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Sensibilities as Knowledge in Design Research

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Figure 1: An abstract representation of sensibilities as a relational skin.

Abstract

There is an expanding vocabulary in academia addressing the struggles surrounding what constitutes knowledge in design research. However, most approaches overlook the role of researchers themselves, along with their lived experiences and theoretical commitments. Building on Redström's work on design programs, we retell stories of our architectural education and practice as a constructed 'we' and suggest *design sensibilities* as a way of knowing that allows for a less aseptic approach to the epistemological assumptions in interaction design research. We portray sensibilities as a skin rather than a lens, and propose that design relies strongly on breaching the theory/practice divide as situated, poetic, positional, relational, and corporeal; while still constituting transferable and collective knowledge. We propose the articulation of sensibilities as intermediate level knowledge in order to account for a view of theory as the skin through which we shape and are shaped by our work.

CCS Concepts

• **Human-centered computing** → HCI theory, concepts and models; **Interaction design**.

Keywords

design programs, intermediate-level knowledge, design theory

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"I think there is something to temperament, and to a kind of tendency of the organism. We need each other's tendencies, we desperately need each other's sensibilities."

Donna Haraway in conversation with Fred Turner, Halfway to the Future Conference, Santa Cruz, October 21, 2024¹.

¹Available at <https://www.halfwaytothefuture.net/2024/virtual-event/>. This particular sentence was followed by a remark on how her friends balance her joyful way of looking at the world with some pause to slow down and observe the "barriers and the intractable suffering".



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1 Introduction

Design research has since its very beginnings attempted to argue for a distinctive epistemology—what may be called *designerly ways of knowing* [25]—that diverges from traditional scientific or humanities-based approaches and instead privileges iterative, situated, and materially engaged forms of knowledge. That epistemology comes with an ever-growing set of theories (new materialism, care, situated knowledge, feminism, post-humanism), design programs (speculative, critical, adversarial, soma, slow, and more-than-human), as well as terminology (research products, counterfactual artifacts, fabulations) and methods (body maps, noticing, zine making).

A particularity of design epistemology is a pragmatic tolerance for ambiguity and vagueness. For example, tacit knowledge, as articulated by Polanyi, refers to a kind of understanding that is difficult to formalise or express in words, captured in his assertion that “... we can know more than we can tell. This fact seems obvious enough; but it is not easy to say exactly what it means.” [104, p.4]. Building on this, Schön [114] described how professionals, specifically designers and architects, engage in knowing-in-action and reflection-in-action, demonstrating that much of their expertise is enacted and refined through practice rather than through explicit theoretical reasoning.

Within interaction design, these ideas have been extended by proposing intermediate-level knowledge that lies between abstract theory and particular design instances (also called intermediate particulars) [74]. This includes annotated portfolios, design patterns, guidelines, strong concepts, and experiential qualities that facilitate the accumulation and transfer of insights across diverse design contexts [52, 74]. The articulation and legitimisation of these intermediate forms of knowing remain vital to the field’s epistemic development. In this paper, we add sensibilities to this list.

Along with these forms of knowledge, we have seen the proliferation of programmatic design within HCI. We refer here to Redström’s description of *Design Programs* as a framing for understanding making theory in design research. Redström, argues that a research program is a framing for design work (be it practice or research) characterised by a ‘hard core’ of experimental premises, but also by both ‘intent and unfolding’. “Thus one suggestion would be that while a project may be open or closed with respect to various issues, a program more fundamentally depends on a certain worldview—a certain set of theories, beliefs, articulations, assumptions, and so on—to do its thing.” [105, p.88].

Design programs function at the intersection of design practice and design theory, and Redström argues that theory should emerge from practice rather than be imposed on it. He proposes a model where design itself generates its own transitional theories through making and experimentation—in line with the view of knowledge advocated by research-through-design and practice-driven research. Within this framing, artifacts are seen as materialised knowledge in a theory building project. His work challenges the idea that design is purely about problem-solving, suggesting instead that it is a way of producing knowledge through material and conceptual exploration. Prototypes, for example, are regarded not just as functional models but as makers of ideas and possibilities. In this multiplicity of worlds made of design possibilities, there cannot be one single

unified design theory—rather, design theory is context-specific and emergent, and a fundamental part of futuring through making.

As design programs and theories within interaction design expand and multiply, we must address how the design researcher is continuously shaped by them, and vice-versa. To do so, we propose reaching beyond *world-views* towards *felt-worlds*, through experiences and material engagements, enacted through the research itself as a type of pre-figurative act that changes over time. As a direct consequence, we propose that the design researcher is both changing and changed-by the theory/practice. We will argue in favour of articulating *design sensibilities* as a means to express this situated, positional, relational, and corporeal dimension of design programs. Our aim is to advocate for the importance of sensibilities and how we evolve them, as a way to understand the role of the design researcher, and by extension their potential position in a project. We unpack how certain theories may foster particular sensibilities in the designer—which can be made explicit and revisited as a matter of corporeality and positionality—with an emphasis on the impossible separation between the theories, methods, practices, forms of knowledge; and the designers themselves.

To make our case, we use first-person narratives, theories, stories, and anecdotes related to design theory and practice rooted in architecture and subsequently transformed by our work in interaction design research. Through conversations, we (two interaction designers with a background in architecture) discuss how we developed our attention towards certain programs, theories, and methods. In other words, we will attempt to pinpoint how we have continuously changed towards the designers we are intentionally becoming. We argue that building and recognising articulated sensibilities aid in resisting an aseptic² and static view of design practice and research. To this end, we introduce a few key concepts and theories that we ourselves encountered during our early architectural education—ideas that fundamentally changed the way we act in and perceive the world. We trace their implications to our views on interaction design, and how they remain as important *sensibilities* in our work. **Our intention is not to focus on architecture as a source for HCI, but rather to encourage others to embark on a similar exercise in identifying how their own sensibilities—as hackers, programmers, computer scientists, industrial designers, activists—developed and is impacting their approaches to the development of the field.**

Returning to Redström’s design programs as provisional spaces for making theory [105]; we argue that each program both requires and produces particular sensibilities. Here, we will discuss sensibilities as both a honed capacity to be affected by aesthetic qualities, but also the ability to be responsive and attentive to particular materialities, including physical and tangible but also poetic, intellectual, metaphoric, political, social, relational, ethical, and theoretical materials. Notably, a sensibility is also the inability to ignore or *unsee* the things that cause us discomfort through that trained ability: it is, in fact, a two edged sword. Sensibilities are a transferable form of knowledge that rely on collective or interpersonal exchanges, and commitments to accountability. Because they are a corporeal form of knowing, they are tightly entangled with the relationships and materialities of its making—in a way similar to traditional heirlooms.

²Aseptic meaning free from contamination by pathogenic microorganisms, or sterile.

The metaphor of knowledge as an heirloom frames knowledge as a cultural artifact; something shaped by many hands, passed down with care, and carrying the marks of those who held it before. It is not new, but renewed each time someone receives it, polishes it, questions it, and adds their own story to it. This metaphor stresses stewardship rather than ownership, suggesting that individuals do not possess knowledge outright, but rather temporarily hold and reshape it before passing it forward beyond its time/space.

We will return to these ideas throughout the paper, but in short, we define design sensibilities as:

- A skin—not a lens—a corporeal, aesthetic, trained ability to respond along with the inability to ignore disturbances to our felt-world;
- Knowledge as relational heirlooms that can be passed on;
- A willingness and curiosity to continue honing, changing, and engaging with theory-practice materialities.

As such, this paper is a contribution to design epistemology by expanding and describing sensibilities as a form of knowing. It is meant to serve the DIS community with an additional type of intermediate level knowledge that considers and acknowledges what is deeply situated within the design researchers themselves. We do not seek to resolve the tension between all forms of knowledge, but our work is instead poised on the blurred boundary between theory and method, a Guattarian transversing of the *episteme* and *techne* stack. By paying attention to how practices and theory are internalised and externalised as sensibilities, we aim to support a better understanding of not only how we arrived at our current positions, but how we may continue to change through deliberate practise-at and exposure-to each other. In this way, we mean to reinforce the legitimisation of interpersonal and relational forms of intermediate knowing for design research.

2 Background

To support the argument of sensibilities as a viable form of intermediate level knowledge, we start with an introduction to programmatic thinking within design, followed by a number of examples of interaction design programs. Throughout this background, we pay attention to, and make space for the relational. Yet, importantly our understanding of entanglements predates the readings of the relational ontologies we did later in our careers.

In line with feminist standpoint theories [62], situated knowledge [61], and the matter of positionality [e.g. 11, 76], we approach the recognition of design sensibilities as a fundamental feminist and relational form of knowledge. An important and overlooked aspect of positionality [115] is to account for the sensibilities of the design researchers involved, how the relevant program was designed, and how its execution changed the people involved. Haraway's notion of sympoiesis matters here: the co-creative processes through which entities emerge in constant relation with others, rather than through autonomous self-production. Haraway frames it as a model of "making-with" that highlights interdependence over individuality [61]. Building on this, Frankjaer and Dalsgaard articulate a sympoiestic framework for crafts-based HCI, where knowledge emerges through the ongoing co-evolution of researchers, materials, and contexts [43]. We also acknowledge the agency of materials

and contexts as active participants and conversational partners in the honing of sensibilities.

Important to this framing of sensibilities as a form of knowledge, is also the relational notion of transversality. As described by Félix Guattari, it designates the mobile vectors of subjectivation that traverse and unsettle rigid organisational structures [58]. Rather than operating through vertical hierarchies or horizontal consensus, transversality opens institutions and social formations (including forms of knowledge) to processes of collective experimentation, enabling new forms of relation, agency, and meaning-making to emerge. It names a mode of connection that is neither linear nor self-contained but instead proliferative, contingent, and continuously reconfigured through encounters.

There is a widespread shift of attention within HCI approaches to turn a lens to understanding the world not as a discrete collection of self-contained entities, but rather to acknowledge the entanglements (fundamentally relationships) between such things [44]. These ideas resonate and align with other theories (relational ontologies, entanglement theories, posthumanism, new materialism, etc.), and are generating a multiplication of programs that hold affinities to each other. We propose that articulating sensibilities will help in finding these threads.

2.1 The Relational in Design Programs

Redström uses the term design programs to describe an approach to design that shifts focus from creating individual (research) products [97] to developing frameworks or systems that guide ongoing design processes. Rather than solving a fixed problem, a design program outlines a set of intentions, themes, aesthetic commitments, and constraints that evolve over time, allowing for continuous exploration and reinterpretation within a particular design space. He gives a culinary metaphor to make clearer how design research programs distinguish themselves from projects, products, or design practices: "*Pushing the culinary metaphor to commit the crime of overly simplifying matters, we might say that if the pasta is our product, the meal is our project, and some form of cooking is our practice, then a program would be somewhat like a cuisine or a diet.*" [105, p.42]

Design research tends to create experiments that probe the edges of these design spaces. Such experiments are—in an extension of the original metaphor—what happens inside the kitchen before making it to the official menu. They are attempts to conceptually investigate what fits within the program's world, or what provokes drifting. Redström points out that these experiments should allow the challenging of world views in search of "*its breaking points rather than its comfort zones*" [105, p.95]. To be able to identify and challenge these views is the work of the design researchers themselves.

There are a number of interaction design programs exploring such different world views: For example, **Soma design** is a program informed by phenomenology and American pragmatism, rejecting the mind-body divide and centring lived experience, aesthetics, and ethics [73]. It centres the body as the primary site of knowledge; encouraging engagement through movement, feeling, and exploring connections between the soma, the world, and others. Methods include body maps [7], expert engagements with somatic

connoisseurs [112], first-person methods [72], and defamiliarisation [119, 123].

Slow Technology is “a design agenda for technology aimed at reflection and moments of mental rest rather than efficiency” [59]. It contrasts conventional interaction design by prioritising slowness, material presence, and meaningful reflection over usability and optimisation. The program introduces themes such as ‘reflective technology,’ ‘time technology,’ and ‘amplified environments’ [59]. Later work by Odom et al. has extended these ideas through a number of projects [94, 95, 98] and, identifying qualities of slow technology such as implicit and explicit slowness, ongoingness, and temporal drift [96] through the analysis of these artifacts. This notion can be found back in Homewood use of fitness trackers to encourage conservation of energy and rest [71].

Critical and Speculative Design [37–39] is widely discussed in HCI [8, 10, 88, 89]. It positions design as a form of provocation rather than solutionism [15], at times adversarial [34], producing probes and artefacts that question rather than solve. Design fiction, often used interchangeably with speculative design, explores fictional worlds through probes, questioning technological futures [84]. Researchers have created speculative artefacts to critique emerging technologies, such as drone futures [41, 121], or fictional research abstracts [14]. More recently, new forms of design speculation can be found in the form of fabulations [117].

These are, of course, not the only examples. **Participatory design** and other approaches such as co-design can also be seen as programmatic in nature: they encompass a view where the users can also be the designers in a democratic manner [e.g. 35, 40]. In recent years, we have seen a growth in programs oriented towards care [e.g. 67], and more-than-human or post-humanism (the humans are de-centred) [e.g. 28, 129]. Some shifting general views of the world and the role of design as compliant have also revealed themselves in moving towards refusal or unmaking [e.g. 70, 85, 111, 118, 122]. We can only expect the diversity of design programs to keep expanding, and along with them, the specific sensibilities being honed as forms of knowledge that transverse them.

2.2 Sensibilities as a Form of Intermediate Level Knowledge in Design Research

Redström’s book purposely omits *the design researchers themselves*³. This exclusion leaves a gap for others to occupy, in engaging with the affective impact on the researchers (and their activities and shifting world-views or as we argue, felt-worlds) when working under or creating a program.

³He states: “For instance, I will not discuss what it is that a designer does when designing, how practices of designing unfold, or how design research is practically set up and conducted in a given situation. [...] This means that I will try to stay away from many of the complexities stemming from the assemblages of people, materials, funding, institutional contexts, and a range of other matters that tie poetics and politics together in design. Of course, the ways that these socio-material assemblages are formed and performed also define the work that unfolds, what is possible and what is not. My somewhat isolated focus on abstract aspects of theory making in research through design does not stem from an idea that this research is somehow free from all this, objective in its approach, neutral in its outcome. On the contrary, my reason for discussing some of these conceptual structures is that they bring something to these assemblages, and only by first calling them to the limelight will we be able to more clearly see this. In other words, my goal is to add something to our understanding of design research by unpacking some—but not all—of its structures.” [105, p.3]

Redström describes the importance of sensibilities and the felt dimension in relation to the end of a program:

Over time, we develop a sense and a sensibility for such closures, and an ability also to recognize them in the work of others, much as we over time develop a basic understanding of what it is, and what it takes, to answer a question or to solve a problem. While we can develop approaches that help us develop such a sensibility, we cannot replace it with a test or procedure. [105, p.111]

We suggest that a part of such closure lies in researchers’ emerging and evolving sensibilities, alongside their ability to articulate them and, more importantly, share or pass them on to others. Such a hand-over can happen through the designs themselves, writings, stories, methods, or simply spending time together; and it implies a kind of corporeal change. Based on our own identified architectural sensibilities as a form of knowledge, we make the argument for a clearly entangled dance between theory and practice; one that can travel across disciplines over time.

In our previous work, we reported on a journey towards the intentional development of a common sensibility and somaesthetic appreciation of shadows through the reading of Jun’ichirō Tanizaki’s book *“In Praise of Shadows”* [47]. We acknowledged the importance of sensibilities both as practice and as theory. “*This sensibility to the atmospheres created by objects and their shadows is quite tacit, but it can be passed on as a theoretical and experiential heirloom*” [47, p.3283]. We identified three steps in this hand-over, where the temporal dimension necessary to develop sensibilities is honoured through sparking, fostering, and finally becoming embedded [47, p.3284].

In another example, Rylander Eklund et al. described how design sensibilities are often neglected in design thinking, but focused mostly on the contribution of praxis: “*we consider designer sensibility as the skills and disposition cultivated during studio education through continuous practice, concerned with design qualities and the open-ended, expressive purpose of imagining new worlds*” [108].

While this pragmatic focus is at the centre of design as a discipline, we wish to extend the understanding of sensibilities as a relational tool for accounting for each other’s ways of knowing. In doing so, we position ourselves in line with the blurring of theory and practice, and aim to demonstrate how sensibilities are not just developed as a by-product, but can be practised, taught or intentionally acquired in profound entanglement with theoretical work.

3 Method or the construction of a ‘we’

In order to investigate the idea of sensibilities, we decided to return to our own practice and education as European architects, and how these have transferred to our work as researchers in interaction design. As a result, we write this based on a set of shared past experiences from our educations and practice, and in finding strong similarities we have constructed a tentative ‘we’ as a possible extension to other first-person perspectives within HCI [e.g. 31, 50, 87]—in particular within the design subfield [e.g. 13, 29, 33, 45, 66, 71]. As the premise of this paper is to address how design researchers are continuously shaped by the theories they work with and vice versa,

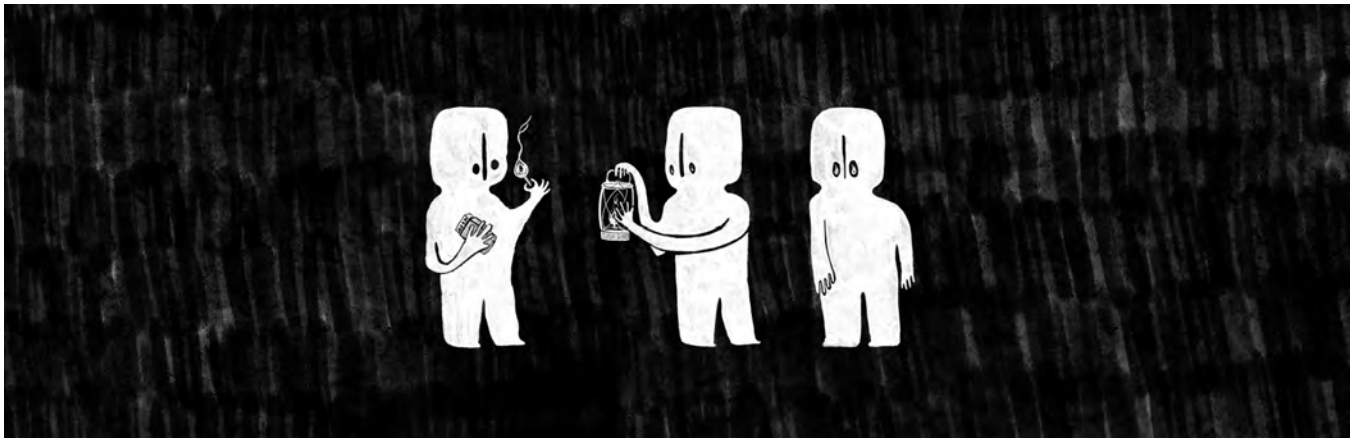


Figure 2: Sensibilities as Sparked, Fostered, and Embedded [47].

we use a first person approach that allows for an in-depth tapping into the vulnerable situated, relational, and positional nuances of understanding sensibilities.

Given this relational emphasis, this text is written as a collaborative endeavour by two unified voices, merging our stories. Together, we articulate a set of architectural sensibilities, tracing how we honed a preference towards certain programs, methods, and theories. We argue that sensibilities resist aseptic views of practice, while we also acknowledge the messiness of our own exchange. We would like to note that this articulation of sensibilities has only become methodologically possible after years of reflections and conversations.

To capture what it means to change and be changed by a design program over time, we have retraced how old theoretical inspirations found their threads towards our current practice. In identifying those threads in retrospect, we offer a reflexive [21] and yet diffractive [110] articulation of our sensibilities. This work, as most other first-person research, is done through a patchwork of introspection, conversations, documentation, design work, reading, and writing, including rebuilding an archive of old architectural readings. The five sensibilities articulated through this process (see section 4) were constructed as a shared story.

3.1 Previous Work in Architecture and HCI

As mentioned above, it is not the first time architectural sensibilities have been explored through first-person methods [47]. Similarly, Koulidou et al. mentions their architectural sensibilities transposed into design sensibilities, by unpacking known tensions such as inside-outside as generative for interaction design, also through first person methods. In particular, they refer to a book also mentioned below, Peter Zumthor's *"Atmospheres"*. They present atmospheres as a *"theoretical framing to understand the design process as well as the emotional, bodily, and sensorial experience with an IoT device designed as a poetic representation of an intimate connection to a place."* [80, p.2384] The notion of atmospheres is directly connected to a sensibility: *"Some aspects of the atmosphere (design sensibilities) brought our attention to different materials, their expressive qualities, and their performativity; others sensibilities pushed us to focus on*

the form and its affordance; others to consider the piece's interactive qualities and their impact" [80, p.2384].

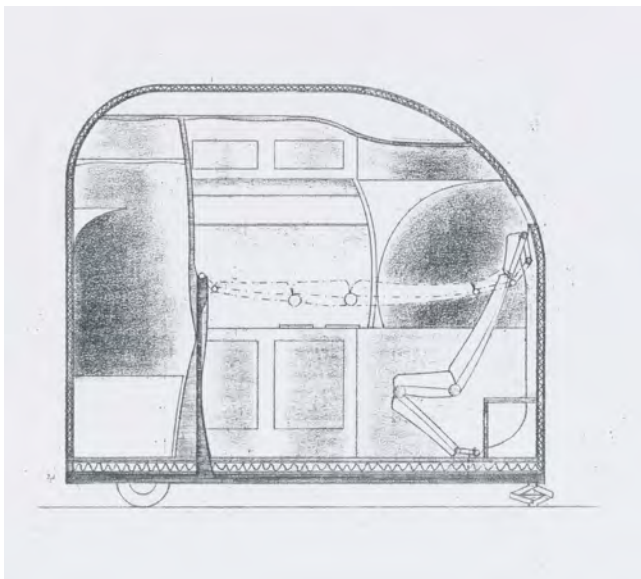
Kinch and Fogtmann explores the challenges faced by interaction design researchers who simultaneously engage in design practice and research, departing from an education in architecture. They mention: *"... being an architect or designer influences your individuality and contributes to the way you view the world"* [78]. Indeed, Kinch's PhD thesis is focused on *"Taking an Architectural Approach to Interaction Design"*, centred on the notion of atmospheres [77]. Padalak and Jenkins bring up Pallasmaa's critique of computer aided design as distancing from materiality, leveraging that sensibility towards a critical design that contravenes that effect [100]. While Krogh and Koskinen's book on drifting resonates deeply with many of the notions presented below, with Gall Krogh himself being educated as an architect [82].

Our architectural background has also formed the theoretical backdrop of the *magic machine* workshops [5], while the provocation *Becoming Travellers* [56] is directly influenced by Solnits's reading of psychogeography [116], in turn related to the *dérive* [27]. Other work [106] makes direct use of surrealist classifications of Borges, [19, 20] who mentored and deeply influenced Calvino [23]. Here, the connection to Borges is clearly marked *"... we turn to the Argentinian surrealist author Jorge Luis Borges, who, in his own satire of the absurdity of formal classification wrote (or, claimed to have discovered) the Celestial Emporium of Benevolent Knowledge"* [106].

We add to these examples by bringing in a set of theoretical vocabulary from our architectural educations and practices, and reflect on how they informed our work as design researchers, and how we felt them repeatedly guiding the way to particular design theories, programs, or methods. In one way or another, the books and practices we will look at here point back to what appears to be a shared canon of architectural education, across different time and localities. In the selection of the sources below, we are taking examples from these theories, but also shared conversations with others which have made it evident how broadly and deeply they sit in our understanding of the world.



(a) Workplace for the Future



(b) Normadic Home

Figure 3: Examples of student work, note the use of collage, hand drawing and basic CAD modelling.

3.2 The Authors

We use our own narratives to exemplify how our architecture sensibilities have travelled with us, and how they and we have changed and continue to change over time. Practically, this text has converged into a collaborative description of common sensibilities through our discovery of shared affinities in our ways of describing the world. While this section can be read as a positionality statement, we chose to—in line with our argument that sensibilities are collective—describe ourselves as one unified voice. Throughout, we will talk of our stories as a collaborative “we”, where the position of each individual is less important than the experiences we both relate to. The following paragraphs situate us as architecture students through the telling of stories that belong to neither and both of us.

Deciding to study at the school of architecture was the most daring option effectively available to us as a working-class kid; it was open-ended and scary, and at the same time, our families were able to convince themselves there would be a respectable job at the end of it. The school of architecture was itself separated into the three large scales: planning, housing, and design—all of it considered architecture.

The building that housed the design and architecture educations was often joked about as a terrible example—a sort of lived-in instance of bad design as a tool to cultivate an embodied dislike for poorly built environments⁴. Throughout the winter, students would have to work with their jackets on even as the sun would shine through the massive glazing, and in the summer work outside as the indoor environment became blazing hot.

One of the projects we did during the first year involved designing a small amphitheatre for the visitor centre of a botanical garden. We asked our professor—whom we were initially apprehensive to approach—what size he would recommend for it. He looked us in the eyes and told us to take our measuring tools and go to the lecture hall⁵. To measure it, to speak in it, to enact a lecture, to listen to the sound, to take in the atmosphere. He later asked us how we decided the size, and we told him we had realised that it mattered less than we thought.

During our architecture school years, we learned that we needed to perceive our practice as something well beyond considerations of just size or function, towards a way of imagining worlds we wanted to be built and experienced. Looking back at this moment, we now realise how quickly we were schooled into a frame of phenomenology. From then on, we started paying much closer attention to the spaces we lived

⁴Or what architects might call a dwelling: a formal and overly intricate way of saying “a place that people inhabit”. Basically a fancy and yet more vague, inclusive, and poetic way of saying house.

⁵He was blind in one eye, making his gaze somewhat eerie. With the years, we grew very fond of him and he supervised our master thesis. If we stood on the wrong side of him, he would sometimes gently grab us by the shoulders and switch us to the side where he could see. He sadly passed away the day we handed in the thesis.

in. This attitude is often recognised by other architects as a profoundly embedded way of being in the world. We are unable to inhabit a space without an attentiveness to details that other may find negligible. There were no structured classes; instead, everyone was given a table and a brief, for example: “*design a structure on a 45-degree slope and deliver the project in model 1:50. The structure should serve as a refuge.*” Not knowing how to start, we would look over each other’s shoulders and spend small fortunes at the student shop on odd materials such as manifold paper and scale rulers. The projects were delivered as pin-ups with associated critiques with everyone in attendance. The feedback from teachers was initially opaque and strange: “*the line is unresolved*”, “*as the building meets the sky a luminous form is drawn*”, “*the construction closes the perspective lines*”, but over the first 6 months we started to take active part in these critiques, and we strongly remember sitting on a bus one day about 9 months into our first year, looking at the undulating roof shapes of the passing houses and thinking: oh this is what they mean: the planes of the roofs draw a figure against the sky.

It is important to note that no one told us or explicitly explained anything; instead, we were invited into one complex challenge after another, and we responded individually and autonomously with reading theory, attending art shows, writing poetry, and painting our landscape models in a mix of emulsion and coffee grinds. The school building never closed. At night, the music was louder and the few remaining students subsisted on cold coffee and chocolate cookies. Over time, we became well versed in building stages and sets for experimental dance performances, arranging strange parties, and imagining odd structures on non-existing sites (central reservations, underpasses, suspended in-between buildings). We eventually transferred to design, and the scale shifted, but our attention to strange embodied experiences did not (see figure 3).

4 Architectural Sensibilities

Throughout our architecture journeys, we were exposed to an overlapping set of books and theories that served as strange guides to the forming of our shared architectural sensibilities. This process has allowed a revisiting of some of the books that formed us. Our return to Pallasmaa awoke a need to re-think practices and theoretical framings from within interaction design⁶. However, our intention

⁶Coincidentally, there is a new edition of the book from the same year that retracing started [101]. In this 4th edition, there is a new introductory note that mentions many tensions between architecture and computational matter. He shows his concern with the role of computation in architectural processes: “*The computer is seen as a solely beneficial invention, which liberates human fantasy. I wish to express my serious concern in this respect, at least considering the current role of the computer in education and the design process. Computer imaging tends to flatten our magnificent, multisensory, simultaneous and synchronic capacities of imagination by turning the design process into a passive visual manipulation; a retinal journey. (...) The computer creates a distance between the maker and the object, whereas drawing by hand as well as working with models put the designer in a haptic contact with the object, or space. When drawing, we touch the object and hold it in our hands. In our imagination, the object is*

here is not to put the emphasis on those readings themselves, but to reflect on how we were formed through them and the praxis appended to them. In this retrospective exercise, we picked a set of six books (see figure 4) that had a clear influence on our ways of seeing and living in the world. This articulated a set of sensibilities has established themselves into what we might recognise as a skin we both have, a kind of relational heirloom, and a curiosity for materialities. We do not posit that these sensibilities are exclusive to architecture nor generalisable to all architects; but they might resonate amongst design and craft disciplines.

4.1 Corporeal Orientation

This sensibility is best described as a trained receptiveness to the grain, weight, resistance, and quiet of materials, not as means to an end but as agents in dialogue. As architects, we were trained to understand space through our hands and bodies, textures, temperature—designing from the skin inward, not the drawing outward—meaning there is a tactile, embodied, and material orientation to the way design spaces are formulated and addressed. This notion can be found back in Juhani Pallasmaa’s book, “*The Eyes of the Skin: Architecture and the senses*”[101], which left a long-lasting impression on us. We owned a copy of its third edition which we lent out to friends on occasion and eventually lost.

At the heart of Pallasmaa’s argument is the critique of *ocular-centrism*, or the privileging of sight over all other senses. He laments how architecture has become an exercise in visual spectacle rather than a craft that considers the embodied human experience. Yet today, architecture is often reduced to glossy surfaces and abstract forms, designed more for the camera than for the human body⁷.

As students, we were taught through a series of scaffolded experiences that architecture is not just about what we see, but what we sense. How a space resonates through temperature, acoustics, texture, and scent. We were taught to believe that a truly meaningful architecture engages the body as a whole, creating an environment that is felt as much as seen. Spaces should not solely be looked at from a distance, but should invite touch, movement, and a deep sensory connection.

In the case of Peter Zumthor, there is a peculiarity that extends the corporal orientation in scale towards the practice of prototyping too. The models in his studio were not made of cardboard, or as he said, they were not really ever models, but *objects* in themselves [132, p.58]. These sculptural representations at smaller scale were the bulk of his exhibitions—they were made of brick, copper, concrete, water, cloth, plaster.

As working student assistants at an exhibition, we spent a lot of time laying tiny bricks in the model of the Kolumba Museum. This model was impressive, it took a large part of the room and included two small stairs so visitors could peek inside the building (see figure 5). One of the most appealing models in the exhibition was a concrete piece, representing the shapes of the Therme Vals; a spa/bath at the end of a road in Switzerland. The model itself had water where the pools should be. Our main job was to stand next

simultaneously held in the hand and inside the head, and the imagined and projected physical image is modelled by our embodied imagination.” [101, p.5-6]

⁷One of the most prevalent critiques of architecture is that it became an image-making industry, where architects are more concerned with the images their buildings can frame than the lived experiences within them.



Figure 4: A collection of book covers of some of the books described below

to this model, and convince visitors to not dip their fingers in the water (see figure 6).

According to Pallasmaa, in older architectural traditions building techniques there was more emphasis on tactile qualities and the ability of materials to age gracefully over time. In contrast, much of modern architecture is built from industrial materials like glass and steel, which often lack warmth and sensory richness—unsurprisingly these are the materials that reign in computational aesthetics. His ideas have influenced a generation of architects who prioritise atmosphere, materiality, and the lived experience of space. Architects such as Peter Zumthor (see below) and Steven Holl have embraced these principles, crafting buildings that follow these intentions. The warmth of wood, the roughness of stone, the way light filters through a space at different times of day, all of these elements contribute to a building’s meaning and atmosphere.

We see this back in our own practice through our attention to materials and making processes. We tend to focus on building models as an investigative sketching process that is explorative rather than productive. This lets us foreground the experience of engaging with an interim model as an important step towards designing, not just what it might do, but also how it might feel. These rough models are also relational and key to the way we illicit participation of others. This sensibility led us to the initial notion of skin as the way we approach design: it allows us to engage a sensorial and corporal way to understand and develop our knowledge and positions in projects. However, the academic expectation of producing theoretical writing is in conflict with our own need to first make or tinker with those ideas in a tactile or experimental material form. Hence this sensibility is not only an aid in our processes, but often also a hinder, making theoretical insights elusive and hard won.

4.2 Attention to Joints and Negative Spaces

As much as architecture is about a sensibility to corporeal, relational, and material components of the world, it equally values the *spaces in between*. This sensibility is about looking at the seams and understanding non-making, emptiness, or silence as materials too.

An important point of considering relational crafts, joints, and materialities is the idea of *negative space*. The concept of negative space in architecture refers to deliberately designed empty or open spaces within a built environment. It is the space around and

between structures, walls, objects, or elements that helps define the overall composition. Rather than being an absence of design, negative space plays a crucial role in shaping spatial experiences, movement, and perception. It can take the form of courtyards, voids, atriums, or even the space between buildings in an urban setting. It is particularly relevant to immaterial materials such as light, shadow, and air. Composition, in architecture, is heavily reliant on the understanding of reduction, white space, and cutting out as fundamental moves in design gestalt.

This attention to the abstract was never directly explained to us as students, but rather demonstrated. During a study trip to Rome, one of our professors led us through a series of narrow streets and declared: “*At the meeting with the sky, a luminous figure is drawn.*” We spent the rest of the afternoon drawing these figures of light. Later that year, we found ourselves on a bus going through the city centre and caught ourselves thinking: the roofs along this road form an undulating surface, *oh that is what they mean...*

The construction of Zumthor’s Bruder Klaus Field Chapel plays directly into the active forming of negative space. A wooden framework was first built to shape the chapel’s curving walls. Concrete was then poured in layers into this formwork, with small glass rods embedded. After the concrete set, the wood was burned out, leaving behind carbonised markings on the walls, adding texture. The small openings filled with the glass rods in the walls allow natural light to create a spiritual atmosphere inside. We visited it many years later, and the charred surface was still visible, the steps it took to build actually visible in the materiality, both on the inside, but also on the outside with its layered concrete. In figure ?? the use of negative space is also clear. The blocks of concrete create spaces in between, with both the window openings and the space for the pool remaining as the purposefully shaped in the negative of the form.

In one of our own interaction design projects, attending to joints became an important piece of labour. When resolving the joint between a wood surface and a strip of copper for conductive purposes, we insisted in the presence of what is called a shadow-gap: a small, deliberate gap between two surfaces—most commonly between a wall and an adjacent element such as a floor, ceiling, door frame,



Figure 5: Modell Kolumba, Kunstmuseum des Erzbistums Köln, 2007, Installation view ground floor, Kunsthaus Bregenz Photo: Markus Tretter © Peter Zumthor, Kunsthaus Bregenz

skirting board, or cladding panel⁸. It allows for thermal expansion, material movement, or construction tolerances without visible cracking. On a smaller scale, a shadow-gap can have the function of opening a small crevice that can be used to run cables, while simultaneously creating a crisp line that signifies an affordance.

While interaction designers often lean into seamlessness, architects are trained to put the most emphasis on the seams themselves: *“Buildings are artificial constructions. They consist of single parts which must be joined together. To a large degree, the quality of the finished object is determined by the quality of the joints.”* [132, p.14]. Our education fostered an appreciation for composition, but also an understanding of the importance of both the physical presence of the things we make and the empty spaces around them. We can no longer refrain from testing surfaces with a nail or reacting to poorly solved joints. Both in architecture and design; one bad joint is enough to compromise the whole: again it becomes clear to us that this sensibility can both be an advantage and a hindrance.

⁸In fact, the idea of shadows as a material and that conversation was central to that work. More can be read on this project in two sibling publications [47, 68].

4.3 Sense of Place/Site

Because architecture is connected to specific places, a sense of place and site becomes central to the practice. That creates a sensibility to land, place, ecology, and culture not just as a framing of context but as a crucial understanding of the brief. As such designing is a nested practice, between people, memories, materials, sites and histories. This makes for a relational craft that contextualises every design act as a relationship being formed, emphasising its emotional character and understanding the slowness of some of those processes.

Augé, a French anthropologist, introduced the concept of non-places (non-lieux) in his book *“Non-Places: Introduction to an Anthropology of Supermodernity”* [9]. He describes non-places as transient, anonymous spaces that lack historical, social, or cultural significance. They are a symptom of supermodernity, the contemporary condition of life, which is marked by rapid changes, constant movement, and an overwhelming flood of information, leading to a sense of fragmentation. It arises from technological progress, globalisation, and the intensification of social dynamics. These non-places are designed for efficiency and circulation rather than deep human connection. Non-places lack a distinct identity, unlike traditional

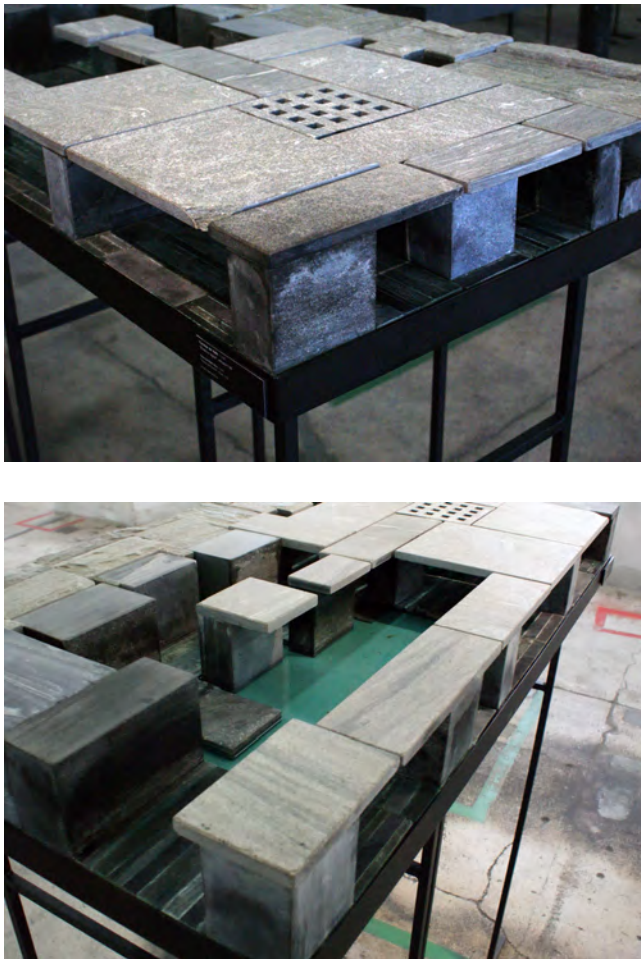


Figure 6: Photos of the Therme Vals model at the 2009 ExperimentaDesign Peter Zumthor exhibition. Note the qualities of the real materials, stone and water, as well as the shadow gaps and negative space. Photos by Pep Romero Garcés.

spaces rich in cultural and historical meaning, making them interchangeable and impersonal. They prioritise function over meaning, being designed primarily for movement, commerce, or waiting rather than for dwelling or social interaction. Their standardised and homogeneous nature means they look and feel the same across different locations, reinforcing a sense of detachment. Interactions within these spaces are often fleeting and anonymous, as people rarely form lasting connections or relationships.

Some notable examples of non-places are airports, highways and service stations, shopping malls, chain hotels, supermarkets, public transport hubs. Unlike spaces with a *Genius Loci* (spirit of place), non-places are often experienced passively, as sites of transit or consumption rather than meaningful engagement. Originally, Augé's intention was to challenge architects to rethink how infrastructure has an impact on human experience, encouraging a reconnection

with local identity, encouraging social interaction, prioritising walkability, and designing in a manner that will counteract the sterile nature of some of these spaces.

Norberg-Schulz, a Norwegian architect and theorist, explored the concept of *Genius Loci* in his book "*Genius Loci: Towards a Phenomenology of Architecture*" [92]. He draws from phenomenology and Heideggerian philosophy to describe *Genius Loci* as the "spirit of place," emphasizing that architecture should respond to and enhance the inherent character of a location. According to Norberg-Schulz, *Genius Loci* is not just about the physical environment (or atmosphere) but also the cultural, historical, and existential meanings embedded in a place. He argues that human dwelling involves understanding and identifying with a place's unique essence, and that architecture plays a crucial role in revealing and supporting this spirit. This is not only important for the design of interactive artifacts themselves, but also for the experiences surrounding them.

When planning for two different exhibitions of the same interactive project, we needed to make an informed judgement as to what would fit the *genius loci* of each exhibition site: one a library, another a club. This meant we had to spend time in these environments and understand to the best of our ability in what ways the invitation to interact could be shaped to each of these places. This exercise could not have been done in abstraction; rather it needed the specificity of each site to even begin.

While the briefs we were given in architecture school were fabricated for educational purposes, the places where the building should exist were sites that could be visited. Architects pay attention to *Genius Loci* through spending extensive amounts of time walking, photographing, drawing, and inhabiting the spaces surrounding the plots, we work with. This ethnographic approach, along with *dérive* (the art of drifting, addressed below), returns often to our teaching and research in interaction design. In fact, many of the descriptions we found of early site-visits in architecture school and later at the office, had the characteristics of what Pink calls Sensory Ethnography [103]. In our own work, as a pre-study to the potential design of drones as a form of medical transportation on remote islands showed the importance of a deep understanding of site specificity. Through on-site interviews and ethnography, we came to the understanding that the landscape and the cold climate would be deeply incompatible with the application, as it had been described in the brief.

Bruder Klaus Field Chapel shows how the spirit of the place can be fully embedded into an artifact: it was constructed with significant involvement from the local community, local farmers and villagers actively participated in the building process, including the manual labour of pouring concrete and burning the wooden formwork. We have come to see participation in design as having its origin in the manual labour of building together. Similarly, within HCI, the notion of shared responsibility has been fundamental to entirely different ways of conducting design work such as co-design and participatory design [e.g. 40]. Pelle Ehn's early participatory design work with Scandinavian trade unions demonstrated how deeply situated knowledge and workplace experiences could become a democratic foundation for tailoring technology in ways that honour the practices and identities of those who use it; as well as the idiosyncrasies of the place these technologies should inhabit.

4.4 Anarcho-Poetic Practices

Methods within architecture are less about predictable results and more about practices of exploration with poetic intentions and with it, a high tolerance for unpredictability. Many methods can even be described as somewhat anarchistic or agnostic. Architecture has a methodological sensibility that accepts unknowing, metaphors, and vagueness. Of all the theories brought up here, this was one that both authors came in contact with early in connection to playfulness and gaming environments, particularly in the context of drifting through imaginary spaces.

We were introduced to Debord during a workshop, triggering a long complex engagement with the *dérive*, from building gaming environments⁹, to gallery installations and most importantly a still ongoing practise of letting ourselves wander through things, while trusting our ability to be attentive and alert in the moment [6]. The tolerance for drifting in many forms, through a large set of possible inspirations, is fundamental to our evolving practices, carrying a willingness to engage with undefined, and at times insensible methods. Unsurprisingly, a lot of inspirational texts within architectural theory lean on metaphors and ramblings rather than clarity and objectivity. We acknowledge that we may have picked up an appreciation for such messy poetics from there.

The *dérive* originated from the Situationist International (SI) movement in the 1950s, particularly through the work of Guy Debord, who described it as the exploration of “*the precise effects of the geographical environment, consciously organized or not, on the emotions and behaviour of individuals*” [27]. This notion also resonates with the sensibility of place/site. On an announcement from 1956 for a discussion group on how to concretely apply it to the city of London, he writes:

We feel ourselves capable of participating, in the important sector of the modern sensibility, in the labor of change our times demand. It is with this goal in mind that we are undertaking the London experiment. It is a matter of offering everyone the chance of adopting a global solution to the problems of 1957. The solution offered will exercise a radical influence on activities of all kinds: plastic, psychological, musical, political, literary, social, journalistic, erotic, popular, military, philosophical, cinematographic, aristocratic, pedagogical, commercial, religious, culinary, architectural, etc.

In fact, we hope to assemble in London experts in the revolution in every aspect of life in order to work together at the creation of transitory affective situations consciously constructed.

It isn't currently possible to foresee the results of such activity. We invite all those who want to participate in its invention to contact the organizing committee. [27]

⁹Curiously, the idea of using *dérive* and the notion of psychogeography in a game context was also helpful in a conversational first-person exploration of screenshots as photography in gamescapes we did a few years ago [48].

The broader practice of psychogeography looks at how urban spaces influence behaviour, mood, and perception, often highlighting the disorienting effects of modern cities and how people experience them beyond their functional design. The *dérive* is a key psychogeography technique, where individuals or groups¹⁰ wander through urban spaces without a particular destination, allowing the environment to shape their experience. This practice aims to disrupt everyday routines and uncover hidden aspects of the city, tapping into unconscious feelings and reactions. In Debord's words: “*One of the basic situationist practices is the dérive, a technique of rapid passage through varied ambiances. Derives involve playful constructive behavior and awareness of psychogeographical effects, and are thus quite different from the classic notions of journey or stroll*” [79, p.62]. Psychogeography encourages a more playful or critical engagement with one's surroundings, often challenging conventional ways of navigating spaces.

This open ended approach is directly recognisable in the way we run workshops; specifically for example on our previous work on *magic machines*: a format in which participants create intentionally ambiguous interactive artefacts that invite open-ended exploration and interpretation [5]. The purpose in these sessions is not to generate consensus, find solutions or even broaden the outcome space, but rather to throw open the participants experience and expectations for a moment. In this way, they are like games or *dérives*, inviting participants to search for the extraordinary and unimaginable. Like in the experiments of Debord, this holds the potential for generating deeply personal experiences and subversion alike.

As interaction designers, we have both worked with technology in times of dramatic change and development. Our poetics and open-ended methods have served us well, when these technologies arrived with no fixed use case and no clear notions of consequences or impact. Leaning into this sensibility, we have found ourselves looking to literature and art when searching for ways to engage with the unforeseen, and to strategies of protest when the technological outcomes became oppressive and questionable (we have, for example, organised a number of workshops on this theme [3, 36, 128]).

4.5 Worlding

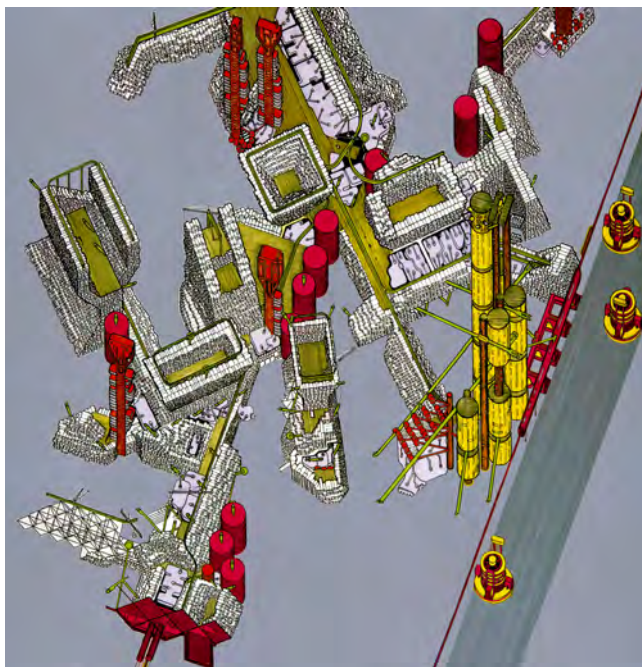
Architecture values speculation, transformation, and dreamed ideals, along with the ethical and political responsibility to shape environments and consequently shaping what lives are possible or not. Architectural education is especially interested in maintaining imaginative headroom and processes that allow the individual student to find ways to describe different and alternative worlds as sites for new dwellings.

This sensibility is directly related to the descriptions of cities inspired by Calvino's “*Invisible Cities*” [23]: a poetic and philosophical novel that explores the nature of cities and human perception. Framed as a dialogue between Marco Polo and Kublai Khan, Polo describes 55 imaginary cities, each serving as a metaphor for themes such as memory, desire, signs, and time. These cities are not literal places, but can be seen as reflections on how urban spaces

¹⁰“One can derive alone, but all indications are that the most fruitful numerical arrangement consists of several small groups of two or three people who have reached the same level of awareness, since cross checking these different groups' impressions makes it possible to arrive at more objective conclusions.” [79, p.63]



(a) Walking City by Ron Herron (1964)



(b) Plug-In City by Peter Cook (1964)

Figure 7: Two Archigram drawings from the Archigram Archives (<https://www.archigram.net/>)

shape and are shaped by human experience. The novel remains highly influential in architecture and urban theory, inspiring discussions on the symbolism, perception, and fragmentation of cities. Its dreamlike descriptions challenge conventional notions of space, making it particularly relevant to postmodern and phenomenological approaches to architecture. Calvino's writing was inspired and encouraged by Jorge Luis Borges' work on Coleridge's dream of Kublai Kahn [2], and whose abstract and surrealist classifications are imaginary inspirations and prompts in their own right [42]. This body of narratives effectively forms, how we consider extreme

and extremely lateral alternatives to approaching the world, and has been widely read by architects since the 60's.

An example of an architectural practice that made use of this extravagant creative space is Archigram, an avant-garde architectural group formed in the 1960s in the UK, known for its radical, futuristic visions of architecture and urbanism [109]. The group, which included Peter Cook, Warren Chalk, Ron Herron, Dennis Crompton, Michael Webb, and David Greene, emerged as a reaction against the rigidity of modernist architecture. Inspired by emerging technologies, consumer culture, and science fiction, Archigram proposed highly conceptual and speculative projects rather than built works, advocating for mobility, flexibility, and ephemeral structures.

"Plug-In City" (1964) by Peter Cook, envisioning a constantly evolving city where modular units could be added or replaced like components of a machine, while Ron Herron's "Walking City" (1964) imagined a city composed of massive, mobile robotic structures that could roam the Earth, adapting to different environments. These ideas were disseminated through their self-published Archigram magazine (1961–1974), filled with visually striking, collage-style graphics that combined architectural drawings with pop art, advertising imagery, and futuristic themes (see figure 7).

These works made the transition towards speculative design an easy leap, and brought with them a punk zine aesthetic that is profoundly generative for interaction designers who wish to work towards futuring—particularly those critical of hypermodernity and non-places [9]. We see this sensibility clearly in each other's work, and while the commitment to extravagant amounts of creative space is evident in our practices it is maybe even more blatant in our teaching.

One of the briefs we were given in architecture school, was to design a dwelling in a perfect 45 degree slope, and hand it in as a 1:100 model. There were no further instructions, creating a void that was immediately filled with highly experimental architectural forms. In our own teaching, we aim for a similar balance between the highly specific and open-ended: one of our courses is centred around the design of a container where both the form and surface treatments are parametrically generated (through self written code) and fabricated based on large data set directly related to the use of the final design [4]. The strangely specific framing in combination with the open brief, is a powerful way for students to start making and experimenting while working out use, purpose, material, code, aesthetics, and data simultaneously. We see the process of creating and interpreting briefs as a fundamental move in worlding.

5 Diffracting Sensibilities towards HCI

Our sensibilities have travelled with us across disciplinary boundaries, and through our conversations we realised that they have consciously and unconsciously formed the way, we engage with intermediate level knowledge in interaction design. We believe that such sensibilities form an unaccounted for aspect of a design researchers positionality in HCI, regardless of which background has shaped it. While there is a growing tendency to declare the professional context of researchers in positionality statements including details on their academic background, gender, lived experience and ethnicity; these tend to be bound to static notions of identity and

individuality [115]. As Singh et al. note: “*does such an exclusive emphasis on individual positionality overlook collective experiences and socio-cultural dynamics that shape HCI interactions?*”[115]. **In our view, sensibilities are both an articulation of theory-practice alignments, but also an important fluid form of describing positionality that respects the right of non-disclosure and emphasises the collective.** In other words, while we take example in architecture here, we believe that all researchers are formed by their encounters with materials and texts. In the following, we connect our references above with HCI to exemplify our particular disciplinary drift, and we propose this process as a way for others to account for their own sensibilities when working within or developing particular design programs. Our intent with doing so is then not to shift attention and power back to the researcher, but rather to add a level of accountability, that goes a way towards illuminating our intent and methods.

5.1 From Architecture to HCI

What sensibilities we carry as researchers has an impact on the theories and methods we use. Architecture brings a particular set of sensibilities to HCI, such as explorative sketching, worlding, favouring the tactile and negative space. The two fields also rely on overlapping references with Pallasmaa making this point by borrowing Merleau-Ponty’s notion of ‘the flesh of the world’ to critique the hegemony of vision [90]. Pallasmaa’s articulations in favour of the value of sketching and not reducing design to a ‘retinal journey’ is central to an architectural sensibility—but perhaps not as straight forward to apply when designing for screens. However, the sensorial engagement with computational matter beyond the visual is fundamental in some design programs. Our interaction with computers is never disembodied, nor are the pixels designed within them.

HCI has often turned to architecture and related fields in search of conceptual foundations. Curiously, the very notion of patterns—a well used form of intermediate level knowledge – is inspired by Christopher Alexander’s *A Pattern Language* [1]. Alexander argued that architectural design expertise can be distilled into reusable patterns that offer solutions to common challenges in the built environment. This notion influenced the field of interaction design, inspiring both the creation of pattern collections in HCI [18] and subsequent critiques of how such patterns are applied [26]. His later ideas—particularly his theory of living structure and the notion of a “quality without a name”—have likewise shaped contemporary discussions around aesthetics, calm technology, and more human-centered interfaces [64].

Similarly, the method widely known as cultural probes, as described by Gaver et al., explicitly draws on the aesthetic and exploratory traditions of Situationist International. The postcards, maps and other artefacts included in probe packs were inspired by the Situationists’ psychogeographical techniques, intended to elicit subjective, emotional and often unpredictable responses rather than objective data [51]. By embracing ambiguity, playfulness and provocation, cultural probes echo the Situationist ambition to reawaken lived experience and challenge established conventions in design research.

The invitation to drift (*dérive*) quoted in subsection 4.4 is crucial to how we imagine the direction of interaction design. As computation matter seeps through most of our work, we find ourselves taking inspiration from the poetic, anarchic, and transgressive, to imagine different outcomes in HCI. Without being able to foresee the results, but with a certainty that at least some sensibilities will be developed through the practice of noticing, and carrying what was noticed, into practice. As such, we see the way the field drifts through the boundaries of digital and physical spaces, indoors and outdoors, screens and imaginations as direct extensions of the *dérive*.

5.2 We Shape Sensibilities, Sensibilities Shape Programs, Programs Shape Us

The shift from architecture to interaction design was an exercise in learning about the sensibilities hidden behind the sometimes aseptic views of academic design practice. **For example, most design methods we encountered were described as if they are independent of who performs them.** Our own tendencies to prioritise lived experiences, atmospheres, tangibility, as well as methods of observation, drifting, with a particular turn towards memories and observing the objects others surround themselves with, was a disciplinary turn, incommensurable with positivism¹¹. The poetic, messy, and at time anarchist ways in which we had practised design tended to be less accepted into the research prevalent within HCI. Our ways of writing, riddled with contaminations; where memories, stories, and anecdotes are told, have often been received as outside the mainstream design discourse.

However, the last 20 years of interaction design has made space for these alternative ways of writing to grow [e.g. 5, 33, 99, 110], particularly amongst critical and adversarial design [e.g. 15, 34, 102]. Many of these also connected and are reminiscent of the hopeful futures of Archigram through speculation [e.g. 16, 24, 39, 75, 117]. The idea of non-places makes evident how mainstream technology consistently contributed to the capitalist-driven neo-liberal vision of hypermodernity¹² mirroring itself at times in design fiction, such as for example in the work of Superflux [121]. In a context of late-capitalism and neo-liberalism, the concerns seeded in through non-places are now fully reflected in the aesthetic qualities of most hardware and software—and in reaction forms a natural gateway towards design programs such as the above-mentioned slow technology and soma design as a form of resistance. This particular attention to avoiding non-places and leaning on poetic practices makes space for moves such as unmaking as a design practice [e.g.

¹¹Here we recognise that outside of design, HCI more broadly is still quite enamoured with the more positivistic propensities of computer science, the clean step-by-step view of user-centred design methods and processes (e.g.: double diamond, IDEO methods, Google design sprints, heuristics, user-testing, etc) is problematically seen as the paradigm within interaction design education.

¹²We make a leap here from non-places to hypermodernity: a more recent concept associated with the works of French sociologist Gilles Lipovetsky and others. They argue that we are now in a phase where the tendencies of modernity, particularly consumerism, individualism, and technology, have become even more extreme. Hypermodernity is characterised by a focus on acceleration, the constant drive for novelty, and the intensification of consumer culture. This aesthetic is tainting the practice of interaction design. Commercial trends such as flat design and the monopoly of tech giants can only result in a lack of diversity and the feeling of non-places even in digital spaces.

30, 118]. This sensibility continues to make itself felt in all the material details we cannot unsee, in the constant search for joints and seamfulness [e.g. 63, 74, 124, 133]. We have found ourselves paying attention to technologies that showed signs of a *genius res*¹³ [e.g. 22, 53, 54, 65, 69] or methods that stayed with things long enough to understand their poetic and cultural dimensions [e.g. 12, 17, 32, 51]. Similarly, the importance of material driven or craft practices [e.g. 57, 125, 130] and sketching [e.g. 81, 120, 127, 131] became a way for us to pick which interaction design alliances we wanted to forge. In that sense, our choices of epistemology within interaction design were already shaped by our architectural sensibility.

As a direct result, we have found ourselves leaning into design programs such as soma design, more-than-human, adversarial, or slow technology; which in many ways are already aligned with our early training—although this leaning also came with difference and resistance when our sensibilities became misaligned with the programs. In other words, our mostly unarticulated sensibilities have guided us to find programs and contexts, where we were able to contribute and allow ourselves to grow into. We propose that such choices may be made more explicit by a stronger awareness of what sensibilities we carry and which ones we are willing to intentionally foster, and in that explication make space for difference and probing the boundaries of each program.

5.3 Sensibilities as Intermediate Level Knowledge: Entangling the Designer

It is worth noting, that it was only through our academic design practice within programs that the issues of our world-views gained centre-stage for us “*because matters related to our ‘basic beliefs’ are much more exposed and fragile in programs compared to how they appear as internalized and hidden in practice.*” [105, p.129]. Through the process of articulating these sensibilities, we had the opportunity to recognise and make visible some of our foundational beliefs, and allow for epistemic tensions to surface.

The idea that the capacity for design perception is a trained ability, and not an innate intuition, is not new and can be found in, for example, somatic connoisseurship [113]. Sensibilities too rely on a trained ability to respond to the things we live with by paying close attention to joints and objects, and allowing ourselves to stay long enough to perceive the *genius loci* [92], and accepting the uncertainty of the *dérive* [27]. **The difference we propose here, is that these are not only part of the process or simply something to be tapped into, but are an epistemological outcome of the research in themselves.**

A sensibility is beyond the capacity for noticing—a practice that has gained traction within interaction design [86, 93, 98, 107]—it is at times a disorienting inability to ignore what disturbs or engages us. Often, theories are described as a lens through which to view the world, **but we propose instead that sensibilities should not be viewed as a lens, but a skin.** Like a skin, they take time to develop, but they are also difficult to shed; unlike other forms of intermediate level knowledge, they can hardly be separated from the designers themselves. This means that engaging with the potential growing

of a skin (as we did through our education) should not be taken lightly as it is a slow, corporeal endeavour so mundane that it’s process might become indiscernible. Hence, collectively choosing what sensibilities to develop should be carefully done. Similarly, we should expect design researchers to let the premises programs become influence their sensibilities, and in return allowing their own already existing sensibilities to leak into the programs.

Through joint practice and readings, design researchers develop sensibilities that follow the premises of a program. For example, those that have worked with soma design will likely be provoked to react to notions of the quantified self or mind/body divide (inability to ignore); while being susceptible to technologies that take a multitude of bodies into consideration. Hansen and Rolighed mention the importance of sensibility training: “*Sensibility is an attentiveness that can be trained and honed through multiple and various encounterings.*” [60, p.1401]. Through their design experiments, they lift three types of sensibilities (hermeneutic, existential, and socio-political) and describe them as strongly poised within the more-than-human design program.

Similarly, then, there is very little use for a design sensibility to be an individual endeavour in a world in dire need of collective thinking—something design programs should contemplate as a form of community making. Sensibilities do not necessarily need to be passed on personally, but they are either excluding or including of others, either building or destroying a possible community. Therefore, if design programs do not foster a curious openness to sensibilities, then they may lose aspects of their porous boundaries and their experiential qualities.

We find a number of similarities between sensibilities and other forms of intermediate level knowledge. Sensibilities are a work of maintenance in constant transition (much like guidelines, heuristics, and strong concepts). They rely on consistent revisiting. If a sensibility is not sustained, when the willingness fades, and most likely the work produced or the views expressed, will no longer fall within the boundaries of the original design program. Attention to the sensibilities, that make something noticeable and worthy of scrutiny, allows us to make space for the role of the design researcher, their life-worlds, and their ongoing willingness, surfacing how they fit into and change the programs they work within. Essentially, this means sensibilities are horizontally cumulative pieces of knowledge, contributing directly to defining or probing the borders of design programs. It is worthwhile to consider that the work of formulating experiential qualities, or annotating portfolios is in-on itself an exercise in expressing layered sensibilities simultaneously¹⁴.

However, there is an undeniable difference in sensibilities compared to other forms of intermediate level knowledge: they are fundamentally relational. While this may appear as a weakness in generalisability, it is a strength in accountability. The transferring of this form of intermediate level knowledge requires time and embeddedness, but so do most other forms of intermediate level knowledge, if they are to be applied. Designers should always critically assess whether or not guidelines and strong concepts are appropriate to the work at hand. This is directly related to

¹³ An adaptation of *Genius Loci* we played with, the spirit of the thing—but in a material centred way—very much like in the sentence “*res ipsa loquitur*”, the thing speaks for itself.

¹⁴ See, for example, some of our previous work on layering in portfolios [46, 49], also with our colleague Elvia Vasconcelos [126].

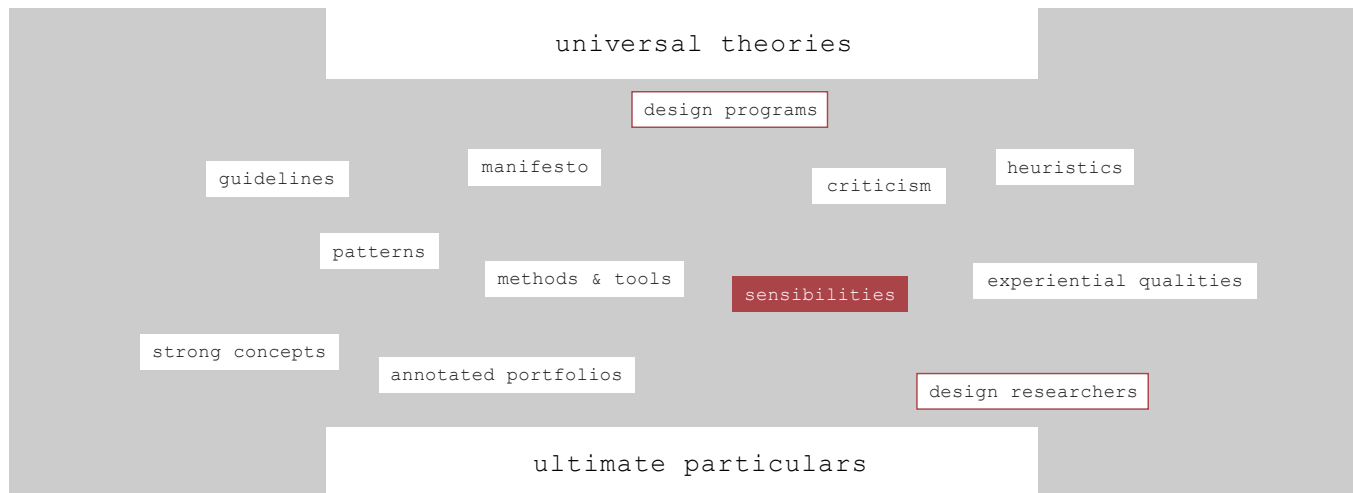


Figure 8: A schematic view of how sensibilities can be framed as intermediate level knowledge. In this view, we consider the design researcher as an ultimate particular, and argue for sensibilities as a form of intermediate-level knowledge that can be articulated, much as other already accepted forms. Adapted from Höök and Löwgren’s mapping of intermediate-level knowledge [74].

the collective and situated role of others within design programs. **So, while sensibilities are described here as individual, they are necessarily part of the commons, as they are in constant relation and remaking with the world and ourselves.**

The notion of sensibilities does, then, trouble the possibility of universal theories, and answer only to contextual and situated ways of knowing. In retrospect, the vertical organisation of the schematic view on figure 8 should be re-made. One might place the ultimate particulars and the design researchers themselves at the centre, with universal theorisation as one possible orientation for design outwards, but not necessarily in a hierarchical position of superiority, but rather as a form of knowledge at the margins of design practice. Other forms of theory are much closer to the core of design.

6 Making Space for Sensibilities

Even when framing sensibilities as knowledge and positionality, many issues remain, including understanding the material realities of practices, the political assignment of who gets to decide what programs are worth developing, who has access, but also what world views are deemed acceptable. Programs themselves and their world-making ability have the potential of surfacing the type of knowledge, we felt was implicit in architecture school. In Redström’s words, programs have “*two important implications: first, rather than being a matter of unpacking something already in place, the program calls for an explicit articulation of intent that cannot be taken for granted; and second, these worldviews, therefore, do not have be something already existing.*” [105, p.3] We argue this intent is shaped through sensibilities.

Practice-led research or research through design are established on the acceptance that at least part of their knowledge contribution is through artifacts or conclusions derived from them in the form of guidelines, experiential qualities, or heuristics. As we have

mentioned, the notion of intermediate-level knowledge is trying to formalise what to expect from design research, but much of what is design knowledge is often simply described as tacit or implicit. Redström agrees that it is problematic to assume that design researchers “*do not quite know what they are doing with theory*” [105, p.12], but also wonders if we are looking for the wrong things: “*What if we do not see what theoretical contributions are actually there because we are looking for the wrong kind of closure?*” [105, p.13]. **We propose that the closure of design knowledge lies within the designers themselves and the relationships and alignments they create—indicating that theories need to be collectively lived rather than merely applied.**

The ongoing and fluid nature of design sensibilities—that can start early, change, mutate, adapt themselves, be inspired by others, or slowly forgotten—requires constant re-articulation. That same continuous reassessment is what keeps or lets a sensibility fade. This is a complicated and important labour that needs space and attention. Such design practice requires open-ended unplanned time, along with the ability to afford the intentional consideration of sensibilities together. Arguably, this is in line with any other form of intermediate level knowledge: guidelines should be revisited, heuristics reassessed, patterns developed, even prototypes remade.

This attention to fluidity is in line with the argument made by Gaver et al. in favour of emergence as a feature of practice-based research. They point out that “*There is also a kind of rigour in attending to clues, seeking radically new perspectives and following untravelled paths, a rigour that is one of the hallmarks of good design.*” [55]. However, to make space for that rigour, the sensibilities that allow the curiosity of seeking those new perspectives should be identified and fostered.

This resonates with Nelson and Stolterman’s notion of design judgment, understood as the cultivated ability to make situated and responsible decisions in complex and indeterminate design

situations [91]. In their words: *“Being a designer is about doing design. It is about being involved in design inquiry and action. It is about developing a sensibility to the particular while drawing from past reflective experience. It is about developing one’s core values and character as a designer and applying those in appropriate ways to the situations at hand.”* [91, p.259]. Their emphasis is explicitly on the individual and their slow development of character, while we are concerned with the collective makings of such knowledge and how they mirror themselves in the theories we live within.

The explicit formulation of sensibilities that are fostered under specific programs is a task that reveals relational tensions: for example on who is excluded and who is included. Recognising and articulating what work inspires designers may be of aid in identifying, for example, an influence of a tech-positivist orientation or a de-colonial framing. In times of uncertainty and change, recognising in what ways we need to be attentive to forms of being together against “business as usual” [83] will have consequences on who is welcome or able to participate in working within certain programs.

Assessing our collective and individual positionality and role in the futures we are supporting, is a form of critical resistance within academia. But in order to resist, a sensibility is required to identify what matters (and why) in the first place. Hence, we portray sensibilities as a form of knowledge that does not necessarily follow all the criteria for detached transferability and generalisability—much like other design knowledge. Sensibilities are not generalisable and their transferability relies on non-abstract exchanges, often through spending time with one another. In design research, these forms of knowing are made material through artifacts that carry evidence of the sensibilities (and life-worlds) they were built with.

In short, what we suggest, is that taking sensibilities seriously as a form of knowledge is an exercise that consumes time and effort, but is worthwhile. **We believe that sensibilities find their way to the cracks and crevices of all research, hence to leave them unarticulated would represent lack of rigour.** They become a fundamental part of our positionality and the ground for accountability and reflexivity. We posit: recognising, fostering, and articulating design sensibilities is a research necessity, and one that contributes to a non-aseptic and relational view of knowledge. If sensibilities are a skin, they are also the bacteria we carry on that skin, something that in a lab setting should be avoided at all costs. But design work is not conducted in clean-rooms, and the bacteria may form the start of discovery.

7 Disclaimer

As much as we carried an architectural sensibility to HCI, we also carry a feminist sensibility from academia into the account we make of architecture school and education. This leads us to recognise our Eurocentric perspective and conventions reflected in the chosen literature and even in our work (see the classic architectural representation of the human figure in the sketch above, figure 9). This is one of the many issues with architecture as a field that we do not wish for HCI to inherit.

Indeed, we do not see the discipline of architecture as an ethically or aesthetically superior field in any way. Amongst our concerns, is the problem of how patriarchal the field is, with an undue reverence to the black-box like view of the architect. We have attempted, to

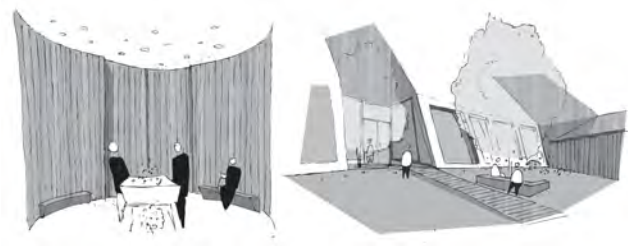


Figure 9: Two sketches from our early career as architects. Note the anonymous and amorphous representation of the human body, quite common in architectural sketches.

the best of our ability, to strip some of the patriarchal undertones from our articulated sensibilities. It is however sadly noteworthy how all the references we give here are authored by men. We could of course have added the more diverse perspectives that we have learnt of later, but that would be an inaccurate portrayal. Our education in architecture was riddled with issues of power, students were treated poorly, and there was toxic competitiveness and unreasonable deadlines with little agency given to the student bodies.

As an unfortunate consequence, we are expressing western and European-centric sensibilities that might already be at the very centre of accepted design tenets. However, the path for this form of knowledge is inclusive. We position sensibilities as collective and political forms of knowledge. They are developed over time through participation in design cultures, and such participation must be open to the margins. Recognising sensibilities as legitimate knowledge contributions calls for greater attention to how theory is embodied, how experience is shared, and whose ways of sensing are allowed to matter. We carry forward the duty of aiding in the facilitation of the expressions of many other diverse sensibilities into the field.

We still believe that aspects of architectural ideas and sensibilities are valuable to interaction design, but this translation should be done with care, particularly so that a diversity of sensibilities are included and welcomed.

8 Conclusions

Through the first-person retracing of our journeys and re-readings of architectural theory, we have attempted to explain how sensibilities were formed in a manner that translates to interaction design, in intimate interplay with particular design programs. The expansion of theoretical vocabulary in academia reflects a growing ambition within the HCI community to critically position design towards embracing resistance, criticality, and activism. In this paper, we propose that rather than viewing concepts and theories as abstract ideals, they should be seen as avenues for shaping design sensibilities, directly influencing both practice and the identity of design researchers. In other words, the work we do intra-actively shapes who we become.

It is our main argument that design researchers are in continuous re-definition with, against, and alongside, the design programs they work with; but that such a change is often invisible and taken for granted. This is part of what constitutes

the material reality of research within the bodies of researchers. These sensibilities become personal/collective heirlooms and narratives deeply intertwined with programs themselves—and forms of knowledge in their own right. By extension, we trouble positionality by creating a collective voice with direct effect in the writing of this article. We exemplify this process of identification through our own architectural education and practice.

In this turn to sensibilities, we go beyond the ocular-centric understanding of world views, towards felt-worlds; where we frame corporeal theories as a skin that takes both time to build and to shed. We propose that attention to design sensibilities allows us to expand the theoretical span of design programs into a more clear accounting and reflection on how the identity and relational entanglements of the researcher are shaped and may guide a body of work. Such attention comes in three stages: (a) becoming aware of our own sensibilities, how they were formed in the space between theory and practice, and how they are evolving, actively changing ourselves through reading and engaging with others; (b) allowing our sensibilities to reflect who we (collectively) want to be; and (c) finally working from and acknowledging our positions in ways that make explicit the interdependent relational dimensions that contribute to them.

As a takeaway message, we encourage design researchers to collectively explore the crevices of their theory-practice skin, through conversations and retrospective *dérives*, or whatever other activities suit their contexts (e.g.: the streets, the maker-space, the libraries, the rehearsal room). But more importantly, we argue for the importance of recognising and acknowledging the heirlooms we carry and pass on, as a duty of relational epistemology, allowing us to account for the space from which we design. Once these sensibilities are at least partially articulated, we can continue to deliberately hone them through material experiments and exposure to theory and each other. Alongside this, we call for all those engaging in the active development of design programs to curiously assess what sensibilities are entangled with the felt-worlds that sustain (or compromise) them. Formalising these as intermediate level knowledge also allows that work to become entangled with more conventional research outcomes.

We do not just read, design, and do; rather we live through the notions that have incorporated themselves in our bodies as deeply felt truths and knowledges. We have found that the field of HCI draws from a multitude of practices and priors, with this paper, we propose that we find a way to articulate, recognise, share, and cultivate them.

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