relevant to the healthcare providers (in their 30s) and administrators (all age groups) as it removed the assumption and stigmatisation that menopause and dynamic hormones are related only to ageing.


Figures 11 - 12. *The Invisible Threshold*, a sensored and responsive silk robot, installed for the workshop *Reimagining Menopause: Mobilising radical imaginaries across social, creative and clinical domains***,** ADA School of Art & Design (2024-2025); *The Invisible Threshold* colour and sound tests. Photography: Katherine Moline.

Conclusion

The observations of embodied worlding by JK Gibson-Graham, and Rancière's recognition that 'free play' and indisciplinarity are aesthetic traditions that since Schiller have been available to everyone to de-silo knowledge, ground our collective ambition to disrupt the 'enclosures' of knowledge that separate the 'environment' and 'human' and claim space for the performance of adaptive practice. As researchers trained in cultural geography, design history and theory, experimental art and design practice, our disciplinary differences are a strength that informs the ethos of disclosing alternative social-material conditions in the *indisciplinary* coalition that makes up the Socially-Engaged Design Research Network.

Abby's discussion of three objects, the ice box, the meat safe and Uncle Ernst's chair evoke bodily engagement with the dynamics of weathering and coolth, and following Gibson-Graham (2016) observations, a relation between world-making and a dynamic ethical practice of "subjectivation" (xxviii). Alison explores Gibson-Graham's evocation of the intimacies of world-making to perform intimate engagements with clothes where the design, if left unfinished, might lead to further attunement to living with dynamic environmental conditions inside and out. Katherine frames their activist research project on the political contexts of dynamic climates through workshops exploring the uncertainties of big data (2018) and the social and political construction of genders (2020–2024). Drawing on Rancière's insights about the indisciplinarity of knowledge, the project emphasizes the importance of collaborations that bridge diverse experiences and knowledge systems to articulate change and move from inertia to action. We hope that through ongoing conversations about living with dynamic climates (inside and out) we can keep learning as a network about improvisation, adaptation and experimentation.

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