MONASH University

Embodied Enquiry through Storymaking:

Collective interpretation and meaning-making of one's lived experience in co-design workshops

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ABSTRACT

Workshops are becoming a prevalent part of co-design professional practices. Central to this workshop practice is a commitment, and belief, in the value of seeking participant engagement. As a result, this engagement can generate insights that will meaningfully inform design decisions. This research is based on the premise that the co-design process often fails to fully leverage participants' making-meaning of their lived experience in the analysis phase of the project. To that end, I argue that because people can be considered experts of their lived experience, there is an opportunity for co-design to seek out participants' analysis of their experiences in more participatory ways.

As part of a growing interest to consider the role of analysis in the design process, this exegesis seeks to bridge the gap between co-design's disposition to form-making and storymaking's ability to make sense of embodied data that the process generates. I posit that by deliberately using the workshop space as a mode to facilitate participant's generative inquiry, co-design can extend material form-making as a way for participants to make haptic embodied data for use in sense-making and meaning-making. As such, this research asks How might co-design workshops utilise participant meaning-making for analysis of lived experiences?

Workshop-participant insights often focus on felt, embodied qualities of lived experience. While research methods such as surveys, questionnaires, interviews, focus groups, and observations can be used in the design process to help elicit insights, there exists limitations in analysing the material and haptic data of co-design. Although participants are routinely 'probed' to generate insights from their lived experience, it is conversely uncommon to engage participants in the analysis phase of a project. Although the workshop participant might be positioned as a co-investigator there is often a belief that the analysis phase should be discreetly owned by the design researcher. For once the workshop ends, the creative practitioner will return to their desk and attempt to make sense of the large amount of data they collected within the workshop. This process can often take days or weeks depending on the amount of data generated. In doing so, the meaning-making process takes place at a distance from the participants themselves. What if rather than using data to 'validate' patterns or phenomena observed in participants' lived experiences, workshops could be designed as a space that brings participants and analysis together in real-time? What might co-design achieve in facilitating data generation as a more equitable and meaning-making process? The design process could then be able to depart from the creative practitioner determining whose

experience is validated and instead move toward centering the participants' analysis of their own lived experiences. This research explores how analysis could be reframed to explore what participants might do to their data to make it meaningful for them.

As a response, this pragmatic exegesis explores how a scaffolded workshop process, that I call Embodied Enquiry, puts analysis back into the hands of the participants. Evolved from 5 workshops developed and iterated on throughout the course of this research, Embodied Enquiry is made up of three scaffolded activities: first, a data generation phase explores enquiry into embodied experience through form-making. Collective interpretation then addresses enquiry into embodied subjectivity through sense-making. Lastly, an analysis phase considers how enquiry into embodied ways of knowing can be explored through meaning-making. This exegesis documents and reflects upon the implications for a more equitable-motivated strategy in engaging participants in the meaning-making process of analysing their own and their peers' lived experiences.

Invested in how Embodied Enquiry can be deployed in practice, this exegesis examines what this workshop scaffolding offers to participants, creative practitioners, and co-design. By introducing storymaking within co-design workshops, I argue that it can help formalise participant interpretation and analysis in real-time. Informed by literature on storymaking and narrative inquiry, this research seeks to align how stories of lived experience might present opportunities for introducing new modes of analysis that furthermore help participants' story their own experiences. Since co-design processes focus on the active role of participants, I posit that there is an opportunity to move past asking 'users' what they want by bringing interpretation and analysis into their hands in the space of a workshop, offering a way to make meaning of one's own lived experience.

Declaration

This thesis is an original work of my research and contains no material which has been accepted for the award of any other degree or diploma at any university or equivalent institution and, to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

Kelly L Anderson
28/02/2022

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TERMS

The terms presented below help to frame how I use several terms throughout this exegesis. These definitions are meant to give direction for the reader, as many of these terms are common in everyday vernacular or throughout the design process.

Co-design: a process by which practitioners and participants work together in design development. This working together is vital to the equitable nature of form-making, sense-making, and meaning-making within this process. While co-design can be implemented in various spaces, the focus of this research is on workshops that may only engage participants once in the process. The use of 'design' as a noun refers to constructing an object or system to implement an activity or strategy. The verb 'to design' expresses the process of developing a design – the act of creating a product, process or service.

Creative practitioner: it is not enough to simply facilitate a design process, nor is this someone who comes from (a specific professional background); instead, a creative practitioner comes with an approach that is generative and participatory. A creative practitioner activates principles through practice, including people trained or not trained in design. A creative practitioner is familiar with facilitating with materials or visuals (e.g. an art therapist). The term 'designer' denotes exclusively someone with formal design training.

Design: (verb) to steward a process that creates value for stakeholders, including creating spaces and tools for meaning to emerge.

Design process: refers to a creative practitioner's sequence of activities, possibly using design methods. This process is not universal and can adapt to specific stakeholder needs and timelines.

Designer: refers to a person who professionally produces designs or practises design as a verb.

Embodied enquiry: a workshop process that scaffolds the active questioning of a participant's lived experience through three activities for the purpose of interpretation and analysis: form-making, sense-making, meaning-making.

Narrative: a way of being and, through making stories, constructing knowledge. "It is the narrative mode that takes account of the context through the stories constructed to make sense of human experience" (Kirkman 2002, 30). Narrative is a way of being in the world and, through the making of stories, we make sense of our lived experiences.

Participant: while a participant may be a subject matter expert or another stakeholder in a project, this research is unique in that enquiry into lived experience is not contingent on a particular professional's or stakeholder's relevance to a topic. Instead, embodied enquiry is rooted in the belief that anyone can participate in interpreting and analysing their own experience. Put simply, a participant is a person who takes part in something.

Practice-led research: whereas practice-based research focuses on a creative artefact as a means of investigation, practice-led research aims for theoretical exploration for knowledge production and contribution to the field through practice (Candy 2006).

Prototyping and iteration: a prototype evaluates a new design by participants, or users. Prototyping provides specifications for a working system and the prototyping process demands several rounds of evaluation with participants, or iterations.

Story: a constructed description of a narrative of being in the world; an account of past events in someone's life or the development of something.

WonderLab: within Monash University's Emerging Technology Lab, WonderLab is a doctoral learning community focused on designing transformative encounters. We work with design to shift how people see and act in the world. We collaborate with psychologists, health researchers, architects and education scholars to translate evidence-based research into applied interventions. Our practice-led approach uses ethnographic, participatory and creative methods to design and evaluate perspective-changing encounters.

Workshop (co-design): a facilitated engagement where, in general, there are goals for material making that examines or informs products, processes or services. Co-design workshops offer space to help drive the design process, rather than producing designed products.

"

The immediacy of experiencing provides the raw material to be shaped through interpretation,
reinterpretation, and communication into its lasting form, or through the sensemaking process. A lived
experience is not only something that is experienced; its being experienced makes a special impression
that gives it lasting importance. An account of lived experience is incomplete if it remains purely
descriptive; it must contain an interpretation of significance for the person. A person's life story has
two dimensions that contribute to its forward movement or directedness: a chronological sequence of
episodes and a construction of meaningful totalities out of scattered events (Frechette et al. 2020, 2).

"

Preface

I'll never forget the time my co-workers and I volunteered to spend a day going through a Myers–Briggs training. This workshop asked us to fill out a questionnaire to find out what psychological type[1] we are and its subsequent preferences. The theory goes that these 'types' have consequences in the workplace and can affect professional relationships and processes among projects.

For example, perhaps Janet[2] in accounting needs something from you in order to finish a report and she emails a short ask: "Kelly, when can I expect copies of those invoices?" While one person might react negatively to this email, thinking "WOW, JANET, CALM DOWN, WHEN I HAVE THEM!," another could read it as "Oh yeah! Janet needs those invoices." While the first person might put preference on social relationships and mistake a simple question as an impersonal demand, the second person might put preference on organisational decisions and see this as a simple ask. Either way, communicating something that can be inferred differently from your original intention might have unintended consequences within the workplace. Hence the need to understand types and preferences, and how they might manifest in everyday things.

There I was in the Myers–Briggs workshop, enthusiastically oversharing with co-workers and eating free pastries.[3] I had already completed this training during university ten years prior, but I wanted the free pastries. The workshop facilitator would periodically call on one of us to share a story or description in order to point out how some of the types would manifest in verbal, written and/or body language. Eventually the facilitator called on me and another co-worker to share "how we commute to work every day."

I went first and said something to the effect of (I was living in New York City at the time), "I leave the house as late as possible, coffee in hand. I walk past garbage juice that never seemingly gets washed off the sidewalks to the G Train. Will it come? Who knows! When will it come? Never! I wait what feels like a few aeons and try to find an empty-ish train car. What's that smell? I don't want to know. I begin to sweat uncomfortably and take the train past a bazillion stops until my station arrives. I transfer to the A Train – easily one of the worst morning-commute trains, namely because I usually have to let three or four trains pass before there's room for me. And by room, I mean a single, solitary air molecule of space I can contort my body into. *What's that I feel on the back of my leg? I don't want to know. What is dripping from the ceiling of the subway car? I don't want to know. Who is listening to ABBA on their SPEAKERPHONE? It is 8:30am IN THE MORNING!* Anyway, I take the A Train towards Wall Street, where I get off and walk past the New York Stock Exchange along its cobblestone street. Finally, I enter our office building and go up the elevator to our floor."

My co-worker who went next simply stated (I'm paraphrasing here), "I walk two blocks to the A Train. I take it four stops, walk about five minutes and I enter the building. My commute takes me about twenty-five minutes."

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1 MBTI Basics. The Myers & Briggs Foundation 2022. https://www.myersbriggs.org/my-mbti-personality-type/mbti-basics/.

2 Janet is not her real name and she was never short with me. I emailed those invoices to her immediately.

3 Side note: I ended up with the EXACT type as I did ten years prior, which I found fascinating – ENFJ for those interested. This finding would come to annoy my co-workers, who were sceptical of Myers–Briggs in the first place.

As you probably suspect, everyone in the room laughed (at me). And mainly laughed at what I considered to be part of my commute. While I described the experience of the commute, my co-worker explained the actions of the commute. The point the facilitator was trying to make was that some people "will focus on extraneous information." I'll never forget that phrase: extraneous information. What I considered important was extraneous; what I was affected by was *extraneous*; what I focused on in the world was extraneous. Affect became an example of what to "manage around" in the workplace.

It seemed to me as though the data that I attuned to in my commute, the variables that affected me and that I took notice of, were not 'valid' when answering the question. Instead of my description of the commute acting as a way to discover new ways of framing a story, it was instead a 'cautionary tale' of what extraneous information might exist within a story. Besides feeling like I didn't fit in, by not being able to answer a 'simple' question, I couldn't help but be alarmed by the irony in the room. The organisation we worked at is an education/mentoring non-profit where, as Associate Director of Program Design and Experience, my job was to improve the program's *experience* within high schools. But what if my own co-workers found experience to be extraneous? I shuddered at the thought and in that moment, all the debates and arguments I had had in previous meetings about 'what to design for' in our program came rushing back – of course the idea of designing for how students felt in our program was never taken seriously. It was *extraneous*.

What else could the room consider *extraneous* in the lives of our students? What was extraneous in terms of their learning experiences? What was extraneous in terms of the program? Why was a learning experience simply reduced to actions such as: walking into the classroom (attendance), sitting quietly at one's own desk (behaving), taking notes from the whiteboard (following along), answering the teacher's questions correctly (participating) and writing down the 'right' answers on worksheets (passing)? What was being left out? What was being ignored? What wasn't considered? Heard? Seen? Felt?

01. Introduction

1.1. What I come to this research with

Much of my professional practice has focused on working with people, listening to embodied insights from their lived experience – how something felt and what it meant to them. These insights have contributed to a deeper understanding of *how* participants experienced a product or service. Working at organisations such as education non-profits would entail eliciting insights from our program's stakeholders (high school students and volunteers) to understand better how they were experiencing their mentoring relationship, focusing on what enabled and what constrained their engagement. I would run focus groups, workshops and brainstorming sessions that left me with dozens upon dozens of Post-its, notes, themes, observations, questions and ideas – on top of hours of audio and video recordings.

We would hear stories shared and epiphanies made. We now knew the names, faces and lives attached to the issues we faced in the program. This qualitative data gathering was an effort to complement the quantitative data our organisation collected and analysed. What invariably would happen is that the content generated from participants was dismissed as anecdotes, anomalies, outliers, extraneous or *statistically insignificant*. The lived experiences of the volunteers and students we were committed to serving were often overlooked or outright dismissed. The idea that a young student's story was statistically insignificant simply blew my mind. When purposely not integrating their data into analysis, the process took priority over the participant. There was a gap between eagerly seeking out participants' experience and feedback, and quickly disregarding their time, stories and insights within the analysis of program data. The ethics of wasting key stakeholders' and young people's time, having to set aside the stories I heard and the lost opportunity for them to meaningfully contribute to improving the program all informed the position I bring to this PhD. The motivation to find a way for participants to analyse their own lived experience has brought me to this research. My professional practice has evolved into practice-led research and an attempt to examine how creative practitioners can move past 'giving voice' to data and instead offer avenues for analysis in participatory spaces.

I have long been fascinated by the power of storytelling within design spaces. To me, there is a clear relationship between design's ability to create a material, haptic language and that of stories, so much so that I dedicated my undergraduate thesis to examining a way to combine storytelling and making. I wrote at the time:

> Coming from a traditional industrial design background, I believe one of design's most effective qualities is the ability to transform intangible ideas into material forms. Seeing the field of design as action and not as mere output allows for more mindfulness as to what and how data is captured. Design has the power to transform fields into responsive paradigms that help shape the meaning of findings rather than analysing afterwards what data means in context to projects.[4]

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4 Anderson, Kelly, and Reid Henkel, *This is Water* (MFA Thesis, 2015), 10.

The motivation for a more mindful data-generation and meaning-making process led to what my thesis partner and I called *reflective making,* or the combining of systems storytelling and form-giving. In the context of our thesis, we stated design is:

> normally used to visualise systems, networks, and data, while storytelling is thought of as the articulation of narrative. Reflective making flips this relationship by allowing forms to tell the stories that in turn illuminate the larger system.

We chose to focus on exploring chronic stress on high school students and what design can do to help mitigate the effects of that stress. By actively engaging students in a conversation with their stress, the larger system that surrounded their educational experiences became visible.

Ever since, my practice has focused on embodiment and co-design's ability to make meaning through stories. By combining storytelling and making within workshops, co-design can extend the analysis to participants. The desire to seek participation in the analysis phase of projects is in response to my training in more traditional design processes. Typically these processes seek out participant engagement in the earlier stages of a project, but then take the project out of the participants' hands and onto the designer's desk to synthesise and make meaning of it. I explore one means of seeing experiences in new ways, physically engaging through the material – adding, amending, editing and revisiting these forms to make sense of lived experience, make meaning of its context and make possible[5] new futures.

For example, *Stress forms* (see Figure 1.1) was an attempt to make public high school students' stress visible and haptic through form-giving: through the mass, density, texture, colour and material associated with the stress. This technique attempted not only to implicitly translate unconscious thought into conscious form, but to do so in order to give a different language to the felt experience. Figure 1.1. shows a student's stress form manifested in haptic material. Each of the shapes, colours and materials used represents an aspect of their stress.

In addition to *Stress forms*, the image in Figure 1.2 shows a manual mapping activity that sought to visualise the 'loudness' (diagonal lines) or 'quietness' (straight lines) of a student's own stress. This activity attempted to map the story of what their stress was *doing, saying, feeling* and *thinking* over the course of 10 weeks. Figures 1.2 and 1.3 show the literal ebbs and flows of students' stress. Figure 1.2. illustrates the diagonal lines indicating when a student's stress was loud in what it was doing (e.g. sweating from anxiety), saying (e.g. self-critical language), feeling (e.g. sadness) and thinking (e.g. thoughts of self-doubt). Figure 1.3 shows three different students' stress (labelled by colour) over the course of 8 weeks.

These maps offered us, and the students, to recognise patterns over time. This visual tool allowed students to literally see their stress in a different way, helping them to make sense of the ebbs and flows that were felt, but not seen. Through the act of making, the string forms became the story of their own stress. This project, although just one example, shows how the boundaries of the data generated and how it is

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5 Lisa Grocott states, "Disruption and provocation are tactics we use to make waves, troubling the status quo in a quest to make right. At the heart of a designer's iterative process is recognition that we make shifts so we can make possible. This is how we use critical making to craft new habits, new futures, new ways of being" (2017).

Figure 1.1 Stress forms (image source: Kelly Anderson 2015)

A visual representation of a high school student's stress. Note the size, shape, colours, textures, and materials used. These elements come to signify particular characteristics of their stress.

Figure 1.2 Doing Saying Feeling Thinking (DSFT) Map (image source: Kelly Anderson 2015)

A manual mapping exercise that high school students give shape to the "loudness" or the quietness" of their stress over four dimensions: what their stress was doing, saying, feeling, and thinking (DSFT).
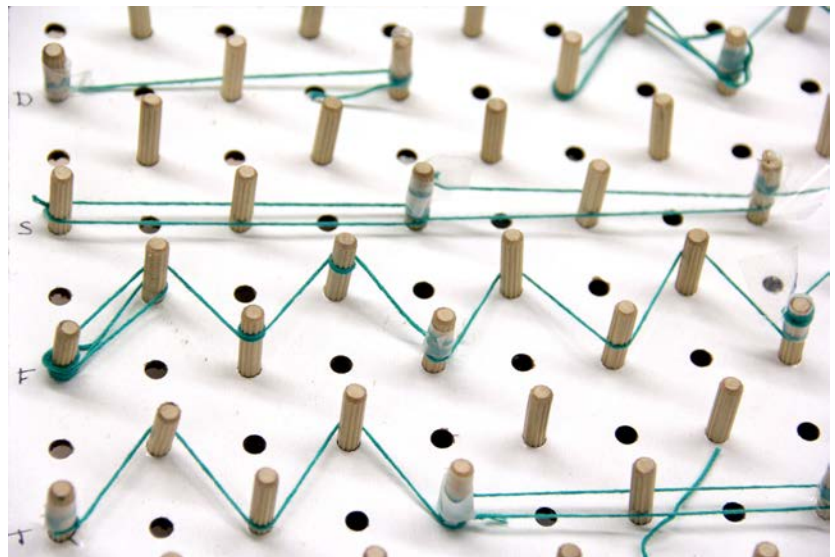
Figure 1.3 Full DSFT map (image source: Kelly Anderson 2015)

A DSFT map that shows three different students' stress, as coded by colour, over the course of 8 weeks.
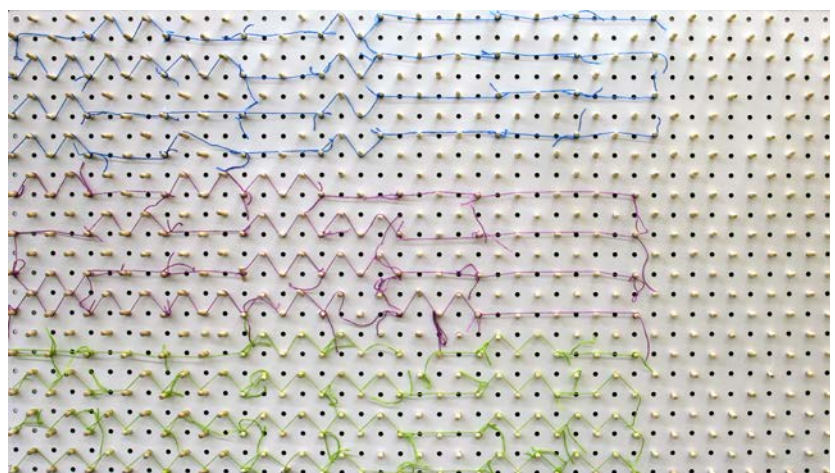
used within the design process can speak more directly to the visual, haptic disposition of co-design. Rather than using data to 'validate' patterns or phenomena observed in participants' lived experiences, workshops can exist as a space to bring participants and analysis together, and facilitate the generation of a meaning-making process. The design process can move away from validation of others' experiences by its creative practitioners to centring participants' own analysis of their lived experiences.

Consequently, this research is based on the premise that the co-design process often fails to take into account the participants' ability to make meaning of their lived experiences in the analysis phase of a project. To that end, I argue that because people can be considered experts on their own lived experience, there is an opportunity for co-design to seek participants' analysis of their experiences in more participatory ways. This research contends that by deliberately using the workshop space as a mode to facilitate participants' generative enquiry, co-design extends material form-making as a way for participants to create haptic embodied data for use in sense-making and meaning-making. As such, this research asks: *How might co-design workshops utilise participant meaning-making for analysis of lived experiences?*

This exegesis documents a design response to these opportunities through a scaffolded workshop process I call *embodied enquiry*. I will explore how the activities of form-making, sense-making and meaning-making can enable enquiry into materially embodying lived experience. In addition, the introduction of storymaking within the co-design workshop, I argue, helps formalise, or create a structure for, participant interpretation and analysis in real time. This research seeks to bridge the gap between co-design's effort to introduce analytical mindsets and storymaking's ability to make sense of embodied data. Specifically, it examines the factors contributing to the affect felt within lived experiences.

1.1.2. Outlier data is outlying people

The digital publishing website *Medium* acts as a centralised online resource to explore practices, methods and approaches. The website states that, "Here, expert and undiscovered voices alike dive into the heart of any topic and bring new ideas to the surface. Our purpose is to spread these ideas and deepen understanding of the world" (Medium, 2022). While not an academic source, it provides creative practitioners with the trials and tribulations of enacting research and theory. As a supportive resource, it assists in identifying patterns across professional practice and noticing what works for others in participatory spaces. Digital spaces like *Medium* can be quicker to publish than academic journals in response to disciplinary changes, affording practitioners immediate insights into best practices or red flags. For instance, the onset of COVID-19 has forced creative practice to move online, with practitioners having to figure out[6] how to do so effectively. While I would have to wait longer for academic sources to be published, *Medium* has offered a space for me to quickly glean insights into others' design projects.

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6 This term comes from Lisa Grocott, 'The discursive practice of figuring diagrams', TRACEY Journal: Drawing Knowledge 4, no.

Examining how other creative practitioners reconcile the idea of outlier data in their practice, I wanted to identify if others struggle with the notion of making a participant an 'outlier' in their work. Throughout my professional life I have tried to challenge the notion of outliers in data, pushing back when people are deleted in analysis. Therefore, this research establishes and situates itself in data equity[7] – the notion that there is no 'outlier' data, no statistical insignificance, no anecdotal anomalies in voice and story. There are political implications within co-design and participatory spaces when working with marginalised communities who become edited out in the data. As noted in the preface, dismissing someone's data as something that cannot be 'resolved' in analysis can implicitly dismiss their lived experience.

One entry found on Medium, written by Ritika Singh, notes that:

> an outlier is a data point in a data set that is distant from all other observations. A data point that lies outside the overall distribution of the dataset. Or in layman terms, we can say, an outlier is something that behaves differently from the combination/collection of the data (Singh 2020).

The image used in the article (see Figure 1.4) visually encapsulates the look and feel of an outlier data point.
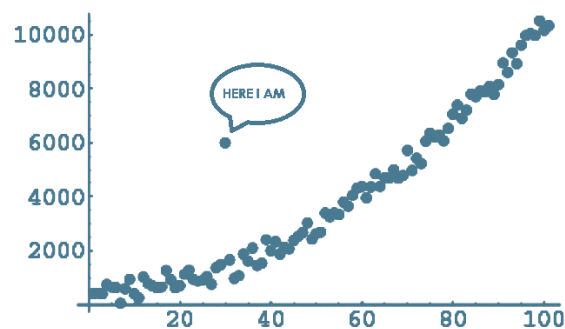
Figure 1.4 An outlier data point (image credit: Ritika Singh ©2020)

I want you to imagine you are this data point. You are seen to be 'behaving' differently in the dataset.

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7 Equity and equitable contribution: grounded in equity and power, my practice uses a participatory design lens in its approach to people, places and things, holding space for more equitable contribution with, by and for participants. This working together is vital to the equitable nature of form-making, sense-making and meaning-making within this participatory process.

Your voice, story and lived experience do not fit the 'pattern' and are inevitably defined as an 'outlier'. You probably would not (want to) marginalise a young adult just for being different, but we marginalise their data. We edit it out, prune it, manipulate it, delete it and say it lies outside the 'distribution'. While a quantitative data analyst might have distance between this participant and their work, I, and many other creative practitioners like me, work directly with this person. We see their face, we know their name and we hear their story. How do we make sense of people's stories of lived experience without making them outliers in the data? Going one step further, how can participants make sense of their own stories in order for the stories to become better integrated within the analysis of data? I explore one way to bring this work to the participants themselves: making meaning of their own experience in co-design workshops.

1.2. Research opportunity and design response

While there are many ways to respond to the opportunities explored in this chapter, I have created a scaffolded workshop process for co-design projects. This exegesis's contribution to co-design investigates how this scaffolding is uniquely positioned to explore the ways participants can interpret and analyse their own lived experiences. This is an effort to speak to the strength of the participatory methods present in co-design, through the process of storymaking. While people can be considered experts on their lived experiences, their insights are not regularly sought in the analysis phase of a co-design project. There is an opportunity for co-design to complement more traditional research methods by utilising workshops as spaces for more open-ended, generative enquiry. The space and structure of a workshop are well-positioned to offer participants the needed time to reflect, make sense and make meaning of their own lived experiences.

This practice-led research examines how integrating storymaking and narrative inquiry can bring methods for self-interpretation and analysis to participants. More specifically, it calls on the aspects that provide structure for exploring embodiment. Simply put, embodiment is the active representation of what is felt within lived experience, positioning the body as central to that experience, rather than simply 'capturing' specific tasks, actions or behaviours along a timeline. Utilising the form-making that co-design is already familiar with offers an avenue to create something that is an embodiment of our own lived experience. While terms such as narrative and story can be used in a myriad of ways, I take a simple approach to each. Stephen Bowkett, in his work presenting creative writing techniques to students in years 7-12, outlines the history of both narrative and story. He states, "Narrative, from the Latin, means 'to come to know'. Story comes from Latin, too, in this case from historia. We get the word 'history' from that also and it means 'picture'. So a story is a kind of sequence of pictures that we place in our readers' minds through the power of the words we use" (Bowkett 2008, 15). In this research, participants use material, haptic forms instead of words as the "sequence of pictures".

The focus on what is embodied during an experience helps the design process to focus on how it was felt, rather than how accurately its participants accounted for it. What I term embodied enquiry is thus active questioning through giving form to the bodily affect of a felt, lived experience.

1.2.1. Workshop Process: Embodied Enquiry

This research presents one way that analysis can be brought into the hands of participants. As seen in below, the embodied enquiry workshop positions form-making as data generation for embodied experiences, sense-making as collective interpretation of embodied subjectivity[8] and analysis as meaning-making, specifically what participants do to their data to make it meaningful to them for highlighting embodied ways of knowing.[9]

> **Enquiry into embodied experience** through form-making (data generation)
>
> **Enquiry into embodied subjectivity** through sense-making (collective interpretation)
>
> **Enquiry into embodied ways of knowing** through meaning-making (analysis)

These 3 activities that make up embodied enquiry are scaffolded over time throughout the workshop. While these activities are sequential, they are facilitated more as transitional phases rather than step-by-step directions. Storymaking supports the purpose and engagement of generating material, haptic data. Instead of having an artefact as the main goal of a form-making activity, participants use material for the purpose of enquiring about a lived experience, constructing storied ways of knowing as they move through the activities of the workshop. While the scaffolding is described in further detail in Chapter 3, I briefly outline the activities below.

Activity 1: Form-making
Form-making generates data by enquiring into the embodiment of one's own lived experience. These forms represent the embodied experience and are referred to as 'embodied forms' throughout this exegesis. This research extends form-making as a way to make haptic data for use in sense-making.

Activity 2: Sense-making
Sense-making is the process of making sense of something, focusing on identifying themes for a better understanding (Kolko 2010). In this research, sense-making takes a participatory approach and utilises collective interpretation and different viewpoints to understand better the factors that surround and lie peripheral to lived experience.

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8 Embodied subjectivity: focuses on the role of the body in the formation of a sense of self and identity because it works with descriptions of scenes or events that are rich in circumstantial detail. It describes how a situation was experienced rather than how it was explained or accounted for by its participants. Such a focus on 'being in' a situation (as opposed to 'thinking about' it) implicates both body and mind (Latimer 2008).

9 Embodied ways of knowing: my practice is focused on methods that actively invite the subjective, constructive, embodied, relational and entangled aspects of lived experience. While this might be 'messy' for some disciplines, the intersectional and transdisciplinary approach of my practice demands this type of design attention.

Activity 3: Meaning-making
Meaning-making is the active construction of knowledge[10] and relates the "present moment to past and future experience in an anticipatory forward-feeling sense of direction" (Anderson 2018, 75). In this research, meaning-making assumes the role of analysis, examining what enables and what constrains lived experiences through what I call 'fill-in-the-blank' sentences.

In the context of this research, when I reference 'embodied enquiry' I am speaking to a participant's active questioning of their lived experience by making sense of it through a bodily lens, centring the internal world people live in. Thus, I use the term *enquiry* rather than *inquiry*. This research focuses on scaffolding the act of questioning, rather than seeking a formal investigation of lived experience. In fact, the only instance I will use the term inquiry is when exploring the field of narrative inquiry. When I reference aspects of embodiment, I am not referencing haptic technologies that 'read' a body's data such as wearables that quantify what is happening physiologically. Instead, it is the engaging through our body via which we can come to understand, and make sense of, a lived experience's wider context. This bodily understanding is what the workshop aims to construct meaning from. Embodied enquiry scaffolds activities that support participants to construct this meaning through actively engaging embodied understanding.

For example, when thinking of my morning commute (as presented in the preface), I could say 'the subway ride takes me 47 minutes, going past 12 train stops, over two bridges. I listen to my favourite music and text my mother on Whatsapp'. Or I could say, 'the ride affords me time to think, reflecting on the day ahead and what I should emotionally prepare for. It is the only "quiet time" I have throughout my day – the only time I'm truly alone with my thoughts. Sometimes I get anxious about what awaits me, and how I can manage it'. While both descriptions 'accurately' represent a commute, the latter helps in understanding how I feel about the experience of my commute, as explored through the lens of my body – what I'm doing, saying, feeling and thinking. A daily commute is much more than the sum of its actions and through embodied enquiry we can begin making meaning of the wider context an experience exists within.

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10 In this research, knowledge is seen as "information understood, retrieved, evaluated, and reused by the knower as a set of conceptual structures, and hard to communicate by speech or as a form of writing" (Zins 2007, 480).

1.2.2. Extending participant expertise into the analysis phase of projects

Within the world of co-design, people can be considered experts on their lived experiences and come together with practitioners to "cooperate creatively", as Steen et al. note (2011, 53). Through various methods, participants provide insights to design teams to inform the making of products or services. What is unique within co-design is what design researcher Tuuli Mattelmäki observes as people's "active role" in design (2008, 65). Proactively seeking insights from lived experiences is central to participatory spaces. The methods and facilitation implemented in workshops are strategically designed and scaffolded to focus on the active role of participants. The central tenet underpinning this research is that while people are sought out at the beginning of the design process for their insights, they are not similarly sought out in the analysis phase of projects.

Those trained in design are exposed to sense-making processes that are usually completed after the workshop ends and therefore exclude participants. It is common for a creative practitioner to view sense-making as a time-consuming process that takes place over many days or even weeks. Whether sense-making is based on patterns, noticing, hunches or intuition, it is an implicit process that someone 'sits with'. I am offering one way to scaffold this process, giving it a formal structure for those who may not have the tools to interpret and analyse alongside others. Instead of simply approaching this process as one that takes place on the designer's desk, there is an opportunity for co-design to extend it into participants' hands.

1.2.3. Extending co-design's disposition with working with material as a method to visualise lived experience through haptic, material form-making

The methods used to generate data within the design process vary from quantitative to qualitative to visual. Within co-design, methods that make haptic what is normally unobservable within lived experience drive the design and decision-making processes. For example, wants, motivations and desires that lie central to a participant's 'needs' are sought and identified throughout the design process. As Gausepohl et al. argue, "In the early stages of design, in particular, it is necessary to elicit users' tacit knowledge – information that is difficult to express or explain – in order to understand users' needs" (2016, 129). This information is often previously unknown to the participants themselves and co-design workshops present an opportunity to generate this understanding in real time.

While methods such as surveys, questionnaires, interviews, focus groups and observations provide access to the explicit, generative methods focus on making meaning from the implicit aspects of lived experience. As Penny Hagen states, such methods go "well beyond asking users what they want" (2011) and instead explore felt, embodied qualities. Generative methods complement others in their ability

to explore embodiment within lived experience. Rather than simply quantifying actions completed or behaviours observed, generative methods can provide participants with a way to explore what enabled and what constrained their overall experience. Quantifying actions and behaviours reduces a participant's lived experience to a series of interactions. Lucy Kimbell is quick to point out that within the design process, experiences are "often equated with behaviours, as if they mean the same thing" (2014, 69), as routinely seen in the "user requirements" or "usability tests" central to other design fields such as UX (user experience). There is an opportunity for co-design to extend its familiarity with form-making in order to make haptic the more embodied aspects of lived experience, extending past defining an experience as a series of actions.

1.2.4. Extending workshops as a space for generative enquiry and sense-making

Co-design is very familiar with supporting participants in using materials and artefacts for exploration and discovery. What can be expanded upon, and is starting to emerge now within the co-design field, is how best to analyse what comes of these haptic, generative methods. As Johnson et al. observe, "the challenge for identifying modes of analysis in design research is in the sheer breadth of options that can be applied" (2017, S4242). Although people can be considered experts on their lived experience, the design process often does not seek their engagement within the analysis phase of projects. Instead, researchers 'extract' or 'capture' data from participants, rather than finding ways to make sense and make meaning with participants.

Referring to the constructive process of enquiry, generative enquiry stresses "collaborative co-participation; it has the potential to move us beyond the limits of what we say, think or do and expand our familiar embodied forms of life. Generative enquiry inspires people to find new descriptions" (Schnitman 2008, 73). I focus on how embodied enquiry scaffolds a process for participants to generate enquiry into their own lived experiences, thus finding new descriptions for them.

The process of storymaking (combining making with storytelling) presents an opportunity to better formalise[11] mechanisms of sense- and meaning-making within co-design workshops. By formalising, I mean the active giving of shape to one-off activities such as affinity mapping by providing a formal structure that scaffolds form-making, sense-making and meaning-making within the space of a workshop. The effort to deliberately give structure is in response to the idea that, as Mattelmäki notes, "when participants are given time and tools, they can experience and to consider their problems, needs, and dreams" (2005, 93). Workshops can provide both time and space for enquiry into a participant's own lived experience, offering a place to consider, explore and respond in material, haptic language and artefacts.

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11 When I speak to formalising aspects of storymaking, a confluence of factors exists that positions storymaking as a mechanism for interpretation and analysis in co-design. Participants can be considered experts on their lived experiences and, as noted in this chapter, people organise their lived experiences in the form of stories. Why not extend this intuitive way of making sense of life into a more formal process of sense-making in the space of a workshop? Generative making methods visualise aspects of the lived experience and creative practitioners can use their expertise in form-making to integrate a participant's intuitive ability to organise their life through a storymaking process. Here the opportunity is to formalise these intuitive overlaps in practice for sense- and meaning-making in a workshop space.

Extending the use of material to explore a lived experience, workshops can extend the time needed to generate enquiry. The discussions that emerge within workshops can be more deliberately scaffolded for collective sense-making and meaning-making.

Rather than retroactively 'finding' meaning in the data of a lived experience, integrating storymaking into co-design workshops intentionally focuses on the literal construction of stories. Although approaches such as storymaking are not unique to co-design, this research argues that it is unique as a mechanism for a participant's data analysis in workshop spaces.

1.2.5. Extending analysis into the hands of participants for meaning-making

Since co-design processes focus on the active role of participants, I posit that there is an opportunity to move past asking 'users' what they want by bringing interpretation and analysis into their hands in the space of a workshop, offering a way to make meaning of their own lived experience. Being hyper-focused on 'use' presents a "limited picture of the world that participants inhabit, rather than seeing the context in which they exist in relation to wider social practices" (Kimbell 2014, 76). Scaffolding exploration of wider contexts can provide an avenue to take analysis off the designer's desk and into the hands of participants. The analysis process is often invisible, but Mattelmäki argues that it is something "designers are supposed to master as innovative professionals" (2003, 119). While some aspects of the design process are visible (e.g. prototypes), interpretation and analysis are often exclusive activities, hidden from stakeholders. While creative practitioners might find ways to visualise the steps of the design process for stakeholders, interpretation and analysis are often done after the workshop, away from the participants generating the data.

I argue that creative practitioners can facilitate a meaning-making activity much like we do form-making. There is an opportunity for co-design workshops to approach analysis as what Sophie Woodward describes as "what you do to data to make it meaningful" (2020, 147). I extend the definition one step further, defining analysis as *what participants do with their data to make it meaningful **to them.***

1.3. Research objectives and aims

Table 1.1 organises this research's aims, objectives and questions as explored across the chapters. The main research objective is to investigate how a co-design workshop might utilise meaning-making for analysing lived experience. The following objectives help answer the question: *How might co-design workshops utilise participant meaning-making to analyse lived experience?*

> Explore how to integrate storymaking and narrative inquiry as mechanisms for meaning-making in co-design workshops.

> Identify how analysis can be brought to the participants themselves, reframing analysis as what participants do to their data to make it meaningful to them.

> Introduce how the activities of form-making, sense-making and meaning-making can be scaffolded for generative enquiry.

The research aims to investigate more equitable contributions by participants in the analysis phase of projects. Although they are 'tapped' to generate data on their lived experience, people are not usually engaged in a project's analysis phase. Instead, after the workshop ends the creative practitioner will return to their desk and attempt to make sense of what they have learned, finding out what users, audiences, customers, patients, clients, patrons, employees 'really' think, feel, want, dream (Kolko 2010; Cheuk 2007). This meaning-making process takes place out of the hands of the participants, who are unknowingly edited out through this 'pruning' process. Thus, embodied enquiry explores aspects of embodied experiences, subjectivity and ways of knowing. I argue that by extending meaning-making into participants' hands, the design process can be more equitable in the analysis phase of projects. The research aims to answer the question: *What would engaging participants more equitably in the analysis phase of a project offer?* Most notably, this will help co-design evolve and shift from:

> 'giving voice' to 'offering' avenues for enquiry into our own lived experience

> 'extracting' data from participants to 'generating' data with participants

> identifying people's stories as 'anecdotal data', 'outlier data' or 'edge cases' to instead incorporating participants' insights through collective interpretation

> positioning 'users' in relation to objects to instead centring participants in their experience.

Extending activities for participants' interpretation and analysis of their own lived experience demands a shift in the enquiry's ownership. Rather than privileging the researcher who 'extracts' data from participants, participants are invited to generate their own data, constructing which avenues to explore within a workshop. To help facilitate participatory spaces, creative practitioners can shift language and the power dynamic inherent within the design process between facilitator and participant. For instance, the very idea that a practitioner may come to a workshop with a literal 'agenda' prejudices the boundaries that are available to be explored by participants. I will extrapolate this idea in Chapter 2.

Table 1.1 Organisation of exegesis aims, objectives and questions.

Chapter One

RESEARCH QUESTION

How might co-design workshops utilise participant meaning-making for analysing lived experience?

OPPORTUNITY 1

Participants can be considered experts in their lived experience.

OPPORTUNITY 2

Traditional research methods are limited in eliciting felt aspects of lived experience.

OPPORTUNITY 3

Workshops provide space for generative inquiry where creative practitioners can extend the act of making for use of analysis.

RESEARCH AIM

What would engaging participants more equitably in the analysis phase of a project offer?

OBJECTIVE 1

Explore how storymaking and narrative inquiry can be integrated as mechanisms for meaning-making in co-design workshops.

OBJECTIVE 2

Identify how analysis can be brought to the participants themselves, as what they do to their data to make it meaningful to them.

OBJECTIVE 3

Introduce how the activities of form-making, sense-making, and meaning-making can be scaffolded for generative inquiry.

Chapter Two

Exploring the 4 main fields of enquiry

METHODOLOGY

Co-Design

ETHOS

Participatory Design

EPISTEMOLOGY

Storymaking

ONTOLOGY

Narrative Inquiry

Chapter Three

DESIGN RESPONSE

Embodied Enquiry: a workshop process that scaffolds three activities: form-making, sense-making, meaning-making.

Chapter Four

RESEARCH METHOD 1

Practice Accounts

hosted workshops offered space to iterate on scaffolding and facilitation strategies.

RESEARCH METHOD 1

Prototyping & Iteration

probing for empirical insights and reflections; attendees experience workshop as a participant, but reflect on implications as creative practitioner, and the discourse it produced acted as the data collected in this research.

Chapter Five

DESIGN OUTCOME 1

Exhibition

participant artefacts and insights.

DESIGN OUTCOME 2

Co-Design Workshop

scaffolded activities.

DESIGN OUTCOME 3

Experiential Affordances

the enablers and constraints of lived experience.

1.3.1. Significance

Constructing and using stories within co-design workshops are not new. Co-design and the design process often use stories to elicit insights and observations within the research phase of a project. I argue that co-design can extend the use of stories into interpretation and analysis activities. Storymaking and narrative inquiry can assist co-design in doing so. While storymaking informs how embodied data is used to make sense and make meaning, narrative inquiry is used to inform the theoretical framing of what embodied enquiry assumes as knowledge. While this practice-led research is situated within the sphere of co-design, this exegesis speaks to any creative practitioner who works with visual, haptic, material, embodied, subjective and/or intuitive data forms. This research acknowledges that these types of data are not necessarily useful for all projects, but I want to provide creative practitioners within co-design with a way to make meaning from lived experience where relevant.

Co-design establishes activities that can generate embodied data. This type of data is special to the design process and is used to analyse what is generated. These factors may be present within spaces and objects, among relations and relationships, or throughout a timeframe. While I speak to the analysis phase of projects, creative practitioners can also apply embodied enquiry any time when seeking participant engagement. This engagement can take place during the beginning phases of the design process, to inform research and discovery, or towards the end to inform prototyping or project implementation.

Lived experiences are contextual, subjective, holistic, abstract and felt (to name only a few descriptors). The design process can better integrate methods and activities that are open to generating enquiry as a participant moves through the timing of a workshop. Rather than quantifying a set of actions and behaviours observed on the body within an experience, a process such as the one presented in this research can better explore the depths of lived experiences, seeking to make meaning rather than a chronological account of what happened. A creative practitioner will walk away with an anticipatory list of what enables and constrains the lived experience, instead of detailed explanations or descriptions. Embodied enquiry is concerned more with sensory information and how a participant experienced a situation, rather than an accurate chronological account. This focus on embodied subjectivity offers a contextual understanding that complements the data from other methods such as surveys, questionnaires, interviews, focus groups and observations.

1.3.2 Exegesis structure

This exegesis is structured across 6 chapters, detailed as follows.

Chapter 1 has introduced the context and opportunity of this practice-led research. I have highlighted the implications of keeping sense-making and meaning-making out of the hands of participants who are sought as experts on their lived experience but are not equally sought in the analysis phase of projects. I have explored how storymaking can act as a means of formalising interpretation and analysis in the space of a co-design workshop. Through means of making stories, participants can be offered a way to explore embodied experience, embodied subjectivity and embodied ways of knowing. The challenges presented in this chapter – participants not being sought for contribution in the analysis phase of projects; limitations of research methods with lived experience; workshops underutilised for generative enquiry; and lack of formalised analysis with the design process – intersect to create an opportunity for co-design to act as a contribution to knowledge.

Chapter 2 outlines the orientation of the research and theory reviewed across the literature. This chapter explores 4 main fields of enquiry: co-design as a methodology; participatory design as this research's ethos (the purpose, the why); storymaking as the epistemology; and narrative inquiry as the ontology. These 4 fields converge to support the theoretical foundation upon which embodied enquiry expands. The generative, material exploration seen within embodied enquiry is an extension and expansion of the disciplines of research that come together to formalise the scaffolding. As such, it draws on the following broad principles: Participatory design acts as the main driver of equitable consideration in decision-making within projects, while co-design and its methods recognise the need to understand the needs of participants. Narrative inquiry accepts the idea that knowledge can be held in, and retrieved from, stories, while storymaking provides a mechanism by which participants can engage with their narrative data. Storymaking, in particular, extends a haptic, tangible way of engaging with our data within workshop spaces. Narrative inquiry provides the grounding for the ontological concept of narrative ways of being and knowing that frames the underlying foundation which this research expands upon.

Chapter 3 overviews the workshop process of embodied enquiry as implemented for practice-led research. This chapter attempts to articulate the underpinnings that act as its foundation and structure its scaffolding. The chapter breaks down each of the 3 activities present within embodied enquiry's process: exploring embodied experiences through form-making (data generation); understanding embodied subjectivity through sense-making (collective interpretation); and examining embodied ways of knowing through meaning-making (analysis). By using co-design's professional familiarity with form-making, participants are offered an avenue to analyse their visual, embodied data in the workshop itself. By focusing on introducing storymaking within workshop spaces, this research investigates how participants may interpret and analyse their data – shifting a workshop's outputs from making forms to making meaning without a predetermined compass can unlock insights not foreseen or searched for by co-designers.

Chapter 4 presents 5 different practice accounts that investigate the value of embodied enquiry in action, exploring how embodied subjectivity can be visualised through form-making, collectively interpreted through sense-making and analysed through meaning-making. The workshops presented in this chapter

examine the scaffolded process in practice through 3 empirical themes: the value embodied enquiry offers the participant (Section 4.2), the creative practitioner (Section 4.3) and co-design itself (Section 4.4). Each of these themes revisits the research question: *What would engaging participants more equitably in the analysis phase of a project offer?*

Chapter 5 explores the relationships between what embodied enquiry offers participants, creative practitioners and co-design as seen in testimonials and observations and how they are contextualised within the literature presented in Chapter 2. Through exploring how co-design is positioned as this research's methodology, participatory design as the research's driving ethos, storymaking as its epistemology and narrative inquiry as its ontology, the data collected in this research is grounded and made meaningful. This chapter revisits the mechanisms that make up embodied enquiry's foundation and the scale on which each influences the work seen in this research.

Chapter 6 concludes this practice-led research's insights. When I originally set out to find a way to integrate story construction and storymaking as a mechanism for interpreting and analysing our own data, I found that co-design offers an opportunity to amplify its strength and act as a formalised mechanism for form-making in adjacent disciplines. Creative practitioners have an opportunity to act as stewards of material, haptic language-making for story construction where relevant. Material language can be the compass by which participants guide their enquiry about lived experience and generative enquiry.

1.3.3 Online Exhibition

An online exhibition acts as a companion piece to this written exegesis and presents further information, visual artefacts produced from workshops facilitated in this research, and guided scaffolding for other creative practitioners to asynchronously experience how Embodied Enquiry's facilitation activities look and feel like in practice. This format intends to offer creative practitioners a way to engage with the workshop as a participant to implicitly examine opportunities to interrogate and incorporate the scaffolding into their own practice.

Hosted on the online visual platform, Miro, this pragmatic exhibition consists of three elements. A facilitation guide offers creative practitioners an overview of how to adapt and run their own Embodied Enquiry workshop, including audio recordings of my own reflecting-in-action - observations and insights of the 'happenings' that are occurring in real time. An interactive workshop diagram offers viewers videos, images, and audio of participants engaged with Embodied Enquiry's activities, including audio recordings of their own reflecting-in-action of the workshop's activities. This reflecting-in-action offers another layer of analysis of this research not able to be communicated through this document's writing. The Miro Board Exhibition is public, and open to anyone.

(Miro Board Link)

Chapter 2 will orient the research and situate the theory that underpins embodied enquiry.

02. Orientating the Research and Situating Theory

2.1. Fields of Inquiry

The literature and theory reviewed in this chapter are structured in alignment with the underpinnings that lay the foundation for embodied enquiry's scaffolded activities explored further in Chapter 3. Figure 2.1 diagrams how the fields of enquiry outlined in this chapter overlap and relate to each other. It is important to note that the 4 fields are not presented as historical timelines but instead draw upon those creative practitioners who centre storied ways of understanding lived experience in participatory spaces.

Table 2.1 Formalised mechanisms for embodied enquiry.

CO-DESIGN	PARTICIPATORY DESIGN	STORYMAKING	NARRATIVE INQUIRY
Data generation	Collective interpretation	Epistemological foundation	Ontological concepts

Embodied Experience: Form-Making

Embodied Subjectivity: Sense-Making

Embodied Ways Of Knowing: Meaning-Making

While situated within the field of co-design, this research uses a participatory design lens in its approach to people, places and things, holding space for more equitable contribution in interpretation and analysis. While narrative inquiry accepts the idea that people make meaning of their everyday lives through story construction, storymaking provides a process that scaffolds visual story construction for meaning-making. Just as each of embodied enquiry's activities bleeds into the next, form-making, sense-making and meaning-making are influenced by overlapping fields of enquiry. The importance of storymaking and narrative inquiry, in a participatory sense, affords co-design scaffolded ways for participants to contribute to the analysis phase of a project. The contribution of this research is in positing that these approaches can come together to give structure to a participant's meaning-making process.

Within Chapter 3, I detail further the work of 3 pivotal researchers that supports specific aims of embodied enquiry's activities. They are thus visited throughout this chapter and across the 4 main fields of enquiry. They are: Joanna Latimer's work with embodied subjectivity in *Body, knowledge, worlds* (2009); Woodward's work with analysis within design, in particular *Material methods* (2020); and Jenny Davis's work with design affordances, for example, *How artifacts afford* (2020).

The literature reviewed in this chapter draws on 4 main fields of enquiry. As shown in Table 2.2, co-design is the underlying practice and draws heavily on the work of Tuuli Mattelmäki (2003, 2005, 2008), Eva Brandt (2012), and Elizabeth Sanders (1999, 2008, 2014) because of their dedication to creating tools for engaging people in the telling, making and enacting of lived experience. Participatory design acts as this research's ethos, providing the value of extending equitable participation in co-design methods and the analysis phase of projects, and influenced greatly by Natasha Jones (2016), Dianna Madden (2014), and Eleanor Mattern (2015) because of their commitment to the value of narrative and participatory action. Storymaking provides this research with insights into visualising narrative elements for collective interpretation and construction of meaning, learning from Jaime Cidro (2012), Carla Rice and Ingrid Mündel (2018) and Nancy King (2007) because of their stewardship in the emergence of storytelling and making as a participatory approach. Finally, narrative inquiry lays the groundwork for narrative ways of understanding lived experience, guided by: Michael Connelly and D. Jean Clandinin (1990), Bonnie Thompson Long and Tony Hall (2018), and Alexandra Georgakopoulou (2015) because of their focus on narrative as a way to examine lived experience. While I integrate other literature, this is to help ground the work and scholarship of these creative practitioners and researchers.

Table 2.2 List of influential researchers and creative practitioners.

Co-Design

The underlying practice

TUULI MATTELMÄKI	EVA BRANDT	LIZ SANDERS
(2003, 2005, 2008)	*(2012)*	*(1999, 2008, 2014)*

Participatory Design

The driving ethos

NATASHA JONES	DIANNA MADDEN	ELEANOR MATTERN
(2016)	*(2014)*	*(2015)*

Storymaking

Visualising narrative elements for collective interpretation and construction of meaning

JAIME CIDRO	RICE & MÜNDEL	NANCY KING
(2012)	*(2018)*	*(2007)*

Narrative Inquiry

Narrative ways of understanding lived experience

CONNELLY & CLANDININ	LONG & HALL	GEORGAKOPOULOU
(1990)	*(2018)*	*(2015)*

2.1.1. Embodiment

Attuning to embodied experience underpins how participants and creative practitioners are encouraged to engage with workshop activities in this research. While other workshops may use aspects of storymaking to attune to language or space in the use of artefacts, embodied enquiry attunes the intra-action with one's own body within lived experiences. As a result, the literature exploring embodiment is presented across the sections in this chapter to elucidate how sensory bodily experiences are integral to storymaking and narrative inquiry within co-design practice. Specifically, I draw on Thomas Van Rompay and Geke Ludden (2015), Søren Poulsen and Ulla Thøgersen (2011) and Laura Ellingson (2017). Their work examines embodiment in design as a mode of enquiry into lived phenomena. While storymaking and narrative inquiry offer mechanisms for a participant's active meaning construction, embodiment offers ways to examine the intra-action of one's own body within lived experiences. Embodiment overlaps with storymaking and narrative inquiry in that it focuses on the active construction of meaning-making. As Ellingson notes, "researchers inquiring about embodiment in daily life are not accessing participants' prior meanings but participating in participants' creation of meanings about embodied perceptions and practices. These constructed meanings can offer great insights into participants' embodied worlds" (2017, 112). Embodiment anchors the use of storymaking and narrative inquiry within this research, giving direction as to what understanding is being constructed in the meaning-making process of embodied enquiry's participants.

Poulsen and Thøgersen note in their work with embodied design thinking that:

> Our understanding of a lived situation does not reside in pure thought or in an objective body working according to causal mechanisms, but the lived body inhabits the meanings of the experienced things in the world and as such becomes our anchorage in the world (2011, 39).

Embodiment offers creative practitioners a way to investigate how the products and services present within built environments affect and become affected by the body. Through embodiment we come to understand how 'feelings' or 'emotions' or 'intuition' become manifested. It is not enough for design to simply complete analytics around what feelings or emotions are present; it must do investigation around *how* they become manifested within lived experience. Focusing on what enables and what constrains lived experience helps to construct language around what becomes manifested, and why, from the products and services that participants interact with. As Poulsen and Thøgersen observe, "I experience my body as situated participation. I am always in the world engaged in the things around me related to the tasks or meanings incorporated into the specific situation" (2011, 39).

As will be explored further in Chapter 3, within the world of design embodiment is present within a participant's interaction with products and services, even though creative practitioners may not use such language. For example, Van Rompay and Ludden explore embodiment in products in their work within design, exploring different ways embodiment is addressed in products – visual product perception, material and sound, and action and movement – which come to communicate how their body is to interact with the product and their relevance for the participant (2015). These product affordances can come to affect the body and a lived experience through their ability to be physically engaged within an environment over a period of time.

Embodiment's overlap with storymaking and narrative inquiry may be more obvious within the context of co-design. Since co-design acts as this research's data-generation mechanism, embodiment contributes to how data is constructed and engaged within the workshops. Ellingson notes that "data are not passive objects but constructed, becoming actants in themselves" (2017, 131). Much like products, services and the built environment, data "intra-act in the world in a continual state of flux" (Ellingson 2017, 130). The design process, and creative practitioners, can better understand how data acts as a physical point of interaction among participants in workshops. Much like curated artefacts, participants come to engage with the data they construct within workshops, making sense and making meaning with, and alongside, others. The material language of physical form-making allows co-design to make visible what is embodied within lived experience.

2.1.2. In response to the gap in traditional methods to explore lived experience

Over the last 20 years generative and making methods have emerged as a challenge to the more historical ways to explain and understand human behaviour. Creative practitioners have found novel ways to explore embodiment. For example, in this research Rice and Mündel are heavily called upon to respond to the need to disrupt dominant stories through storymaking in order to "co-create knowledge that is accessible, evocative, embodied, empathic, and provocative" (2018, 215). As design researcher Lisa Grocott describes them, the methods that have emerged are "methodical and performative, purposive and negotiative, inquisitive and adaptive, informed and grounded, as well as communicative and discursive" (2012, 5). These new, emergent methods focus on leveraging enquiry in the design process. Grocott goes on to note that "technological, social, and economic changes shift design past material objects and toward the design of systems, services, and experiences" (2016, 1). The generative making methods that are inherent to co-design, as seen in workshops, uniquely position it to meet this process-based shift in a way that generates embodied contexts.

At the same time, within design spaces Gausepohl et al. provides a conceptual model to leverage narrative inquiry in participatory spaces, for example user-centred design, because they argue that practitioners require a "knowledge elicitation method that generates contextual information" (2016, 127). Generative making methods have emerged throughout and across disciplines, blurring the tidy lines of fields of enquiry. While practice-led research invites entanglement of methodologies, as explored in this chapter, I do my best to organise how such efforts exist in, and are complementary to, co-design.[12]

What are beginning to converge here are observations of the technological, social and economic changes which demand that design moves past material objects and towards the design of systems, services and experiences that focus more on process-based meaning-making. Through collaborative making methods and participatory mindsets, co-design meets these process-based concerns by supporting generative spaces in workshops. Co-design workshops offer time and space to openly explore experiences and generate contextual information to respond to the observed technological, social and economic changes.

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12 A note: some of the practitioners discussed in this section have not necessarily come from co-design specifically.

2.2 Methodology: Co-design and form-making to explore lived experience

As stated above, co-design underpins my practice. Here I draw on the significant contributions of Mattelmäki, Brandt and Sanders because of their dedication to creating tools for engaging people in the telling, making and enacting of lived experience. This practice-led research situates itself within the space of co-design and its process, a process by which creative practitioners and participants work together in design development. This working together is vital to the equitable nature of form-making, sense-making and meaning-making within embodied enquiry. While co-design can be implemented in various spaces, I am focused on workshops that may engage participants only once in a design process. This facilitated engagement may have many goals, with this research investigating embodied data generated from lived experience and made meaningful by participants.

Co-design spaces and workshops do not aim to democratise design decisions. Instead, they iterate on the ideas proposed and offer space to "explore potential directions", gathering a "wide range of perspectives", as Marc Stickdorn and Jakob Schneider note in their work around service design thinking (2011, 199). Co-design provides space for questions and opportunities to emerge through exploration. Rather than seeking specific answers to predefined answers or asking participants to simply co-create, co-design spaces invite an openness at the beginning of the design process. As Ellingson notes, "Participant-created data endeavours to embrace embodiment in participants' daily lives more fully than researchers typically do when they inscribe data" (2017, 139). Offering participants a space to enquire into and generate their own data affords co-design a way to ensure embodiment is inherent in the data, rather than 'capturing' it through the eyes of the creative practitioner. In order to support efforts to reflect embodiment within the data-generation phase of a workshop or project, co-design has to open up its design process and provide space for participants to direct the focus of their enquiry. Ellingson continues on this theme, arguing that, "Of course, all research depends upon participants' participation but participatory approaches share power and control with participants more equally than do traditional data collection practices" (2017, 139). Openness challenges the notion of a design process being 'owned' by the creative practitioner, but at the same time provides momentum for evolving what is possible within co-design spaces.

A level of openness offers people, as Woodward describes, a space to be "present with others, carry out activities with them, centre skills like empathy and imagination, imagining the other person's experiences" (2020, 138–9). Exploring potential directions and offering a space to be present with others speak directly to one way to enact participatory ethos in co-design spaces. More than a simple engagement strategy, co-design facilitates a space for generative exploration with others. It is more than just a production process, but one that helps us to imagine another's experience. This participatory approach is not limited to creative spaces and its history is rooted in responses to traditional research models.

2.2.1. Co-design's response: Using artefacts and forms to 'probe' lived experience

Methods adopted from other research disciplines such as the social sciences have not fully succeeded in answering the need for an explorative, generative design process. One particular response in co-design which acts as a foundation for embodied enquiry's form-making activity is the design probe. First developed by Gaver, Dunne, and Pacenti (1999), the cultural probe later evolved as the design probe (Figure 2.1), developed by Mattelmäki, and relied on "participants' self-documentation through photographs and narratives" (Celikoglu 2017, 85). It is important to note that while a variety of artefacts steward this self-documentation, Kirsten Boehner is quick to note that the probe, or "the act of probing lived experience, is not defined by any particular artefact" (2012, 198). The key distinction here is that the method is not contingent upon the artefact associated with it. This distinction exists as an opportunity to build upon the work that preceded this research, namely, the openness to utilising any resource available (whether due to time, funding, availability, etc.) instead of creating bespoke, tightly curated or highly designed objects that participants may be unfamiliar with. I argue that the value of the method lies not in its form but its process; it is the *act of probing* that creates meaning. More specifically, the probe's value lies with its ability to offer an avenue to explore, construct and generate insights not previously known by the participant. Co-design acts as the "specific practice of research" (Ellingson 2017, 3) through form-giving within embodied enquiry. The process by which participants probe their lived experience that this research builds upon integrates storymaking and narrative inquiry to expand co-design's efforts.

Figure 2.1 An example of a Design Probe, as developed by Mattelmäki (2008, 72)

Mattemäki has laid the foundation of embodied enquiry's form-making activity, focusing on the value of generating different types of information in the early stages of the design process, in Matttelmäki's case trying to purposefully "provoke users to reflect on and verbalise their experiences, feelings and attitudes'' (2005, 83) and providing a way to "verbalise and visualise their dreams and what they imagine" (2003, 120), rather than "wanting an objective view of someone's tasked-based needs" (2002, 325). Understanding how reflection plays a pivotal role in supporting participants' articulation of what they imagine and dream is central to this research. While reflection might be used as a warm-up activity or ice-breaker in other workshops, embodied enquiry positions reflection as the fulcrum of sense- and meaning-making. Building upon the work of Mattelmäki and Brandt, reflection is tethered throughout the workshop's scaffolding, as explored further in Chapter 3.

Brandt's work expands on and highlights Mattelmäki's effort to imagine future scenarios by extending making as a way for participants to "imagine and express their ideas about how they want to live, work and play in the future" (2012, 155) through their "tacit and latent needs, aspirations and dreams" (160). Connecting back to design's overall efforts to explore potential directions, forward-facing language and expression are key in moving from the past to the future into what people dream. While quantitative data might explain *what happened* in a lived experience and qualitative data might describe *why it happened*, it is embodied data that anticipates, dreams of and imagines *what might happen*. Embodied enquiry's meaning-making activity explicitly provides participants with forward-facing language to explore what might happen in future scenarios and, more specifically, to examine the mechanisms that enable and constrain lived experience, affording anticipation in the decision-making process.

The focus on language for dreams and futures stems from the evolution of traditional design research methods that Sanders and Stappers explore in their work, noting that such methods were focused "primarily on observational research (i.e. looking at what people do and use), and on what people say and think" (1999, 90), while "generative methods discover unanticipated needs" (91). As Brandt argues, such approaches "contribute to supporting participants in making, telling, and enacting aspects of future design" (2012, 146). One key distinction between the act of telling and other traditional research methods is that while communication is present, in generative methods it is the participant driving the "making, telling, and enacting". Rather than participants reacting to a predetermined line of enquiry, as is the case with surveys, questionnaires, interviews, focus groups and observations, in a method such as a probe the tools are utilised by participants to generate their enquiry into lived experience. Such methods determine when, how and why people respond, but generative methods may not necessarily define where the focus of the conversation goes. Connecting back to what I introduced in Chapter 1, traditional research methods privilege the researcher's perspective through 'extracting', 'capturing', 'allowing' or 'giving voice to'. Rather than putting the researcher's viewpoint central to analysis, embodied enquiry instead aims to centralise the participants' perspective and offer them space to explore what is meaningful to them.

While co-design is familiar with utilising probes to make haptic lived experience, other creative practitioners complement these efforts in exploring opportunities with making as a way to enquire. Rachael Luck explores ways to explore the bodily experience through making in her work, arguing for "increased engagement of people in their design process … through more embodied and concrete

connections with materials in physical processes of making" (2012, 112). This call for increased engagement acts as an opportunity to extend interpretation and analysis to the participants. Just like those who "trust participants to rely on their intuition in response to probes" (Boehner et al. 2012, 195), creative practitioners can extend this trust to participants in the analysis phase of projects.

For instance, in her work around making as a means of enquiry in fashion, Ania Sadkowska notes that "'making' as a means of embodied, visual enquiry became an analytical tool that afforded the advanced understandings of and insights into the study participants' lived experiences, as compared to the standard text-based qualitative analysis" (2018, 406). When exploring lived experience for the construction of insights in the design process, creative practitioners can extend their disposition of form-making as a means of enquiry. Going one step further, by offering ways for participants to consider their own lived experience they can come to articulate embodied ways of knowing within workshops. Trust in people to generate enquiry into their own lived experience is not new. Luck observes that many co-design approaches "let people speak for themselves, to document their own experience, and to tell their own stories" (2018, 100). Integrating storymaking and narrative inquiry into the generative methods that co-design is familiar with creates a structure for participants to tell their own stories for interpretation and analysis within the space of a workshop.

This section has aimed to situate co-design's position within this research, acting as a mechanism to explore lived experience. In the section that follows, I present literature from participatory design including its political history. The literature explored examines the power dynamics within the design process, what is demanded by creative practitioners and what is necessary to consider when working with others. I argue that it is important to consider the use of language. In this case, the word 'probe' is intrusive when speaking of a person and their lives. What does it mean to probe others? How does probing affect participatory spaces? While embodied enquiry's form-making activity evolved from the design probe, I avoid use of the word 'probe' when speaking of lived experience, just as I do with other researcher-centric terms like 'extracting', 'capturing', 'allowing' and 'giving voice to'.

2.3 The why: Participatory design and the notions of collective interpretation and data equity

As stated above, participatory design acts as this research's ethos, providing the value of extending equitable participation to co-design methods and the analysis phase of projects. Ellingson describes this type of ethos as "axiology", or the "values that form the basis of ethical choices in research" in her work with embodiment in qualitative research (2017, 3). Participatory design therefore acts as the ethical current that flows under embodied enquiry. Influenced greatly by Jones (2016), Madden (2014) and Mattern (2015) because of their commitment to the value of narrative and participatory action, participatory design exists as the underlying motivation by which participants lie central to this research. While exploring the inherent power imbalance within collaborative spaces and the design process may not lie central to others' practice, it is the driving force behind this research's definition of analysis as what participants do to their data to make it meaningful to them.

The literature presented may not formally come *from* the participatory design discipline. Instead, such creative practitioners come *with* a participatory ethos and argue for critical reflection, political dynamism and making visible the power imbalances that exist within participatory spaces.

2.3.1. Ethos

The ethos of inclusive participation is what drives this research. From my professional experience, I have recognised that while participation occurs in the action of a workshop, it does not occur in the analysis phase of projects. The design process may inadvertently marginalise communities by limiting engagement (who can participate when and how). As Jones notes, participants are often "populations whose perspectives are often marginalised or delegitimised" (2016, 480), so to put boundaries on engagement can marginalise people even more. Participatory design seeks to identify and correct these power imbalances inherent to many of our design processes. Ellingson's work in embodiment also identifies the effect of power imbalances among participants' engagement. She argues that: "Sharing power and control enables bodies to move more freely … and emphasises the value of participants' perspectives and knowledge that is grounded in their daily lives" (2017, 139). When working within participatory spaces, it is important to stay aware of how power and ownership can constrain a participant's answers to questions, exploration of the topic and engagement of materials by determining the focus of enquiry.

Historically, as Donetto et al. note, participatory design approaches were seen as a way for "public services to respond to the increasing pressure from contemporary societal challenges and to address disengagement and disillusionment from citizens about politics, democracy and social justice" (2015, 233). This political dimension within the design process, and embodied enquiry, is deliberate. Various creative practitioners, such as Jones and Donetto, have made efforts to show the value in addressing such disengagement and disillusionment. Participatory design, and this research, extend this notion one step further into the built environment, products and services that encompass our daily lives. For example, Jones works with the power of narratives as one way to examine silence in design spaces, demanding that "narratives drive design, rather than existing theory and ideals guiding the design process" (2016, 486). There is an opportunity to see narratives and stories as a way to generate enquiry into one's own lived experience, rather than responding to redefined questions or directions found in surveys, questionnaires,

interviews, focus groups and observations, or as Amy Shuman observes, telling one's own story can be considered "a correction to a power imbalance" (2015, 47) seen within the researcher–participant relationship.

Understanding how participatory design relates to co-design methods, Brandt notes that in participatory practices the "telling of the community goes hand in hand with the making of things that make the community imagine" (2012, 148). While co-design stresses the value of making in exploring lived experience, participatory design argues for making space. This symbiotic relationship, which this research builds from, is not that the method alone is participatory, but also the intention behind it. Method alone focuses on output, while ethos extends this output to participants, deliberately offering them space to walk away with something as well. Embodied enquiry extends output to the analysis phase as *what participants do to their data to make it meaningful to them*. As Brandt describes, predefining what the 'community' should tell or imagine cuts off avenues of exploration deemed meaningful by participants. Embodied enquiry affords co-design a way to reimagine its impact, shifting from making forms to making meaning and bringing more intention to output as people-driven, rather than designer-collected.

Mattern provides ways to bring narrative inquiry into participatory design to examine data and Madden contributes a participatory action approach to design. As noted earlier, they have similarities across practice. These creative practitioners share a common thread of marrying methods, methodologies and participatory research paradigms. They recognise the value that such an approach might bring to participants, with Mattern stating, "This methodological approach [the involvement of users in creating services, technology, spaces and resources] is rooted in a belief that the involvement of users in the design process leads to designs that are more relevant to them and better serve their needs" (2015, 410). What is important to note is that it is not the product that is of greatest value, but that "the talk around things that they described as important to them allowed us all to understand how [participants] envision themselves in the world" (Madden 2014, 42). Equitable participation is thus necessary to understand what is of importance through "the talk around things".

This value of participant expertise is not transactional; it is not an ethos of 'trusting participants to make stuff for us'. Instead, creative practitioners must acknowledge that they cannot understand all the potential directions to explore. Participatory spaces accept that we do not know what we do not know, offering space instead for participants to drive enquiry, highlighting the unknowns in the design process. Jones explicitly speaks to the need for more critical reflection with the design process, expanding upon Scandinavian participatory design in examining voice through narrative inquiry. Most notably, Jones highlights the need to understand and accept the "diversity of human conceptions that motivate how things are acquired, exchanged, rendered meaningful, and used" (2016, 476) that may not be visible or known to the creative practitioner. Participatory spaces are not transactional engagements for participants to simply make objects. Instead, meaning is made from lived experiences unknown to the creative practitioner. Participatory spaces emphasise that the power of exploration lies in the hands of people, a belief echoed in this research.

2.3.2. Facilitating participatory ethos in workshops through story

While the participatory design ethos is well-established, implementing such an ethos in practice has been largely an informal effort across design's sub-disciplines. Although creative practitioners have a variety of options available for integrating participatory design's ethos into their processes, I argue that the role of storymaking in interpretation and analysis is a way to enact its ethos. By bringing storied understanding into co-design workshops, analysis can be put into participants' hands for making meaning of their own lived experiences.

Mark Freeman (2015) understands narrative as a method, theory and praxis in participatory spaces. At the beginning of this chapter, this malleability of narrative is stated to speak to Grocott's openness of emergent methods. The need for methods to be, as Grocott describes (2012), methodical and performative, purposive and negotiative, inquisitive and adaptive, informed and grounded, as well as communicative and discursive, makes use of narrative and story both relevant and practical. While a creative practitioner can go ahead and try to tell others' stories, when it comes to analysis a participant's insight will be "different than that of the practitioner" (Freeman 2015, 33). This connection between story ownership and the design process is of particular interest because the phrase often used in engagement is "giving voice". Similar to saying a participant is a "user" in relation to an object, giving someone voice implies the power lies in the hands of the researcher, who decides when and to whom voice is given. Johan Redström sums up this sentiment well: "We, as designers, turn people into users by means of our design, by presenting a thing to be used … A 'user' is something that designers create … Thus, the concept of a 'user' is based on an object-centric perspective, the person defined in relation to the object" (2005, 128–9).

Participatory spaces and the participatory design ethos stress the need to identify and correct power imbalances inherent in the design process. Shuman argues that creative practitioners should attune to the "contexts in which one person is entitled to tell and to the conditions in which that entitlement is challenged" (2015, 42). While there may be many ways to challenge the entitlement of storytelling and sharing, embodied enquiry is not contingent on hearing, seeing or reading a participant's story. In fact, in Chapter 4 I will explore how workshops can challenge this entitlement by finding ways to move past collecting stories and into story creation as a means of making meaning.

As in the co-design work of Mattelmäki (2003, 2005, 2008), Brandt (2012) and Sanders and Stappers (1999, 2008, 2014), Luck points out that many approaches "let people speak for themselves, to document their own experience, and to tell their own stories" (2018, 100) and the act of story creation is one way that co-design can action a participatory ethos in workshops. However, we can extend the use of a story past one of data extraction to one of a participant's meaning-making process, offering instead the analysis of the story rather than the story itself. For instance, Shuman argues that stories "travel beyond the people whose experiences they describe; sometimes taking on new interpretations, often changing as they exchange hands" (2015, 42). In practice, what this looks like is not just 'capturing' a story already known to the participant, but visual storymaking that helps make sense of their lived experience. Whereas previously stories may have been the outcome of a workshop, here they act as the mechanism for collective interpretation and analysis.

In this research, Davis's work on affordances is the foundation for participants to examine their stories as made. The affordances present within one's story illuminates the enablers and constraints of lived experience and under which conditions the affordances emerge. Explored further as an analytical tool in Chapter 3, affordances can capture "technological efficacy, accounting for contextual variation and structural hierarchies" (Davis 2020, 33) and examining the mechanisms considered in design decisions.

2.4 Epistemology: Storymaking

As stated in the introduction of this chapter, storymaking provides this research with insight into visualising narrative elements for collective interpretation and construction of meaning, learning from Cidro, Rice and Mündel, and King because of their stewardship in the emergence of storytelling and making as a participatory approach. Storymaking, combining storytelling and making, is integrated into the co-design process as a mechanism for participants to make meaning by engaging with the haptic forms created. The meaning made by participants acts as this research's epistemology or "ways of knowing" (Ellingson 2017, 3) and the evidence used. While the integration of stories was previously used to highlight the political dimension of participatory design's ethos, I now present literature exploring the epistemological value that storymaking brings to this research.

Storymaking speaks to creating knowledge by creating stories in a workshop space. The approach to exploring through use of material, constructing the form as we go in order to think through and understand the topic, is not very different from constructing a story, verbally processing as we go along. Put simply, as design researcher Klaus Krippendorff reflects, "So, what do narratives or stories have to do with design? Narratives are human creations, and so is design. Narratives essentially are cooperative constructions (designs may be conceptualised by someone, but produced, supported, or opposed, and used by others)" (2006, 170). Echoing sentiments of co-design's disposition for exploring a topic through material and participatory design's focus on the meaning made by those engaged, Krippendorff is dedicated to understanding design's critical role in what things mean and how they come to communicate those meanings. The design process is being challenged by paradigm shifts in practice and discipline, creating opportunities to expand upon the structure that came before it. I argue that an opportunity exists to respond with mechanisms that give structure to interpretation and analysis, specifically giving shape to sense- and meaning-making activities in the space of a workshop.

Storymaking acts as a way to formalise co-design's disposition with material and artefacts for use in sense-making. Ellingson explores this notion when stating, "Narratives show rather than tell, and writing a story provides you with an opportunity to show bodies at work, at rest, interacting, or being silent, and so on, making them a rich form of embodied sense making" (2017, 141). Embodied enquiry aims to find ways for participants to investigate what was felt within lived experiences, what enabled and what constrained their lived experience. In doing so, participants implicitly examine embodied aspects of their reflection, using these insights for use in interpretation. As Ellingson notes, "Such stories can be used as the narrative equivalent of analytic memos that focus attention on and interpret certain aspects of your data that represent a theme or important point" (2017, 141). This section explores the strengths of storymaking as a mechanism to formalise sense-making and interpretation within co-design workshops.

2.4.1 Storying a lived experience

The connection between stories and design, as noted by Krippendorff above, is a level of construction and creation. Glen Bull, who brings storymaking into school maker spaces, and David Gauntlett, who develops new approaches to identities and audiences through creative exploration, observe that whether intentional or not, "people tend to organise their lived experiences in the form of narratives or stories" (Bull et al. 2017, 274) and can "create a representation of their own story" (Gauntlett 2007, 195). When I speak to formalising aspects of storymaking, I mean the intersection of factors that positions storymaking as a mechanism for interpretation and analysis in co-design. People can be considered experts on their lived experiences, but they also organise these lived experiences into stories. Why not extend this intuitive way of making sense of life into a more formal process of sense-making in the space of a workshop? Generative making methods make visible lived experience and creative practitioners can marry material and a participant's intuitive ability to organise their lives through a storymaking process. The opportunity here is to give structure to this approach for sense- and meaning-making in a workshop space.

2.4.2. Storytelling, sharing, making, remaking

Sheila Danko, as noted in the previous co-design section, expands upon the value of story in design spaces when stating:

> …while *reading stories* engage people in active exploration of personal experience, promoting an understanding of how others form meaning, *writing stories* help people to reexamine, rediscover, or reinvent their own realities, deepening their understanding of themselves. *Sharing stories* forces a type of reflection that is critical to expanding one's mindsets and perceptions (2006, 11) [emphasis added].

The notions of story and storytelling are not new to design spaces, but their use in interpretation and analysis can be better utilised. Co-design workshops can better expand upon the use of story sharing as a type of critical reflection on one's own lived experience. As Krippendorff echoes, people "explain, explore, and design their worlds through story" (2006, 170–1). Using material to make stories brings a haptic language to exploration and explanation that co-design is very familiar with. When speaking from the position of narrative inquiry, which is explored in the following section, Danko continues that the "act of constructing one's own stories, as well as interpreting the stories of others with one's past experiences, enables individuals to render meaning from human experience" (2006, 11). While co-design is familiar with acts of construction, it is less familiar with these for use in rendering meaning. By integrating storymaking into co-design workshops, participants can generate embodied data and make that data meaningful to them.

2.4.3. Position of the participant in telling and interpreting their lived experience

In this section, I explore how storymaking can assist in sense-making or the act of collectively interpreting lived experience through the use of material and shared discourse (see Figure 2.2). Storymaking intentionally extends the sense- and meaning-making process into the hands of its participants and, in doing so, shifts past simply giving voice. Giving voice implies the power of enquiry lies with the creative practitioner, deciding when, to whom and for what purpose storying happens. Storymaking's structure in supporting storytelling and co-design's familiarity with material making methods present an opportunity to extend sense- and meaning-making into the hands of participants. Offering participants an avenue to drive the storymaking process affords co-design a way of what Arthur Frank describes as, "reaffirming, creating, and redirecting the relationship within which the story is told" (2000, 354). Storymaking provides participants with a different position within the design process to shape the terms of further telling. Understanding how participatory spaces can offer avenues to redirect the relationship within which a story is told can better shift the focus away from the story as object output and see it as a mechanism for interpretation and analysis in co-design workshops.

Figure 2.2 A participant thinking aloud through use of material (image source: Kelly Anderson 2020)

Beverly Sauer, whose research focuses on enquiry into embodied knowledge and representation of sensory information, is very familiar with the position of a participant as narrator in the telling of their story. Sauer's work examines a miner's viewpoint within the stories they tell of situational awareness, sense of risk and intuition over time. While Sauer's work around embodied knowledge will be explored further in the next chapter, she presents the idea of a narrator's viewpoint in the telling of their stories. In general, narrators take on one of 2 distinct viewpoints when telling a story: *mimetic* or *analytic*. When speakers take on the mimetic viewpoint, they "depict themselves inside the spaces they describe" (Sauer 1999, 328) and when speakers take on the analytic viewpoint, they "assume a position outside of, above, or at a distance from the events, actions, and situations they observe" (328). I argue this relationship of narrative and narrator supports the collective interpretative, sense-making process within the space of a workshop. Rather than inviting participants to make a story to share with the facilitator, these viewpoints can offer participants reference points from which to make sense of their own lived experiences.

2.4.4. Storymaking as a mechanism to make sense and make meaning

I argue this storymaking approach aligns well with design processes that exist within co-design and participatory spaces, and is thus a relevant mechanism to make sense and make meaning from lived experience. Cidro states that the value of storymaking is a way to "communicate meanings" (2012, 163) and "transmit knowledge" (164), while Rice and Mündel describe it as the "collective process involved in making and remaking the social worlds inhabited, and the selves that we imagine and live" (2018, 222). What co-design can learn from storymaking is a reframing of outcomes from these collective processes. As noted before, the story created is not the outcome but the meaning made from the process or, as Rice and Mündel describe it, a "multi-perspective knowledge about self, other, and the world" (213). While co-design methods are familiar with similar ways of communicating through haptic artefacts (e.g. cultural and design probes), storymaking brings intentionality to making-meaning through material storying. More specifically, what I mean by intentionality, or what can become formalised, Cidro sums up as an avenue for participants to "explore their lived experience in the process of creating and telling their own stories, bringing meaning to the data" (2012, 164). What is most striking is the emphasis on a collective, multi-perspective knowing that is not only participant-facing, but also emergent and recursive. The idea that knowledge is created as the story emerges can be welcomed and adapted within the space of a co-design workshop.

This constructivist notion of knowledge lies parallel with emergent methods within co-design and storymaking itself. Co-design workshops can enact a more intentional structure for how participants make data meaningful. As discussed in the introduction, participants' generated data is usually brought back to the designer's desk after a workshop ends, often omitting insights from participants. If data was approached in the same way as the storymaking process, participants would instead be the ones to make sense of and make meaning from their lived experience as they constructed and engaged with their story throughout the workshop.

2.4.5. Storymaking and the design process

Storymaking enables co-design to expand what is familiar in its methods and processes, such as a think-aloud protocol. Described by Krippendorff as what people "say they think and do while interacting with an artefact'', the think-aloud protocol acts as the "analysis of users' explanations" (2006, 171). Offering tools to visually represent and explain through interaction opens the door for collective interpretation, sharing with others what they say they think and do while interacting with forms and artefacts. Combining the strengths of making and telling stories, these emergent methods create a visible language to articulate what Sanders describes as "feelings and ideas that are often so difficult to express in words" (1999, 91). Participants can explore through the material first, spending time reflecting on and exploring the meaning of their own lived experience. Combining collective interpretation and sense-making expands upon approaches that are familiar in co-design. The strength of using familiar methods to complement storytelling, like a think-aloud protocol, is that participants explore through form and find words to explain tangible forms rather than abstract thoughts.

Let's take 'frustration' as an example. Rather than asking someone to answer a predefined question of 'what is frustrating about this experience?', they are instead scaffolded to: represent aspects of their story through form; engage with that form as they think aloud and share collectively with others; and identify what factors enable and constrain their experience – all before searching for words to explain what might be frustrating. Rather than predefining a question around frustration, scaffolding thinking aloud in tangent with a haptic object helps to drive enquiry along the way, as Kankainen et al. observe, "focusing the discussion little by little" (2011, 226). While the creative practitioner wants the participant to explore frustration in this case, the participant may instead think a different quality is more important, wanting to explore that instead. Enabling participants to generate their enquiry through storymaking provides them with one way to figure out what is significant as they create their story. This opens up enquiry in the design process, offering creative practitioners unknown avenues for exploration.

My argument for integrating storymaking in interpretation and analysis is that it demands more than just a different type of interaction. Repositioning a participant in the design process and in the position from which they create and tell their stories demands critical reflection upon the role and position of the creative practitioner in the design process.

2.4.6. Storymaking as a challenge to research and to researchers

The collective nature of storymaking proves a challenge to methods that try to 'isolate variables' or 'remove bias'.[13] Storymaking is an inherently entangled[14], collaborative process where stories "bleed and breathe into each other", as Rice and Mündel argue (2018, 226). By bringing interpretation and analysis to the participants, I posit that creative practitioners aim not to deconstruct or dissect participant stories

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13 The term 'bias' denotes some sort of prejudice for or against how data is used (generated, organised, manipulated) within, and in the process of, analysis. In practice, 'bias' denotes an objective 'truth' that has been moved away from due to use of materials or other methods. My practice is grounded in a constructivist approach, believing that knowledge is created and not 'found' retroactively.

14 The messiness of practice: this research draws on practitioners who do not fit perfectly within the boundaries and neat research paradigms, practitioners who focus on bringing stories of lived experience and generative, participatory spaces together, and is far from traditional.

to find common themes but, rather, to use the generative space of the workshop to develop a collective approach to identifying emergent commonalities. This makes storymaking a relevant approach to spaces that cannot isolate variables, but instead works with embodied and emergent information. As explored further in Chapter 3, embodied enquiry's activity of identifying common themes among 2 or more stories might, on the surface, connote a reduction or dissection of part of a participant's story, but its intention is the opposite. Finding a common theme between 2 stories is an attempt to try to find a tether between 2 seemingly disparate contexts, thereby finding a way to breathe together with another's story. This activity is intended to make sense alongside others, finding similarities to communicate what enables and constrains a lived experience in wider contexts.

I do not suggest that storymaking would, or should, replace all types of analysis or analytical thinking. Rather, storymaking supplements analysis generated by quantitative and qualitative methods through providing a contextual understanding of lived experience. Put simply, quantitative data (e.g. surveys and questionnaires) helps to explain *what happened,* qualitative data (e.g. interviews, focus groups and observations) helps to describe *how it happened,* while the haptic and embodied data presented in this research helps to describe *how might it happen* in future contexts. Together these methods can provide a more holistic understanding of a lived experience, with a supplemental analysis offered by the participants who make the data meaningful to them.

By bringing interpretation and analysis into the hands of the participants, creative practitioners are afforded variability in the meaning of the products, services and built environment present within a lived experience. Kendall and Kendall develop a similar argument when they state that through visual methods, participants can "imagine new perspectives and new worlds" (2012, 178). Participants themselves play a key role in self-identifying imagined uses and outcomes. I am not suggesting that creative practitioners are offered all imagined uses but instead that they will be presented with more perspectives than if they simply had not sought others' insight in the first place.

As participants create and engage with forms representing lived experience, creative practitioners learn and understand more, revising any assumptions brought to the work. For instance, as King observes, stories have been shown to "make it possible to question unexamined assumptions and prejudices" (2007, 209). This is important to note because, if such assumptions go unchecked within the research process, designs will "lean toward privilege and normality, reflecting and reinforcing existing systems" (Davis 2020, 20). Bringing storymaking into the analysis phase of a project would simultaneously offer avenues for participant meaning-making while enacting a participatory ethos through checking assumptions inherent in the design process.

2.5 Ontology: Narrative inquiry – making meaning from lived experience

As outlined in this chapter's introduction, narrative inquiry lays the groundwork for narrative ways of understanding, here guided by Connelly and Clandinin, Long and Hall, and Georgakopoulou because of their focus on narrative as a way to examine lived experience. I also highlight work that walks alongside this research's disposition: those who do not attempt to pull apart what has been collectively constructed. Narrative inquiry is integral to understanding how embodied enquiry positions itself. Narrative inquiry is something threaded throughout and not 'done' at any given stage of the workshop. At no point can someone point to narrative inquiry. It is simply a way of understanding the world. Narrative, then, is a way of being and through the making of stories, we make meaning. As Ellingson notes, ontologies are "ways of understanding the nature of being and reality" (2017, 3). In this research, a participant's way of understanding is attuned through narrative ways of being and made sense of through story. For instance, Long and Hall note that "All we have are experiences – but all we can effectively tell others are stories. Knowledge is experiences and stories" (2018, 207). Narrative can be a type of knowledge, enquiry and artefact, as can design. This marriage between narrative and design, I argue, is both relevant and presents an opportunity to formalise the mechanisms emerging within the design process and its methods. This research embraces the nature of human reality, the messiness of lived experiences.

Connelly and Clandinin, who present narrative as a way to understand lived experience through construction and reconstruction of stories, state, "narrative inquiry is a process of collaboration involving mutual storytelling and restorying as the research proceeds" (1990, 4). This storying and restorying process creates a structure for meaning-making in the space of a workshop. This recursive relationship between storying and restorying, I argue, supports efforts to extend analysis into the hands of participants. Storymaking, therefore, is an integral part of narrative inquiry. Whereas storymaking focuses on the construction of storied elements for use in examination of lived experience, narrative inquiry focuses on the knowledge made from this storied examination. Storymaking acts as the mechanism by which participants enquire lived experience. Similar to how participatory design supports co-design methods, narrative inquiry supports the positioning of storymaking within a meaning-making process. Narrative inquiry supplements storymaking participatory spaces with a formalised mechanism for meaning-making in the analysis phase of projects.

Recursive storying, storymaking, restorying, story(re)making and meaning-making do not just spring out of narrative but, rather, are co-created and recreated by the narrator (the maker) and the listeners (the other participants). This recursive engagement with one's own storying and the storying of others is the foundation from which embodied enquiry builds. Explored further in Chapter 3, embodied enquiry scaffolds activities that offer participants avenues to (re)engage with their embodied forms, collectively interpret with others and make meaning within the space of a workshop.

2.5.1. Narrative ways of being

One criticism of both storymaking and narrative inquiry is their informality in using material and form-making. Similar to how storymaking and narrative inquiry can create a structure for sense- and meaning-making activities for co-design workshops, co-design can shape the form-making present in storymaking and narrative inquiry. Much as the storying process does not just spring out of nowhere, nor does form-making. Simply providing participants with materials or tools does not make them more capable of constructing forms in a workshop space. Co-design's expertise with probes, collective prototyping and form-making can support activities present in storymaking in more informed ways. The use of materials and artefacts is very familiar to co-design and can benefit the storymaking process used with participants.

Marrying material-making with story offers participants an avenue to visualise stories and make meaning through the process of construction. This is similar to how I have described the design probe's value in its ability to probe a lived experience. The value of such methods lie not with the final form but because the form has embodied qualities that can be made sense of. Kathleen Stewart argues that something matters not because of how it is represented but because it "has qualities, rhythms, forces, relations, and movements" (2011, 445). While I agree wholeheartedly about attuning to such qualities, I am critical of narrative inquiry's heavy reliance on the written word. Participants can be limited by their vocabulary or ability to explore through the written word. Not only do different people with different backgrounds inhabit different "thought worlds", as Heinemann et al. note, they also "speak different languages, and have different practices that make communication across boundaries difficult" (2010, 221), Relying on verbal or written language can limit a workshop's audience to an older population, as young adults and children have a smaller vocabulary in general. While writing is present within embodied enquiry, the difference lies in the reliance on language not only to make meaning, but as a way to articulate the meaning already made by the participant. Seeking ways to support the ability to reflect upon a lived experience, represent it in form and have a material, haptic language with which to speak has grounded my professional practice, as outlined in the preface.

Those of us who are neurodivergent can struggle with linguistic exploration. I have struggled with mild dyslexia my whole life; reading, writing and verbal expression are more difficult (I suffer from a constant 'tip-of-the-tongue' feeling with recall). Instead of formal language, those of us who are neurodivergent often think in colour, texture, weight, shape, temperature, time, density and sound (Grant 2017). I often run into problems in professional settings because I 'describe' rather than 'explain', intuitively and naturally describing how something *felt* before explaining what something *is*. The way I 'organise my life experiences', as Bull describe in relation to storymaking, becomes considered 'different' and thus an outlier. Finding ways to support the communication of a story through visible language can support the diversity and richness with which the participants express and represent their lived experience. I am not suggesting that this research is without linguistic exploration and expression, but what is pivotal to understand in embodied enquiry is that haptic form-making supports and lays the foundation for exploration and collective interpretation, acting as something that the participants can visually refer back to, eliciting others' linguistic reactions in the space of a workshop.

Woodward asks, as I have in my practice, "How do non-verbal, sensory, kinesthetic, material and imaginary ways of knowing contribute to a participant's understanding of lived experience?" (2020, 76). Creating a material, haptic language through form-making can support variety in how embodied and

narrative ways of being become communicated. The body tends to be the epicentre of what is seen and felt within lived experiences. Participants tend to explore and communicate these embodied aspects through story, as it is intertwined naturally within the body. As Ross Anderson states:

> According to James and Dewey, experience is owned by an individual and builds on a unique history with the environment – inextricably natural and social. Selves are simply processes of experiences; experiences establish new potentials for meaning; meaning is the foundation of understanding mind; and mind is no way distinct from body (2018, 73).

Embodiment offers a participant a way to examine a lived experience, rather than having to situate the body *within* an experience, communicating from a distance. Instead, the body becomes central to the experience as it is made up of experiences – physical, mental, emotional, etc. For example, if you ask a participant about something as simple as rain or precipitation, they may describe the smell, the dampness, stepping in puddles, the humidity, the frustration when driving, nostalgic memories, the sound against the roof or the feeling against the skin. These narrative ways of being come from the sensory experiences of the body that lies central to stories. Narrative inquiry and narrative ways of being cannot be separated from the body and the design process can better integrate an embodied approach in co-design workshops.

2.5.2. Narrative ways of knowing

As explored in Chapter 1, creative practitioners utilise material and making methods that visualise aspects of participants' stories. Working with material lends itself to remaking, iterating, amending and changing through form as well. Whereas other research methods 'capture' or construct knowledge through verbal or written language, material is used in embodied enquiry to construct the nonverbal, sensory, kinaesthetic and imaginary ways of knowing, as Woodward describes them. I explore some of these narrative ways of being and imaginary ways of knowing in Table 2.3.

Table 2.3 Narrative Ways of Knowing.

Four dimensions of narrative inquiry (Jones 2016, 480)			
INWARD	**OUTWARD**	**BACKWARD & FORWARD**	**PLACE**
internal conditions	*existential conditions*	*past, present, and future*	*environment*

Three critical dimensions of human experience (Connelly and Clandinin 1990, 9)		
SIGNIFCANCE	**VALUE**	**INTENTION**
internal conditions	*existential conditions*	*past, present, and future*

How things come into being (Woodward 2020, 91)			
SPATIAL	**MATERIAL**	**RELATIONAL**	**TEMPORAL**
exploring where things are	*types of things*	*things in relation to each other, spaces or through things*	*things are part of the present, have histories, and futures*

Visualising such contours of everyday life can identify elements that enable and constrain lived experience. While we might make haptic any number of elements for any number of reasons, embodied enquiry's process as presented in the next chapter focuses on the experiential affordances identified by participants. As this practice-led research is situated within the realm of co-design, the outcomes are intended to speak to the application of practice. Affordances speak more directly to what products, services or built environments enable and constrain in lived experience.

In the process of storymaking, when someone highlights what was significant in the past and what they value in the present, they may not know what they intend in the future. While bias is acknowledged as an aspect of embodied enquiry in practice, it is not of concern because participants construct what might enable and constrain future experiences and under which conditions they might emerge (Davis 2020). Through the act of storymaking, knowledge does not precede meaning-making. A participant is not biased by material and does not move away from some dormant objective truth. Latimer notes that sense-making generates an understanding of "embodied subjectivity" (2009, 13), or the subjective understanding that contextualises a lived experience. On the other hand, the meaning-making activity generates an examination of embodied knowledge, where, as Latimer continues, "embodied knowledge is not discursively constructed or represented, but is actively engaged with through tacit knowledge" (2009, 13). Constructing knowledge through the construction of a story repositions participants. This shifts them away from being seen as users as defined in relation to an object and towards understanding participants as the subject of their lived experience.

2.6 Research contribution: Formalising mechanisms

Extensive research has shown the power of material-making methods in translating experiences into a haptic language (Brandt et al. 2012; Madden et al. 2014; Mattelmäki 2008; Sanders 1999; Sanders and Stappers 2014) and co-design's appetite for analytical thinking (Johnson et al. 2017; Kankainen et al. 2012; Krippendorf 2006; Mattelmäki 2003; Sanders and Stappers 2008; Wensveen 1999). At the same time, storymaking and narratives are untapped opportunities to introduce a new mode of analysis among participants' experiences (Cidro 2012; Dank et al. 2006; Davis 2007; Hayman et al. 2011; King 2007; Krippendorff 2006; Ledwell-Brown 1994; Lloyd and Oak 2018; Mattern et al. 2015; Rice and Mündel 2018). This research seeks to bridge the gap between co-design's effort to introduce analytical mindsets and storymaking's ability to examine experiential data.

The importance of storymaking and narrative inquiry, in a participatory sense, enables co-design to expand its impact on analysis by providing a mechanism to physically and visually examine reflection through haptic language. This formalised scaffolding is vital because, when seeking out insights within lived experiences, participants often make meaning within storied or narrative understandings. Making meaning is not automatic or immediate, demanding more intentional scaffolding. The workshop process aims to introduce intentional scaffolding for form-making as data generation, sense-making as collective interpretation and meaning-making as analysis as a way to imagine new perspectives and worlds.

Storymaking complements co-design methods' generation of experiential data. Storymaking is the foundation for translating the visible language generated among methods into symbolic narrative elements. "Various authors have used the term embodiment to emphasise that knowledge emerges from being in a world that is inseparable from our bodies and body–world interactions" (Van Rompay and Ludden 2015, 2). These narrative elements can come together to create a story to help participants better understand their experiences. This symbiotic relationship between experience and story is well-established. This notion that people naturally construct stories for sense-making establishes a natural place to start within the space of co-design.

Chapter 3 will explore the scaffolding central to embodied enquiry, attempting to enact the research and theory presented in this chapter. Chapter 4 will explore empirical practice accounts of the fields of enquiry outlined here.

03. Embodied Enquiry's Workshop Process

3.1 Embodied Enquiry overview and scaffolding

The scaffolded activities presented within this chapter attempt to formalise co-design's material disposition along with storymaking's focus on sense-making and narrative inquiry's stewardship in meaning-making. Working backwards from these activities, I explore the process that led to the development of this scaffolding. I introduce some notable prototypes and how they led to the final model shared within this exegesis. Focusing on the active questioning of lived experience, these activities come together to create a structure for generative enquiry.

Co-design already utilises aspects of embodiment (standing in a quadrant to map a city/emotions/experiences, using emojis or gestures to embody an affective response) and tools and activities that do not (Post-its, co-designed solutions, need-finding or consensus-building activities). The embodied enquiry workshop distinguishes itself from others in its specific goal for use in the analysis phase of a project. Creative practitioners can adapt aspects of embodied enquiry for use in their own design process or workshops (this could be as an additional workshop, activities introduced at the end or with subject matter questions folded in). I will explore notions of adaptation in further detail in Chapters 5 and 6.

I focus on the development of the scaffolding within this chapter because the goal of my PhD has been to refine a co-design working process for embodied enquiry. The name itself is a product of this refinement, highlighting the lens through which participants examine and attune to lived experience in the workshop: that it is through our body that we come to understand our lived experience. While the principles could apply to non-workshop spaces, the project itself has focused on a workshop that can be adopted by others.

The following section breaks down each activity present within the embodied enquiry workshop process.

Activity 1: Form-making
Participants are asked to reflect on a specific lived experience. For instance, Think of a time you awaited results from a healthcare professional. This moment of reflection acts as memory retrieval, amplifying any felt qualities. Participants are then prompted to translate what has come to mind in their reflection (who was there, what was happening, the emotions present, where they were, etc.) into form through any arts-and-craft materials available. These material translations are what I call 'embodied forms' – representational visual signifiers. This activity aims to make haptic embodied experiences.

Activity 2: Sense-making
Participants then share their stories with others and identify a common theme. Afterwards, everyone views their embodied form from above, around and at a distance to expand their perspective on the lived experience and shares these embodied insights with others. Shared dialogue across various viewpoints acts as sense-making, enabling participants to identify surrounding and peripheral factors. This activity aims to bring understanding of embodied subjectivity, helping to contextualise the lived experiences.

Activity Three: Meaning-Making

Fill-in-the-blank sentences are presented to participants in order to examine what enabled and what constrained their lived experiences. These sentences connect the common theme identified to the surrounding and peripheral factors, showing how they will affect future lived experiences. This activity aims to examine embodied ways of knowing.

AVAILABLE PERMISSIONS

↑
shared theme

FILL IN BLANKS

creates — a legible system for the administrators the system

negates — creativity, diversity, plurality

lessens — innovation

worsens — life for people who don't fit into the norm

requests — us to conform

demands — reductive behaviour

encourages — singular paths dominated by existing power structures

discourages — exploration of alternatives

refuses — difference

allows — boredom

Figure 3.1 Meaning-making sentences (image source: workshop participant 2020)

This image shows a participant's list of experiential affordances using the common, shared theme of "available permissions"

3.1.1. Scaffolding in action as workshop agenda (Figure 3.2)

As outlined in Chapter 1, the type of methods employed in participatory spaces can affect the overall outcome of the enquiry. In this chapter, I revisit the notion of participants being defined as users and thus positioned in relation to an object. A focus on user behaviour takes design attention away from centralising the human context or interior narratives in the meaning-making process. Using inspiration from Table 2.3 *Narrative Ways of Knowing,* as presented in Chapter 2, an attempt is made to centre the participant in the meaning-making process by using different orientations to position them in relation to their lived experience. Orientations such as internal and external conditions, understanding what is significant, of value, and intentions through focusing on the past, present, and future; and exploring spatial and temporal elements all can be utilised to centre the participant and construct different ways of knowing of lived experiences. As such, I have developed the workshop process presented within this chapter in response to the challenges explored across the lack of participant engagement in the analysis phase of projects, the limitations of research methods with lived experience and the opportunity for workshops to move past predefined collaboration and into generative enquiry. By introducing storymaking within workshop spaces, this research investigates how participants can interpret and analyse their data – shifting a workshop's outputs from making forms to making meaning.

As explored in Chapter 2, co-design and material making methods are central to utilising making as a tool for making haptic the factors that affect lived experience for better understanding of future scenarios. Merging making methods with the visual construction of stories for interpretation and analysis is key to the first activity presented – form-making. While form-making in other workshops might be an effort to represent a product needed for use, form-making in this context visualises and represents aspects of a lived experience.

When people come to a workshop with their lived experience, they can explore affordances. Storymaking formalises enquiry for analysis. As noted in Davis' work, the question for enquiry is: What enables and what constrains experiences? What is afforded through their services, products and context? What do they demand? Encourage? Discourage? Refuse? Allow among their participants? For example, Davis offers a simple example to illustrate affordance using the notion of a pen, paper and table:

> The pen encourages writing for the subject, and the paper also requests visibility for the pen. In turn, the table encourages stability for the paper, without which the paper, with its flimsy material makeup, would discourage transfer from both pen and ink" (Davis 2020, 70).

Extending this idea to experiences, in inviting participants to reflect upon a time when they awaited test results from a healthcare professional, through scaffolded activities the participants begin to examine what was enabled and constrained in their lived experience. Going one step further, the workshop offers space to identify how these factors were enabling or constraining. Offering space for a workshop's participants to represent their lived experience through form-making can extend interpretation and analysis by using the form-making as a haptic reference point to examine what enabled and constrained their lived experience. In this research, storymaking makes affordances visual and explicit.

Embodied enquiry can present avenues for co-design to integrate participatory design's ethos into analysis. Davis's work parallels participatory design; she notes that "the mechanisms of affordance hold social, political, economic, and legal ramifications, with far-reaching effects" (2020, 48) and lay the groundwork for the enablers and constraints the participants examine in order to make meaning from lived experience.

Embodied enquiry's process as presented in this chapter shows how to open up enquiry, offering participants ways to explore the factors that enabled and constrained a lived experience. Creative practitioners do not need to predefine the specific questions to elicit these factors. Instead, enquiry is generated incrementally through scaffolding. I have prototyped the structure of this scaffolding throughout my PhD. This iterative process was pivotal for the activities to be developed over time, informed by observation and feedback. While prototyping is explored in this chapter, the practice accounts in Chapter 4 will investigate the workshops that applied the final design of the scaffolding.

3.2 Prototyping and iteration of scaffolded activities

As an overall approach to workshops, embodied enquiry scaffolds its activities for participants. Rather than being a simple procedural plan, scaffolding instead builds upon each activity exponentially. Much like a building's construction scaffolding, a participant cannot reach their goal without going through a stepped approach along the way. Scaffolding refers to a process described by Williams van Rooij where:

> the instructor provides assistance to the student for tasks or concepts that the student is initially unable to grasp on his/her own. Once the student masters the task or concept, the instructor begins the process of 'fading', or the gradual removal of the scaffolding, which allows the student to work independently (2009, 211).

The prototyping process undertaken in this research explored the various shapes, sizes and structures of such scaffolding. Iteration of the scaffolding took place with small groups (3–30 people) and shows what storymaking can offer participants, creative practitioners and co-design, rather than representing a proof-of-concept. Implementing embodied enquiry with small groups did not limit its evidence but instead, as Jakob Nielsen argues, "the best results come from testing no more than five users and running as many small tests as you can afford" (2000). Through a series of small engagements, this exegesis explores what is and is not transferable in participatory spaces. This exploration helps answer the overall question of *What would engaging participants more equitably in the analysis phase of a project offer?*

While exploring lived experience through form-making is not new to my practice, this research has set out to prototype and iterate on the various ways to facilitate and scaffold the generating, interpreting and analysing of embodied data. Each of the 18 prototypes (see Table 3.1) focused on: what haptic data was generated by form-making, how the dialogue was utilised for collective sense-making and where meaning-making was being constructed for analysis, all to varying degrees of success. While these activities can exist across varying structures, I intended to create a type of workshop. This speaks to my frustration with the inability to interpret and analyse what emerges, what comes into being, within workshop spaces. This frustration has evolved into my main research question: *How might co-design workshops utilise participant meaning-making for analysing lived experience?*

Table 3.1 Prototypes and learnings.

Prototypes

WONDERLAB PLAYDATES

Learnings (form-making):

The research lab members would come together to creatively explore and develop aspects of their research projects. These generative meetings acted as a place of experimentation, helping to activate practice and gather feedback on scaffolding and activities.

PLAY-DO MAKING

Learnings (form-making):

Participants were offered an activity to make 'non-thinking' forms, where they reacted to a stimulus (a sporting event on TV) and created something without even intentionally looking. The main insight I have transferred through to this current research is the need for a tool to attune to and analyse the haptic language produced by participants.
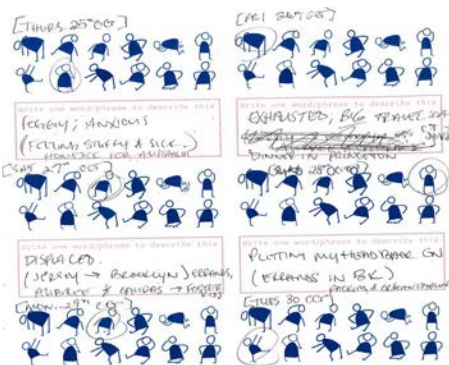
PICTOGRAM SURVEYS: GENERATIVE REFLECTION

Learnings (sense-making):

By introducing visual diagrams that organised the data in different ways, patterns began to emerge, but the participant was left confused as to what the patterns were telling them. Here, an analytical tool was needed to tell a story of the data in a way that the participant can interpret meaning from it.

THINK-ALOUD EXPLORATION

Learnings (sense-making):

As a participant walked through the workshop's scaffolding, I recorded their thoughts as they went along. This audio was key in eliciting what participants might think and feel as they engage with activities and their lived experiences. The main goal was to find a way to better understand what enabled and constrained a participant's ability to engage with the workshop.

EMERGENCE MAPPING

Learnings (meaning-making):

Emergence Mapping is a timeline observation tool to help surface what emerged during workshop activities, and how it emerged. For example, exploring what variables combined to articulate a felt experience. In this example, I focused on the emergence of participant-making (through embodiment or literal form). The key insight here was that by visualising the experiential data, participants could respond and find interpretation in it during the workshop. This offered space for critical scepticism of the data, and challenged me on assumptions made in surfacing data, as well as interpreting patterns in it.

Embodied equiry's process has developed out of various different workshop agendas. Through this process, I have identified form-making as an enquiry into embodied experience data generation. Sense-making has developed enquiry into embodied subjectivity through collective interpretation. Meaning-making was developed as an enquiry into embodied ways of knowing through analysis. As shown in Table 3.2, facilitating and iterating the various workshops assisted me in working through the differences between form-making, sense-making and meaning-making. At first I focused on co-design's form-making inputs, then the ability to collectively make sense of the narrative elements visualised. Finally, I developed an activity that focused on making meaning from collective interpretation. This process was pivotal in scaffolding these 3 activities, as they have been developed through the practice and not were predefined before this exegesis study. This chapter extrapolates how these concepts became clarified through iteration of the workshop process.

Prototyping Framework

1. FORM-MAKING	2. SENSE-MAKING	3. MEANING-MAKING
DATA GENERATION	**DATA INTERPRETATION**	**DATA ANALYSIS**
focus on relevant methods that prompt participants to enquire an experience and generate information.	*focus on ways to make sense of the visual data generated from form-making.*	*focus on ways to make meaning from what emerges within a workshop.*
Probes	**Storymaking**	**Narrative Inquiry**
invite people to reflect and express their experiences, feelings and attitudes through artefacts. Probes act as an entry point to examine a lived experience through use of material and visualisation.	narrative elements that are visualised are used specifically to examine surrounding and peripheral factors in stories, understanding embodied subjectivity.	accepts that participants can make meaning from a lived experience through the creation of a story. Narrative Inquiry provides a way for participants to explore embodied ways of knowing.
Prototypes	**Mimetic & Analytic Viewpoints**	**Affordances**
are representational objects that give shape to the future. Prototypes act as a way for participants to imagine new, future scenarios through material.	narrators assume two viewpoints when telling a story - mimetic which centres them inside the action, and analytic which positions them at a distance. These viewpoints can provide participants new ways of viewing their lived experience.	the factors that enable and constrain a lived experience. Affordances can be used as a way for participants to communicate how future scenarios might be enabled and constrained and design accordingly.
	Think-Aloud Protocol	**Attunement**
	a method that invites participants to verbalise their thought process as they complete a task. A think-aloud protocol is one way that participants can articulate what they are thinking through use of a visual reference point.	pays attention to the felt rhythms of lived experience, or the affect. Participants can attune to affect through engaging with the qualities that are usually unobservable in visual ways.

The development of embodied enquiry focused on how embodied experiences could be interpreted and analysed, rather than an enquiry into how embodied data could be generated most effectively. For example, as explored in Chapters 4 and 5, Co-design acts as this practice-led research's methodology, as both the foundation for form-making and the process by which I engaged workshop attendees as creative practitioners. The workshops provided a space to generate reflection on the scaffolding of activities. Rather than analysing the artefacts generated by participants, this research has analysed the meaning made, as seen through participant reflections and discourse within the workshop. These reflections were collected through various digital spaces: the chat function within Zoom, dedicated open-ended discussions within workshops, follow-meetings and emails. These digital artefacts act as evidence of the meaning made within embodied enquiry workshops.

This approach to analysis (analysing evidence of meaning-making versus material forms) was in an effort to help a creative practitioner manage the avalanche of post-workshop data (as seen through dozens upon dozens of Post-its, themes, observations, questions, ideas and hours of audio and video recorded). Co-design is very familiar with the generation of data, but could expand upon its participatory ways of interpreting and analysing – much like its use of affinity mapping to create categories and themes. The opportunity here is not to tack on an individual method, but instead have cohesion among the activity for data generation, the interpretative mode used to theme the data and the analysis employed to examine a participant's lived experience.

3.3 Embodied enquiry: Scaffolding analysis through storymaking

Rather than perceiving embodied enquiry as a step-by-step procedural workshop, it is better to understand the cadence as temporal phases. Each of the 3 phases is experienced over time, each activity evolving into the next as the workshop moves along. While the activities are sequentially facilitated, a participant's interpretation and analysis do not 'begin and end'. Instead they take shape over time and emerge in the workshop. By integrating storymaking within the co-design process, the workshop's scaffolding is meant to support a participant's enquiry into their lived experience. The purpose around using story is twofold: storymaking offers translation and expression; and storysharing can offer critical reflection on lived experience.

Storymaking is used here to complement co-design's familiarity with material making methods, while storysharing can expand co-design's use of shared dialogue for collective interpretation. These approaches give structure to haptic language for use as metaphorical narrative elements to be verbally processed. For instance, phrases such as "the weight of the world", or "boiling over with rage", or "frozen in fear" are offered structure in both material (i.e. red for rage, large size for weight) and language by complementing storymaking with the methodology of co-design. These narrative elements can come together to create a story for participants to better understand their experiences. This research sees storymaking as a complementary and effective mechanism for enquiring about embodied data.

The workshop scaffolding proposes one process that creative practitioners can extend to participants to help them reflect on, explore and make meaning from their lived experience. The scaffolding aims to support them to revisit and (re)examine. While creative practitioners may explore a topic thoroughly to understand a client's brief, they cannot assume that a participant has spent a similar amount of time exploring the same topic. Therefore, it is necessary to extend scaffolding to the participant before requesting a meaningfully articulated response, as is often the case.

When looking at surveys, questionnaires, interviews, focus groups and observations, the researcher will often ask questions and expect an immediate response. I argue that it is both unfair and a disservice to expect a response to a topic the participant might not have thought about as thoroughly as the researcher has. Offering space to use material exploration to examine the story of participants' own experiences affords the time needed to construct a meaningful response. In her seminal work around design research, Sanders describes a process of "unsticking information" (1999, 91). This unsticking is intentional, with stories acting as a way to construct articulation, a sign of something coming unstuck. While embodied enquiry prompts a short reflection, the entire length of the workshop process acts as the time to craft a response. Whereas in other methods a researcher might give a participant a few minutes to answer a question, embodied enquiry provides participants around 2 hours (or more, if you want) to think through and construct a response. By unsticking information through materials and haptic language, embodied data that is "experience-based, not object-based" can be intentionally generated among workshop participants (Sanders 1999, 91–92). I argue that storymaking can be a mechanism by which participants unstick their information.

Integrating storymaking into co-design's enquiry provides a more intentional focus on literally constructing stories for use in meaning-making, rather than retroactively 'finding' meaning within a story. My motivation to offer a novel mode of analysis stems from weaknesses identified among probes, prototypes and toolkits. Mattelmäki's stewarding work around cultural probes (as explored in Chapter 2) helped lay the groundwork on which this research has built and she identifies shortcomings with data analysis within co-design:

> The strength in probes lies in the subjectivity of the information gained. The weakness is, unfortunately, the same. The data, comprising photos, texts, and tasks produced in multifaceted ways, is, even where possible, complex to interpret in a way that produces reliable information (Mattelmäki 2005, 94).

By improving on ways to analyse this 'subjective' information gained from probes, prototypes and toolkits, this research seeks to grow co-design's ability to analyse data generated within its process.

3.4 Activity 1: Visualising embodied experiences through form-making

The first activity in embodied enquiry is pivotal for exploring lived experiences among participants and is comprised of 2 tasks: reflecting and making (as shown in Figure 3.2). To begin, the facilitator simply invites the room to silently reflect and give their reflection form with whatever materials are available in front of them.

Figure 3.2 Embodied enquiry's first activity: form-making

As explored in Chapter 2, embodied enquiry positions reflection as the basis of a participant's sense- and meaning-making. Four different reflection prompts were iterated on and facilitated across the practice accounts that will be examined in Chapter 4 . While the first three prompts were created in response to specific conference themes, the last prompt listed is simply a reflection of my interest of co-design in healthcare:

> *Reflect on different types of data in your own practice and examine the design decisions and activities that make that data known.*
>
> *Think of the place where you spend most of your digital life.*
>
> *Think of a time when a system you were in made it difficult for you to do something that was important to you.*
>
> *Remember a time when you awaited results from a healthcare professional.*

The objective of the workshop scaffolding is to make meaning from lived experience. It is necessary to frame and retrieve sensory information within the reflection. Activity 1 focuses on how a participant experienced a situation, rather than accurately portraying it.

After reflecting, participants translate whatever has come to mind in their reflection into material form. They begin to represent what their lived experience felt like through the mass, density, texture, colour, etc.

associated with it. Someone could express how they were 'hot with rage', were about to 'boil over' or felt the 'crushing weight of the world' and represent those metaphorical abstractions through the materials. These representative properties are considered data coding or labelling of key data points. Each of the attributes seen in the embodied forms comes to represent something in the story of their lived experience.

It is important to note that these embodied forms act as an avenue for interpretation, not for literal representation. The form represents key points in the experience, for example, awaiting test results from a healthcare professional. By providing space to make embodied forms, participants begin making sense.

Form-making offers an exploratory divergence, a possibility of unexpected responses and various pathways to represent embodied data. This visual abstraction of a lived experience presents a challenge for traditional analyses that try to isolate variables or have comparable results. In this research, analysis is not a separated phase that starts after the participants generate data, but can be part of what they do within a workshop structure. By seeing others' data, participants can identify common themes across seemingly disparate stories and analyse their significance.

3.5 Activity Two: Understanding embodied subjectivity through collective sense-making

Much like the first activity, the second comprises several smaller tasks tethered together by scaffolding. Within the second activity of embodied enquiry (see Figure 3.3), participants interpret their embodied forms through shared dialogue with others. For instance, within Zoom's Breakout Rooms feature, participants are invited to share what they have reflected upon and what their embodied forms represent. While form-making provides a way to 'see' others' data, sharing stories offers a way to 'hear' others' data. As noted in Chapter 2, when sharing stories, Sauer observes that narrators take on "two distinct viewpoints: a mimetic viewpoint where they gesture and enact events as if they were present in the scene described, and an analytic viewpoint where they place spatial and temporal distance between themselves and the event described" (1999, 329) (see Figure 3.7). Part of the purpose of scaffolding within this activity is to offer participants an avenue to move from the mimetic to the analytic in order to make meaning from their lived experience.
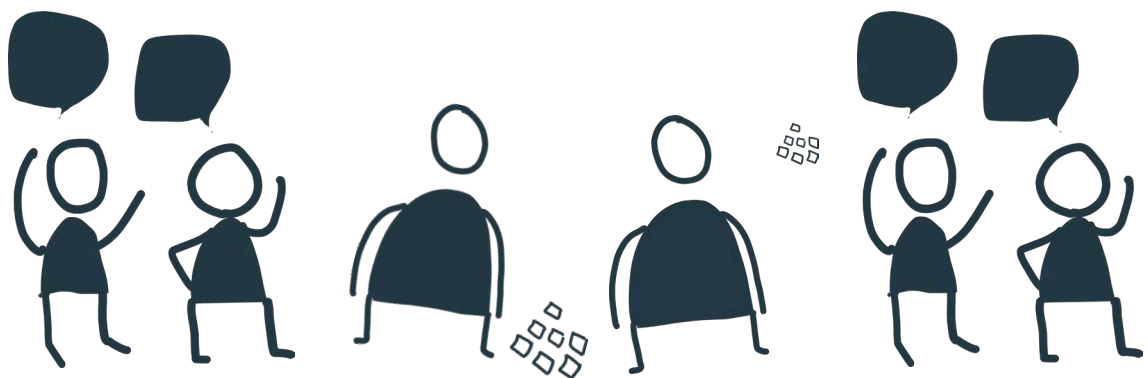
Figure 3.3 Embodied enquiry's second activity: sense-making

Once participants share, they identify a common theme that has emerged across the stories. This is an effort to identify common themes present among seemingly disparate stories. Two stories of the same reflection prompt will have varying factors – how it was experienced, the time duration lived, implications seen, etc. – so to identify a shared theme can afford 'unresolved' data to be incorporated among the interpretations. This collective sense-making is supported and scaffolded by Sauer's approach to viewpoints; she notes that "when audiences observe the analytic viewpoint in relation to the narrator, both the narrator and the audience observe and analyse events from a distance" (1999, 330). By offering them avenues to make forms, participants have a shared viewpoint that they can collectively interpret alongside others.

Embodied enquiry integrates Sauer's viewpoints (1998, 1999) regarding how participants physically engage with their embodied forms. Once they identify a theme, they physically view their embodied forms from above, around and at a distance. This activity entails peering down onto the form, rotating it and standing at a distance from it across the room. This distancing assists them in reflecting upon how their lived experience is situated within a wider context, enabling surrounding and peripheral factors to emerge. These sense-making viewpoints support physically engaging with embodied forms and interpreting through shared dialogue. The embodied forms visually signify for others a reference point to talk to, verbally processing within the workshop space. The strength of scaffolding is that it affords incremental exploration by participants. Since this second activity aims to access what Latimer describes as "embodied subjectivity" (2009, 13), or the subjective understanding that contextualises a lived experience, incremental scaffolding provides a way for this understanding to be slowly explored and made sense of with others. Rather than asking a series of direct questions, the scaffolding provides a way to reflect and make sense slowly throughout this step.

3.5 Activity One: Visualising embodied experiences through form-making

Embodied enquiry extends the definition of analysis as what participants do with their data to make it meaningful to them. Thus, the third activity (see Figure 3.4) focuses on scaffolding the doing, specifically, examining how the surrounding and peripheral factors that have emerged across the previous activity's viewpoints are enabled or constrained. These enablers and constraints are identified through a series of fill-in-the-blank sentences presented to the participants. Expanding upon the list of affordances Davis presents in her work, the following sentences help participants identify what enabled and constrained a lived experience. The room is offered a quiet space to reflect on what has emerged in the workshop and to respond through writing. While this guidance is structured, participants can edit, amend and expand upon these sentences as desired.

[identified theme] creates _____.
lessens _____.
worsens _____.
negates _____.
opens _____.
overshadows _____.
allows for _____.
affords _____.
supports _____.
becomes _____.
emerges from _____. (Davis 2020)

Figure 3.4 Embodied enquiry's third activity: meaning-making

While the concept of design affordances comes from Don Norman's work in industrial design, the first description of an affordance was given by James J. Gibson in 1979. Gibson referred to an affordance as "what the environment offers" (Chemero 2003, 182), but this has evolved to include relations between "particular aspects of animals and particular aspects of situations" (184). I posit that affordances can extend to analysing lived experiences. Davis argues that "technologies don't make people do things but instead, push, pull, enable, and constrain. Affordances are *how* objects shape action for socially situated subjects'' (2020, 17), acting as "invitations, or as opportunities for action" (26). For instance, what does it mean when something 'took too much time' or 'was a great learning experience' or 'was fun'? What enabled and constrained those experiences? How do we design for such affordances?

For example, during a prototyping session, when asked about a time they awaited test results from a healthcare professional, a participant stated (see Figure 3.5): "being a ball of frustration creates questions, lessens advocacy, worsens anxiety, negates direction, opens [up] concerns and overshadows authority". In this case, I walked away with the factors that enabled and constrained her experience with breast cancer treatment. I would flag that a hospital patient's ability to communicate or ask questions becomes constrained when they feel frustrated. An example design response to this affordance is: *How might we reduce patients' frustrations so they can better advocate for what they need?*

The list of enablers and constraints guides decision-making within a project. This list implicitly answers the question: What enables and constrains our participants' lived experience and under which conditions do they emerge? That is to say, what are the mechanisms of an experience and what factors does the design have to take into account for them to be supported or mitigated?

Figure 3.5 A participant's list of enablers and constraints (image source: workshop participant 2020)

ACCESS   FOR   CONFUSION .

AFFORDS   ~~FOR~~   FRUSTRATION,

NEGATES   DIRECTION .

OPENS   CONCERN .

CREATES   OBLIGATION

OVERSHADOWS   AUTHORITY .

SUPPORTS   MISCOMMUNICATION.

EMERGES FROM   SYSTEM IGNORANCE

                              ← (ADVOCACY)

LESSENS

WORSENS   FEARS / ANXIETY .

BECOMES   FRUSTRATION .

              ↓ APATHY & EXHAUSTION

3.6.1 The current iteration of embodied enquiry's scaffolding (Figure 3.2)

I present a working agenda to facilitate embodied enquiry and it is meant to act as a general guideline for creative practitioners. These facilitation prompts are a direct result of what has been learned throughout the prototyping process. Some components are meant to be openly adapted (the reflection in Prompt #1, the in-person or digital space that participants share in Prompt #3 and the feedback in Prompt #8), but the scaffolding purposely introduces form-making, sense-making and meaning-making incrementally and this should be adhered to in principle. While embodied enquiry in my study has mostly been facilitated online (4 of the 5 workshops were hosted online), it was prototyped and critically constructed offline. I have honed the agenda down so it can be facilitated within 45 minutes, but I have also run it as a 2-hour workshop. As for the number of participants, it can be facilitated with as few as 2 (as participants should share in pairs/threes so themes do not become convoluted), but can be scaled up to include upwards of 40 people. The timing listed below organises the verbal facilitation steps of a creative practitioner within the span of a 45-minute online workshop. The timing can be extended for a longer workshop, creating more space for making, exploration and discussion. Creative practitioners can also adapt this plan for in-person workshops.

1. **2 minutes:** Reflect on a time when you awaited results from a healthcare professional.

2. **5 minutes:** With whatever materials are available in front of you, translate whatever came into form.

3. **10 minutes:** In breakout rooms, share what you have made and identify a common theme among the stories.

4. **3 minutes:** Individually and silently, look at your form(s) from above and around. What surrounding factors emerge for you?

5. **3 minutes:** Individually and silently, look at your form(s) from a distance. What peripheral factors emerge for you?

6. **7 minutes:** Using the common theme identified, complete the (enabler and constraint) sentences shown.

7. **10 minutes:** Share what has emerged for you across viewpoints and what has resonated with the written prompts.

8. **5 minutes:** Share any thoughts you have about this workshop and what you might integrate into your own practice.

Prompt #2 refers to form-making data generation within the scaffolded activities above, Prompts #3–5 refer to sense-making interpretation and Prompt #7 refers to the meaning-making analysis. Table 3.3 shows how the literature and theory presented in Chapter 2 relate to the scaffolded activities.

While this chapter has explored the structure and scaffolding of embodied enquiry, Chapter 4 will present this process in action across 5 accounts of practice. Specifically, Chapter 4 will examine what embodied enquiry offers participants, creative practitioners and co-design. These 5 workshops resulted from the prototyping and iteration process undertaken that has been explored in this chapter.

Table 3.3 Connecting the literature with the corresponding activities.

CH. 2 LITERATURE		CH. 3 SCAFFOLDED ACTIVITIES SUPPORTED	
CO-DESIGN	Data generation for meaning-making	**FORM-MAKING**	mode of creating a haptic language for narrative coding
PARTICIPATORY DESIGN	Collective interpretation for meaning-making	**FORM-MAKING**	haptic language for self-defined enquiry into lived experience through material
		SENSE-MAKING	stresses the importance of working with others for collaborative exploration
STORYMAKING	Epistemological foundation to make meaning from lived experiences	**SENSE-MAKING**	a collective exploration of stories
		MEANING-MAKING	accepts that knowledge can be constructed through story
NARRATIVE INQUIRY	Ontological concepts for making meaning from lived experience	**MEANING-MAKING**	mutual storytelling and restorying through collaboration as research proceeds

04. Practice Accounts

4.1. Workshop Offerings

This chapter presents discussion of 5 different workshops I facilitated in the form of practice accounts, a method of first-person enquiry into one's practice or professional process. Practice accounts help to reveal 'the happenings' going on, the designer's worldview and value systems" (Agid 2011; Suchman 2002) and can inform future practice or processes. The following practice accounts investigate the value of embodied enquiry in action, exploring how embodied data is visualised through form-making, collectively interpreted through sense-making and analysed through meaning-making. The workshops are examined via 3 distinct empirical themes:

the value of embodied enquiry for the participant (Section 4.2)

the value of embodied enquiry for the creative practitioner (Section 4.3)

embodied enquiry's contribution to co-design (Section 4.4)

It is important to note that these themes have been used to analyse my own data and these examinations are presented within the practices accounts in this chapter. These 3 lenses offered up different ways to evaluate the value of embodied enquiry and the contribution to research. Grounding the analysis in practice accounts aligns with the premise that my own lived experience of facilitating, and participants' lived experiences of workshops, are the most valid way to examine the contribution of this research.

Each theme revisits the research's aim in order to answer the question: What would engaging participants more equitably in the analysis phase of a project offer? By defining analysis as what participants do to their data to make it meaningful to them, these practice accounts examine how embodied enquiry can more equitably engage in the analysis phase of projects. Table 4.1 provides an overview of what form-making, sense-making and meaning-making offer participants, creative practitioners and co-design.

Table 4.1 A snapshot of what is offered to participants, practitioners and co-design.

	SECTION 4.2: PARTICIPANTS	SECTION 4.3: PRACTITIONERS	SECTION 4.4: CO-DESIGN
FORM-MAKING	helps to "reflect-on-action" and explore embodied experience	visualises embodied experience for generative enquiry	generates exploration guided by participants, rather than defining them as users in relation to objects
SENSE-MAKING	provides a way to understand embodied subjectivity	shifts focus from object to experience, offering a different position in which participants sit within the design process; contextualising experience through embodied subjectivity	amplifies embodied subjectivity, exploring lived experience through interpretation rather than material
MEANING-MAKING	examines embodied ways of knowing through what enables and constrains lived experience	communicates participants' envisioned futures through examining embodied ways of knowing	actions the envisioned futures of its participants, rather than envisioning futures for others

Revisiting the workshop scaffolding from the previous chapter, Figure 4.1 shows an example and sequence of activities that make up embodied enquiry.

Figure 4.1 A participant's experience with embodied enquiry

The activities are:

1. **Reflect on the facilitator's prompt** (e.g. Think of a time when you awaited test results from a healthcare professional)

2. **Translate what has come to mind into form** (e.g. "I was really nervous")

3. **Share with a partner/small group and identify a common theme** (e.g. "Nervousness was a shared theme in my group")

4. **Individually look at the form from above and around, noting what surrounding factors emerge** (e.g. "I couldn't think of anything else, I couldn't focus on my family")

5. **Individually look at the form from a distance, noting what peripheral factors emerge** (e.g. "Everything just seems so inconsequential now")

6. **Complete fill-in-the-blank sentences** (e.g. "Nervousness creates distraction")

Table 4.2 provides details of each workshop presented across sections, including the specific reflection prompt facilitated and the rationale for choosing the workshop for each section. The participants for each workshop were 3-30 self-selected attendees, who ranged from design practitioners, university students, and those familiar and unfamiliar with design.

Table 4.2 Details of workshops facilitated.

SECTION 4.2: PARTICIPANTS	SECTION 4.3: PRACTITIONERS		SECTION 4.4: CO-DESIGN	
Workshop name: Generating Reflexive Language	Workshop name: Generating Experiential Affordances	Workshop name: Exploring Embodied Subjectivity	Workshop name: Real-Time Analysis of Material Data	Workshop name: Re-Imagining Creative Data
60 MINUTES	**45 MINUTES**	**2 HOURS**	**2 HOURS**	**2 HOURS**
Facilitated online via Microsoft Teams at the Design Research Society 2020 biennial conference	Facilitated online via Zoom; not connected to conference – attendees were invited from personal network	Facilitated online via Zoom at the Public Pedagogies Institute 2020 Seminar Series: Public Pedagogies of Location	Facilitated online via Zoom at the 2020 Service Design and Innovation Conference	Facilitated in person at the 2019 Melbourne Design Week
REFLECTIVE PROMPTS				
Remember a time when you awaited results from a healthcare professional.	*Remember a time when you awaited results from a healthcare professional.*	*Think of the place where you spend most of your digital life.*	*Think of a time when a system you were in made it difficult for you to do something that was important to you.*	*Reflect on different types of data in your own practice and examine the design decisions and activities that make that data known.*
RATIONALE FOR WORKSHOPS PER SECTION				
While initially disruptive, this workshop provided me, as a facilitator, the opportunity to give up control. This was shown to offer participants more command over stories shared and heard. As I note later in the conclusion of this section, facilitating the workshop without the technical ability to hear everyone's stories did not hinder our ability to collectively sense-make and instead opened me to focusing on what was made meaningful by, and for, the participants.	The workshops presented in this section were chosen specifically for their complementary positioning to one another. Rather than 'resolving' data, they instead showed ways to create balance in data through collective interpretation. These workshops also examined the contingencies of facilitation with embodied enquiry. Regardless of limitations on familiarity with participants, experience with facilitating workshops online, time allotted for scaffolded activities or the type of reflective prompt facilitated, embodied enquiry was shown to offer creative practitioners value in the analysis phase of projects.		The workshops presented in this section focused on critical examination of practice and its implication for the field. While one workshop invited creative practitioners who worked with non-numerical data, the other workshop invited participants to interrogate and transform their preconceptions about what data. Participants reflected on different types of data in their own practice, examined the design decisions and activities that make that data known and learned about how data has been used to navigate interdisciplinary spaces.	

4.1.1. Data used from workshops to inform research

Co-design acts as this practice-led research's methodology, as both the foundation for form-making and the process by which I engaged workshop attendees as creative practitioners. The workshops provided a space to generate reflection on the scaffolding of activities. These participant reflections subsequently produced observations and discourse within the workshop, acting as this research's data generated. The main observations and their implications are discussed further in Chapter 5. They include:

> observations made around what resonated and why, connecting back to co-design's form-making strengths and participatory design's ethos of collective interpretation

> observations made around what was integrated into participants' practice and how, connecting back to storymaking as a formalised mechanism for enquiry into lived experience in co-design workshops

> insights that provoked reflection on participants' own creative practice, connecting back to the value of narrative inquiry and stories as a disciplinary challenge to co-design.

Rather than analysing the artefacts generated by participants, this research has analysed the meaning made. More specifically, the data in this research was generated across various spaces (as shown in the online exhibition):

> Zoom's chat function created a collaborative space for written discourse and feedback throughout the length of a workshop.

> There was dedicated open-ended discussion post-workshop for impressions of the experience, general discourse and feedback for future iterations.

> Rather than formal interviews, follow-up meetings with participants presented space for further insights and verbal discussion. These meetings continued the openness offered post-workshop for general discourse.

> Follow-up emails extended space for participants to reflect and write in further detail in their own time.

It is important to note a few things that serve to provide boundaries to the practice accounts and contribute to the overall research limitations on the findings:

> While the workshops offered space for creative practitioners to understand the value for them better and how they might adapt aspects of embodied enquiry in their practice, the scaffolding was not co-created in these workshops. Instead, prototyping with others iterated the scaffolding between each workshop.

> These practice accounts investigated the data generated through form-making and how it contributes to meaning-making, rather than investigating how form-making generates haptic data.

> While bias in the use of material is acknowledged and discussed further in Chapter 5, this research assumes a constructivist position – participants construct new knowledge within the space of a workshop and no objective truth has been moved away from due to use of materials.

As outlined in Chapter 1, this research is concerned with neither chronological accuracy nor a comprehensive list of human and non-human actors. Rather, it is concerned with accessing embodied subjectivity, or how participants experienced a situation, not an accurate play-by-play of events. Understanding embodied subjectivity is meant to lie not antithetical to, but complementary with, other research methods such as surveys, questionnaires, interviews, focus groups and observations, offering a way that the participant can make sense of their lived experience through a contextual understanding.

4.2 What is offered to participants

As explored in the previous chapters, participants are provided with avenues to generate their own enquiry through scaffolded activities. This section explores what embodied enquiry offers participants specifically through scaffolding, as summarised below:

Form-making as data generation acts as a way to "reflect-on-action" and explore embodied experiences.

Sense-making as collective interpretation supports in understanding embodied subjectivity, contextualising lived experience.

Meaning-making as analysis helps to examine embodied ways of knowing through what enables and constrains lived experience.

4.2.1. Participants as experts: Becoming reflective practitioners

Much like offering participants appropriate support for form-making processes, creative practitioners can also facilitate the sense-making and meaning-making processes within the space of a workshop. In doing so, participants are transformed into and supported as "reflective practitioners" (Smith 2001, 2011). To summarise, Donald Schön described two modes of reflective practitioners; the notion of "reflecting-in-action" is described as the design experience and understanding that enable someone to think on their feet, informing actions in real time as the situation unfolds. "Reflecting-on-action" describes referring back to a lived experience, generating understanding through reflecting on what happened and how someone responded (Smith 2001, 2011). "Reflecting-on-action" acts as an opportunity for the participant to engage by referring back to, revisiting, representing through form and sharing with others through dialogue.

The workshop presented in this section attempts to evidence and posit a case for becoming reflective practitioners. The participants made the following embodied forms meaningful by examining what enabled and constrained a lived experience.

4.2.2. Form-making as data generation: A way to 'reflect-on-action'

The embodied forms shown in Figure 4.2 are responses to the facilitated prompt: "With whatever materials are available in front of you, translate whatever came into form." As defined in the preface, an embodied form refers to the material representation of felt, lived experience. Material properties visually signify embodiment through qualities such as texture, shape, colour, weight, density, size, etc. These forms range from simple paper construction to more abstract configuration.

The forms made in this activity represent the embodied qualities of awaiting test results from a healthcare professional. Each of the form-based qualities seen here comes to represent something in the story of the participants' lived experience. As Sanders and Stappers note, an artefact alone has no meaning; it is only "through stories told about it, and the scenes in which it plays a role" that it generates "opportunities for creativity, expression, and discussion" (2014, 7) and lays the groundwork for sense-making.

This approach differs from the aforementioned methods of surveys, questionnaires, focus groups, interviews and observations, which aim to tap into or 'extract' data, and assume prior knowledge. While this positioning may be subtle, it greatly hinders a participant's ability to explore and generate meaning. Such methods cut off ability to: enquire about the embodied experience, understand embodied subjectivity and examine embodied ways of knowing. Rather, such methods 'find' data that is seemingly lying dormant.

Figure 4.2 Embodied forms
(image source: workshop
participants, 2020)

As seen in Figure 4.3, the embodied form comes to represent significant elements in the experience of awaiting test results from a healthcare professional. The act of form-making helps to embody felt qualities. As stated by a participant, this form represents: "Having to get biopsies to test for cervical cancer. In my initial reflection, thoughts of nervous energy and absolute lethargy, being fractious, going off on flights of fancy, came to mind." The attributes of being "fractious" and "flight" are literally represented in the paper-aeroplane form, creating a reference point for the wider contextual meaning to be made. At this point in the process, participants generate data from which to work, engage physically with their form and develop a language. Rather than asking them to reflect on and answer a question reactively, embodied enquiry offers them a space to enquire about and explore their lived experience without prescription.

Through form-making, participants continue making meaning throughout the length of the workshop and thus reflect-on-action. I concur with Smith that form-making acts as an avenue for someone to "refer back to their experiences, generating understandings through reflecting on what happened, and how they responded" (Smith 2001, 2011). The participant who created the form in Figure 4.3 visualised "nervous energy and absolute lethargy, being fractious," providing them with the space to reflect on "flights of fancy". "Nervous energy" is shown through the erratic way the paper aeroplane flies when thrown in its "flights of fancy". "Lethargy" is shown through the form's "grounding" and "being fractious" is represented through the ripped pieces of paper adjacent to the form. By choosing what they refer back to and how they make visible their reflection, participants take ownership of the enquiry, generating pathways as reflective practitioners.

Figure 4.3 Embodied form
(image source: workshop
participant, 2020)

In another example (see Figure 4.4), the participant explains that this form "shows a plant/branch of plant shedding flowers which is representative of the nervousness that I felt when I was awaiting my medical test results a few months ago." What is interesting to note here is that both embodied forms shown (Figures 4.3 and 4.4) explicitly mention nervousness as a quality reflected upon and represented through the material. Moreover, Figure 4.3's reflection is abstract yet the form is literal in representation, while Figure 4.4 is the opposite – literal in reflection yet abstract in representation. By constructing a haptic reference point for others to share, participants begin intuitively making sense of their lived experience through form-making alongside others. Regardless of their varying qualities, participants begin making sense of seemingly disparate stories by thinking aloud and verbally identifying similarities – in this case, nervousness as a common thread.

Figure 4.4 Embodied form
(image source: workshop
participant, 2020)
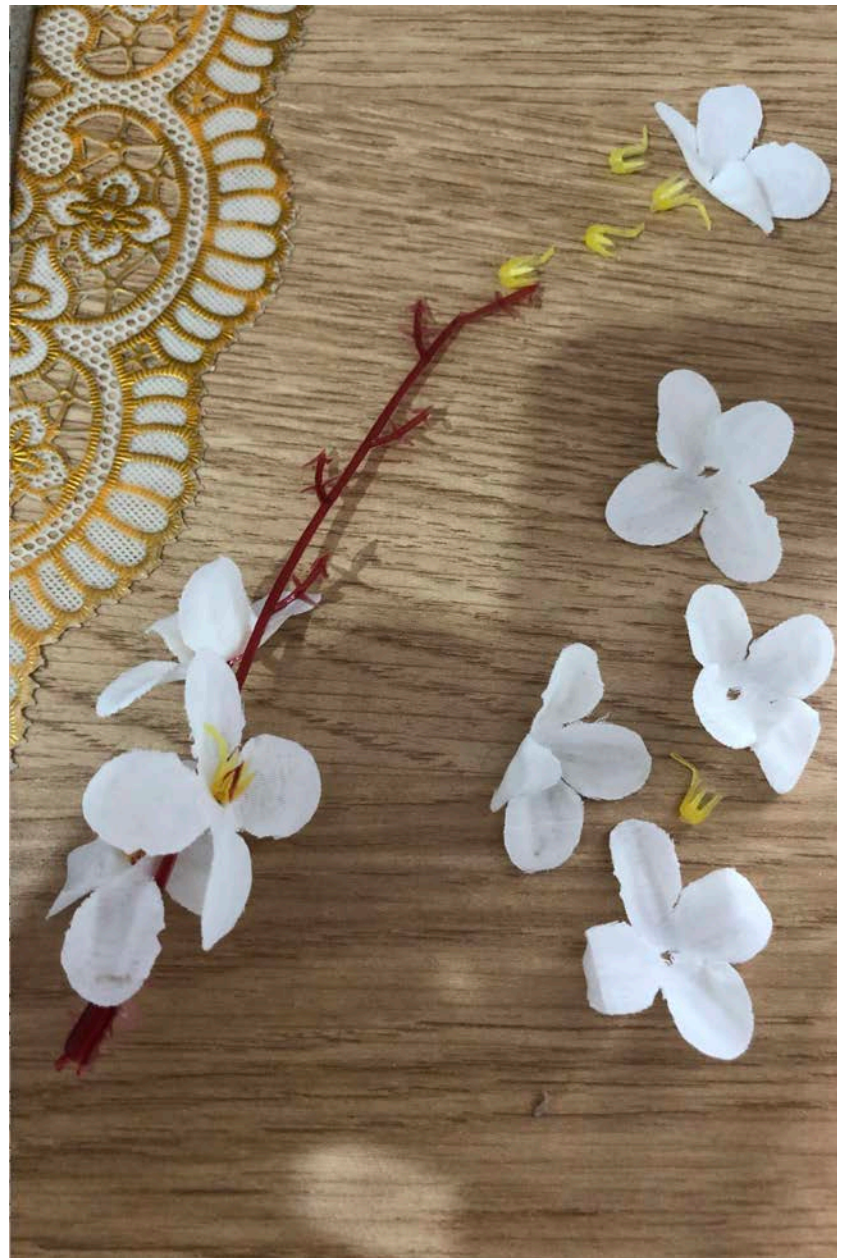
### 4.2.3. Sense-making as collective interpretation: Understanding embodied subjectivity

The photos presented in Figure 4.5 illustrate responses to the facilitated prompts: "Individually and silently, look at your form(s) from above and around. What surrounding factors emerge for you?" and "Individually and silently, look at your form(s) from a distance. What peripheral factors emerge for you?"

Participants are invited to intentionally interpret their embodied forms through shared dialogue in order to scaffold sense-making. Within Zoom's breakout rooms feature, participants share the lived experience reflected upon and the represented embodiment. If I were to point out where storymaking takes place, this is the first moment I would point to. While the first activity invites reflection and making of embodied forms, these forms are used to think aloud and share with others verbally. Participants begin constructing a story using their embodied form as a haptic reference point, walking others through what the materials represent and making sense within a wider context.

After sharing in breakout rooms, participants are invited to identify a common theme that has emerged across the stories. Earlier, 2 participants intuitively identified nervousness as a shared trait. Identifying common themes among seemingly disparate stories can incorporate variation in interpretation rather than 'resolving' variation in data. For instance, 2 stories of awaiting test results will have variation in factors and haptic representation – with different materials used to represent different aspects of the lived experience. Identifying a common theme provides a way to integrate seemingly disparate data. This collective interpretation offers a way to find similarities and overlaps across contexts. Regardless of how lived experience is individually felt, participants can interpret across contexts collectively.

Regarding the shared theme identified, one of the participants from Figure 4.5 (bottom) stated that: "The joint theme we discovered was the flipping between actively NOT thinking about the results and becoming overwhelmed with all of the what-ifs". When using co-design methods like probes and prototypes, participants explore through material rather than through interpretation. They explore using a product, positioning the product at the centre of their experience. In embodied enquiry, while embodied forms act as a steward for sense-making, the focus is on the meaning and the factors that surround and are peripheral to a participant's context. While this shift might be subtle, positioning participants in relation to a product inherently objectifies their enquiry – privileging the product over the participant.

Figure 4.5 Sense-making viewpoints: above (top), around (centre), and at a distance (bottom) (image source: workshop participants, 2020)
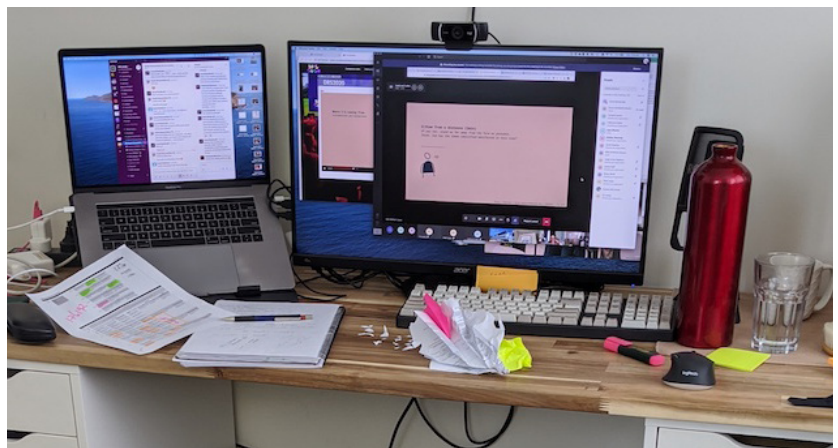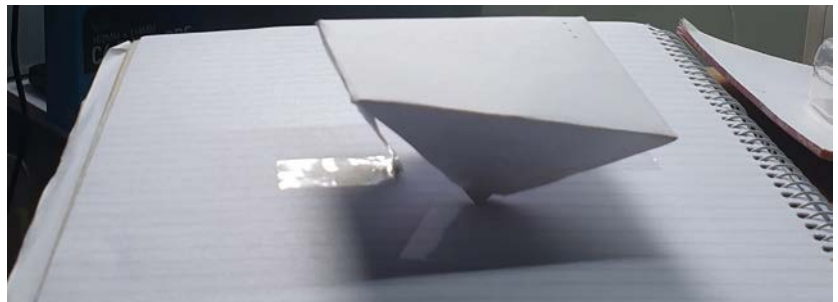
Once a theme is identified, the participants are asked to individually view their embodied forms from above, around and at a distance. Where possible, this entails standing up, looking over the form, walking around it and walking away from it. The first two sense-making viewpoints are shown in Figure 4.6. The above and around viewpoints provide both literal and figurative perspectives on the context surrounding the lived experience. Viewing the embodied form from above, participants make sense of what is being held up, how much space it takes up, how heavy or unstable it might be or how temporary or permanent it might feel. From around, they can view the structures that hold up the form, the distance from the ground and how steep the angle of the structure is. The participant noted in Figure 4.6 factors such as "anxiety", "not knowing" and "time" were present in their surrounding context, which enabled and constrained their lived experience, and this was examined further in the next activity. Here, they take time to reflect-on-action, making sense of their embodied forms' context.

Figure 4.6 Embodied form
from the above and around
sense-making viewpoints
(image source: workshop
participant, 2020)

Viewing an embodied form from a distance (as shown in Figure 4.7) invites participants to move or stand at a distance. This is meant to gain visual distance from the lived experience in order to reflect upon how it is situated within an even wider context, enabling peripheral factors to emerge.

Participants begin to 'see' their lived experiences in new ways by creating space between them and their embodied form. They interact with their embodied forms and verbally process their interpretation of the wider meaning. The common theme identified and the surrounding/peripheral factors that emerge across viewpoints are brought into the next activity.

4.2.4. Meaning-making as analysis: Examining embodied ways of knowing through what enables and constrains their lived experience

Recalling this research's definition of analysis as *what participants do to their data to make it meaningful to them*, within the third activity participants examine how the surrounding and peripheral factors that emerged across viewpoints were enabled and constrained. This examination of enablers and constraints act as this research's meaning-making activity. While there may be many other ways to make meaning from lived experience, the focus is on what was experientially afforded. Identification of these enablers and constraints is facilitated throughout a series of fill-in-the-blank sentences presented to participants as shown below.

> [identified theme] creates ـ____.
> lessens ـ____.
> worsens ـ____.
> negates ـ____.
> opens ـ____.
> overshadows ـ____.
> allows for ـ____.
> affords ـ____.
> supports ـ____.
> becomes ـ____.
> emerges from ـ____.

The participant in Figure 4.7 noted their theme of "nervousness" *creates tiredness, lessens energy, worsens fear, negates positivity, opens ambiguity, overshadows happiness, allows for confusion, affords anger, supports anxiety, becomes indecisiveness, emerges from lack of control.* As a creative practitioner, these statements illuminate the relationship between the enablers and constraints of a lived experience and their meaning in context. While form-making provides haptic representation, these experiential affordances act as one way to analyse the meaning of such qualities in context. Whereas normally a designer would walk away with the data to analyse it, here participants analyse its meaning in the workshop space instead of reading the analysis of the 'expert'.

Figure 4.7 Embodied form from the distance sense-making viewpoint (image source: workshop participant, 2020)
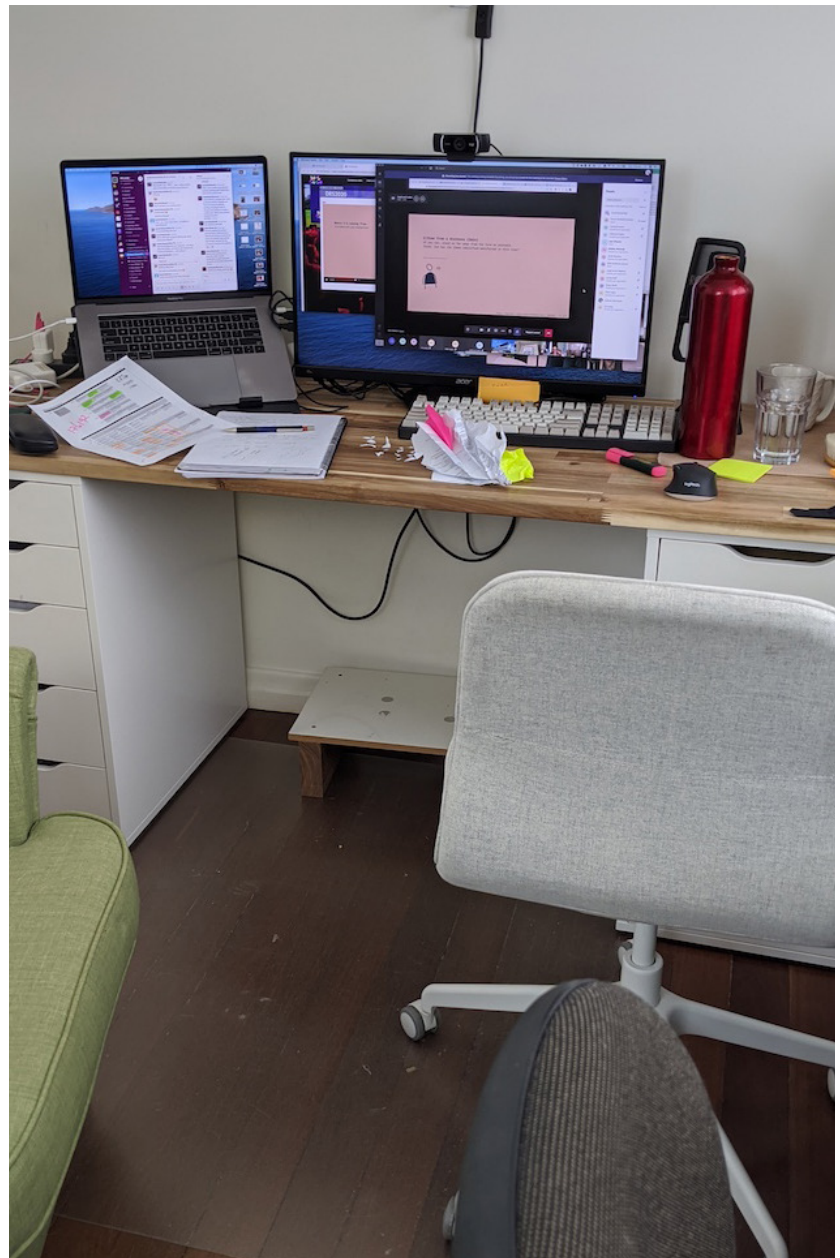
As seen in Figure 4.8 (bottom left), the participant examined the theme of "what-if" scenarios when awaiting test results from healthcare professionals. As illustrated, they stated that "what-ifs" *create frustrated energy, lessens sanity, worsens anxiety, negates objectivity, opens Pandora's box, overshadows all, affords frenetic over-thinking, emerges out of uncertainty*. I argue this examination offers a contextual understanding of the lived experience that creative practitioners admittedly are not experts in and may not think to ask about. For example, the participant who spoke about their "what-if" scenarios generated enquiry into the implications of such factors, rather than reacting to predetermined questions that might have focused on something else entirely.

Offering analysis as a space for data to be made meaningful by participants can prove valuable to the design process. As Jones observes, "user knowledge differs from designer knowledge" (2016, 474), since "designers are often not aware of the ways in which they devalue others' experiences and knowledges" (482). I posit that this extends to analysis within projects as well. Often, what is meaningful in analysis to the designer, client or funder is not meaningful to the participants if the analysis is ever shared with them in the first place. What is exciting is that, while a creative practitioner might go into a workshop without any knowledge of what people might reflect on, make or explore, they can be confident in knowing that they will walk away with the mechanisms that enable and constrain lived experience.

Figure 4.8 Participants'
experiential affordances
(image source: workshop
participants, 2020)
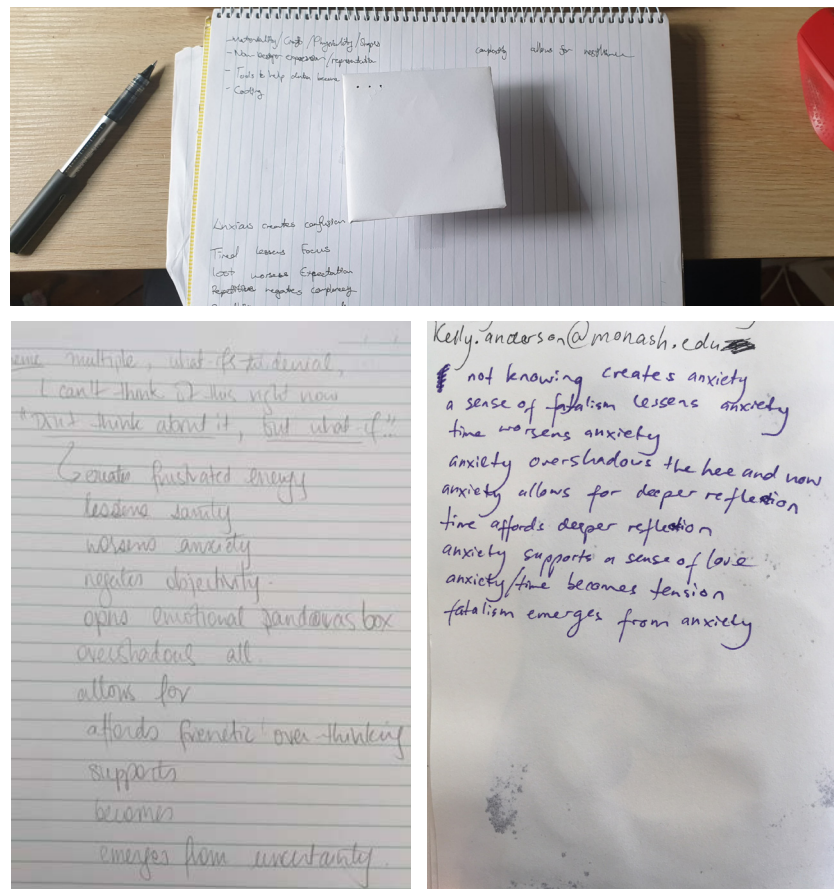
4.3 What is offered to creative practitioners

This section structures itself in a way complementary to the previous section (4.2). Specifically, this section explores how:

> Form-making as data generation visualises embodied experiences for generative enquiry.

> Sense-making as collective interpretation shifts focus from object to experience – offering a different position in which participants sit within the design process, contextualising experience through embodied subjectivity.

> Meaning-making as analysis actions participants' envisioned futures through examining embodied ways of knowing.

4.3.1. Form-making as data generation visualises embodied subjectivity for generative enquiry

While the previous section explored how embodied enquiry visualises a lived experience, here I explore what it offers to the creative practitioner. While the initial motivation for developing a real-time data-analysis mechanism was to reduce the time spent on interpreting and analysing workshop-generated data, I argue this can also shift design attention from making forms to making meaning.

In Figure 4.9, 4 different embodied forms are presented – 2 from each workshop explored in this section (Generating Experiential Affordances and Exploring Embodied Subjectivity workshops). Each participant shared deeply personal stories and were unknown to others attending the workshop. Reflecting upon a time they awaited results from a healthcare professional, the participant shown at the top spoke about the time she terminated a pregnancy, while the participant below her spoke about the time she awaited cancer test results. These stories came as a surprise to me as a facilitator. Both have been close friends for years, yet the workshop elicited stories unknown to the rest of the group and to me. If I had asked predetermined questions based on my prior knowledge of their experiences, I would have missed out on the ones that became haptic in this particular instance. Providing avenues for generative enquiry offers a variety of pathways to go down without having preconceived notions or knowledge of a particular topic. The participants instead generate the focus of enquiry.

Reflecting upon the space they spend most of their digital lives, the participant who contributed the image shown at second to the bottom in Figure 4.9, translated their relationship with their digital space. The ring on the left tells "a story of being held in the digital space, particularly when I was working at a university with a busy teaching load and doing my PhD. Lots of constraints within that but at times the ring was like a life support ring. When I'd call on a friend or colleague for help." Whereas the coil on the right "illustrates my digital space as creative. Creating and writing my PhD was part of that. And now, not at uni anymore (due to redundancies last year), I am working in a free-er digital space but uncertain as to what is next". The participant who contributed the image shown at the bottom explored "deleted socials through an ephemeral collage and temporal engagement". Through form-making, participants begin to reflect on action, creating a variety of avenues to explore.

Prompting enquiry rather than asking prescribed questions is an intentional aspect of embodied enquiry. While asking straightforward questions may give straightforward answers, as Gaver et al. argue, "posing open tasks ensures that the results will be surprising" (2004, 56). This participant-led enquiry opens up the role of analysis to "move away from a summative, mediated rearticulation" (2004, 56) to something more representative of the individual. This offers up possibilities creative practitioners may not have yet considered.

Figure 4.9 Various participants' embodied forms (image source: workshop participants, 2020 & 2021)

4.3.2. Sense-making as collective interpretation shifts of focus from object to experience, contextualising it through embodied subjectivity

Embodied enquiry presents a different position in which the participant sits within the design process. Rather than being defined by an object, they are positioned in relation to their lived experience, immersing themselves in the mechanisms that enabled and constrained it. Sense-making as collective interpretation contextualises lived experience embodied subjectivity.

The original intention behind the sense-making viewpoints (above, around and at a distance) was to examine the surrounding and peripheral context of a lived experience (Figure 4.10). Reflecting upon the practice accounts, this also gave multiple lenses for a creative practitioner's design attention, affording what Brandt et al. describe as an "entry point and immersion into what participants 'see' while inspiring new ways of understanding systems, and envisioning futures not yet considered" (2012, 170). Focusing design attention on what enables and constrains shifts the focus from an object-based enquiry to an embodied one, which centres experiences rather than products, spaces or services. Rather than asking participants about specific pain points of current or future designs, embodied enquiry provides a way to gain a contextual understanding through embodied subjectivity.

While traditional design disciplines focus on designing products, the emerging design disciplines focus on designing for experiences, emotions, interaction, serving and transforming. This changing role of design necessitates changing the role of its creative practitioners. Not only do these emerging design disciplines change what is designed but, as Sanders and Stappers argue, this "changes who designs and how they design" (2008, 11). Whereas participants and creative practitioners in co-design once shared a make/take relationship, approaches such as embodied enquiry can extend more equitable processes within workshop spaces through generative enquiry.

Multiple limitations may affect creative practitioners' ability to hear every story within a workshop space. This may be due to time restrictions, internet connectivity issues, shyness or limitations of breakout rooms for shared dialogue. The inability to access everyone's story can in fact provide more equity in participant interpretation and analysis. Some participants will be better orators, more articulate in expression or more exploratory in their form-making. This might bias creative practitioners towards overemphasising the importance of such stories, swayed by their emotive qualities, and paying attention to the affect expressed rather than the collective interpretation and the wider meaning situated in context. Embodied enquiry presents a way to analyse stories neither heard nor transcribed.

Figure 4.10 Various
participants' embodied
forms, from a distance
(image source: workshop
participants, 2020 & 2021)
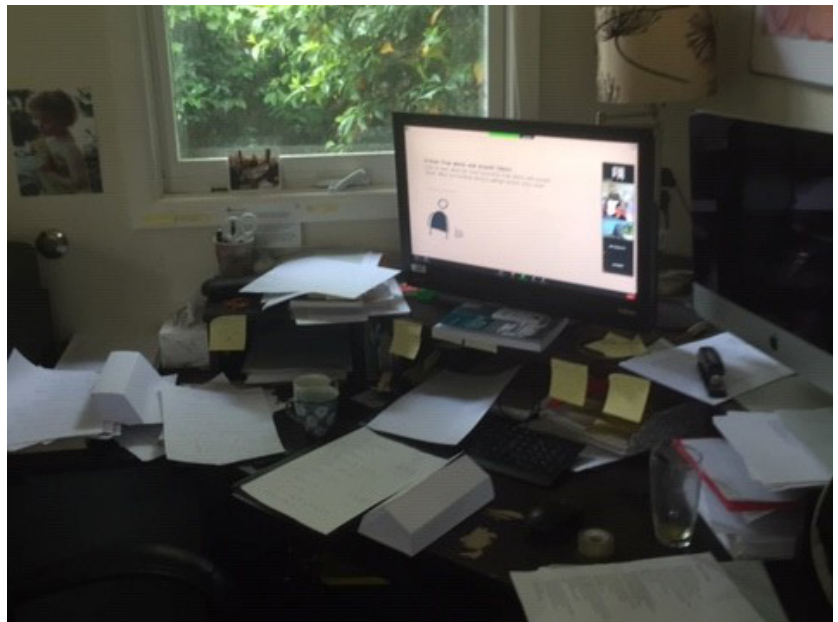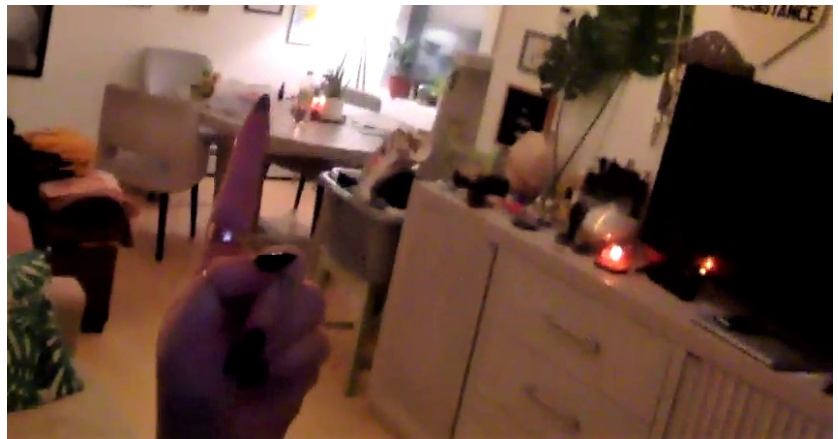
4.3.3 Meaning-making as analysis actions participants' envisioned futures through examining embodied ways of knowing

As noted throughout this research, the concept of a user sees them in an object-centric relationship, with the participant positioned relative to a product, and lies antithetical to the ethos of participatory spaces. Shifting focus away from an object may be subtle but offers a more equitable position in which the participants sit within the design process. While this concept was explored in the last section as an obstacle to a participant's inclusion and agency, in this section it is seen as hindering their inclusion in analysing and envisioning new futures not yet designed. By focusing attention on things and not future contexts, creative practitioners can lose sight of the situational experience that affords use.

Embodied enquiry attempts to enact an experience-centric approach to analysis and embodied ways of knowing. The fill-in-the-blank sentences shown below highlight how participants from both workshops connected enablers and constraints to intentions. Even though participants create an embodied form, embodied enquiry focuses on the meaning made. When utilising form-making to embody felt qualities, participants begin "playfully participating in a new practice that brings together means and ends in what one could call a new game of possible futures" (Brandt et al., 171). The fill-in-the-blank sentences aim to provide participants with forward-facing language to articulate the situational experience that can afford possible futures:

> Negotiating personal space...
>> creates new possibilities, but takes energy
>> negates old boundaries that were clear
>> lessens old divides between personal and formal settings
>> worsens the chance to rely on habit
>> requests letting go
>> demands disruption of traditional boundaries
>> encourages new thinking and new doing
>> refuses to be straightforward
>> allows connections not possible previously, while shutting down others

> Zoom world...
>> creates new spaces
>> negates full connection
>> lessens barriers to participation in time and space
>> worsens alienation
>> demands new brain pathways
>> encourages new ways of thinking
>> discourages embodied participation
>> refuses physical touch
>> allows surprising connections

Bleed over of life and work...
    creates blurring of edges
    negates imbalance
    worsens relationships
    requests planning
    demands balance
    encourages flexibility

Imagination...
    won't allow for peace of mind
    won't allow for rationale
    wouldn't afford clarity
    can emerge out of uncertainty
    stifles peace

What is the situational context requesting, demanding, encouraging, discouraging, refusing, allowing? Rather than designing a specific product in relation to a user, the mechanisms that enable and constrain are designed to an experience. For example, when revisiting the workshop prompt Think of a time you awaited test results from a healthcare professional, rather than a project aim such as 'reducing the waiting time of patients', the shift to experience could restate this aim as 'designing for the mechanisms that affect a patient's waiting time'. Again, while this language might be subtle, I argue that this would action envisioned futures. Knowing how to design for, and with, the mechanisms that drive experiences can prevent the design of derivative, didactic and deductive products with prescriptive use.

4.3.4 Observations for creative practitioners and facilitation

Four main observations have emerged that evidence the value that the scaffolding offers creative practitioners – regardless of their familiarity with participants, experience with facilitating workshops online, time allotted for scaffolded activities and the type of reflective prompt facilitated. These are explored further below.

Type of relationship established with participants before the workshop
Whereas the 3 participants who attended the Generating Experiential Affordances workshop were close personal contacts, those who attended the Exploring Embodied Subjectivity workshop were completely unknown to me. In both cases, embodied enquiry was shown to create value regardless of how familiar participants were to the facilitator. This suggests that participants can be deeply reflexive and collaborative without an established relationship with the facilitator.

Experience with facilitating workshops online
In response to COVID-19, embodied enquiry quickly evolved as an online workshop due to the inability to meet in person. The Generating Experiential Affordances workshop was the first-ever workshop I had facilitated online. The workshop was shown to create value regardless of my experience with online facilitation, leading to the observation that the value of embodied enquiry is not contingent on the level of expertise on the part of the facilitator.

Length of the scaffolded activities
While most of the practice accounts varied in length of time (due to different conference time allotments), these 2 workshops represent the shortest (45 minutes) and longest (2 hours) in terms of time spent. In both cases, embodied enquiry was shown to create value regardless of the time allotted for activities, leading to the observation that its value is not contingent on a specific time allowance and it can be as flexible as the creative practitioner needs.

Reflective prompt that was facilitated
Only 3 of the 5 practice accounts presented in this chapter used the same reflection prompt for workshop participants, leading to the observation that embodied enquiry creates value regardless of the specific framing used to facilitate reflection – its value is not contingent on any one specific problem space or lived experience.

The implications of what embodied enquiry offers creative practitioners will be discussed further in Chapter 5.

4.4 What is offered to co-design

This section specifically explores how:

> Form-making as data generation generates exploration guided by participants, rather than defining them as users in relation to objects.

> Sense-making as collective interpretation amplifies embodied subjectivity, exploring lived experience through interpretation rather than material.

> Meaning-making as analysis actions the envisioned future of its participants, rather than envisioning futures for or with others.

To revisit what was posited in Chapter 1, workshops are becoming a prevalent part of professional practice within the field of co-design. While a range of co-design methods are well established for eliciting material data, modes of analysis are yet to be fully integrated within the field. This research was interested from the outset in the potential for probes and prototypes to support one way to analyse and envision new futures. What is clear is that object-based explorative tools define participants as users and position them relative to an object. Connecting back to Davis's work, she states that objects "don't make people do things, but instead push, pull, enable, constrain" (2020, 17). If creative practitioners stay focused on what people do, they can cut off opportunities to understand how experiences are enabled and constrained in context. Rather than exploring 'use' in relation to a user, I argue that co-design has an opportunity to shift from making stuff to making meaning with participants in the space of a workshop.

4.4.1 Form-making as data generation generates exploration guided by participants, rather than defining them as users in relation to objects

Whereas the Re-Imagining Creative Data workshop prompted an object-centric generation, the Real-Time Analysis of Material Data workshop prompted an experience-centric reflection. This difference in perspective was explored as a limitation on participants' inclusion and agency and an opportunity for creative practitioners to position participants to their lived experience. This section discusses co-design as a way to challenge powerlessness in participatory processes by offering participants a way to define and drive their generative enquiry.

Object-centric vs experience-centric facilitation

In the Re-Imagining Creative Data workshop, participants created a "data device that captures a sensory process" (as seen in Figure 4.11), encouraging them to consider how it processed that data and what was produced. They then made a device to be used, defining them as users only in context of use of that object. Figure 4.11 illustrates this positioning. The focus is on what participants are making, rather than focusing design attention on what they are representing in form. Having participants simply react to the prompt facilitates limited engagement and possibilities for generative enquiry.

Figure 4.11 Re-Imagining Creative Data participants making data machines (image source: Kelly L. Anderson, 2019)
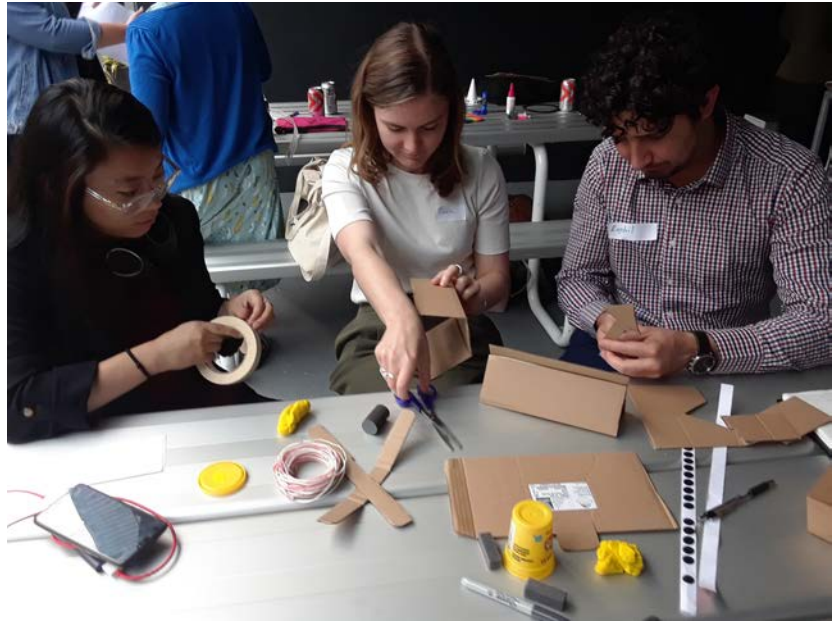
In the Real-Time Analysis of Material Data workshop, however, participants were asked an experience-centric reflection prompt: "Think of a time when a system you were in made it difficult for you to do something that was important to you", later translating whatever came to mind into form using any materials available (as seen in Figure 4.12). While neither workshop prompt is better or worse, they do limit the participatory potential and the overall co-design process. Here, the design focuses on the haptic data representing a lived experience.

Figure 4.12 Real-Time
Analysis of Material Data
participants' embodied
forms (image source:
workshop participants,
2021)
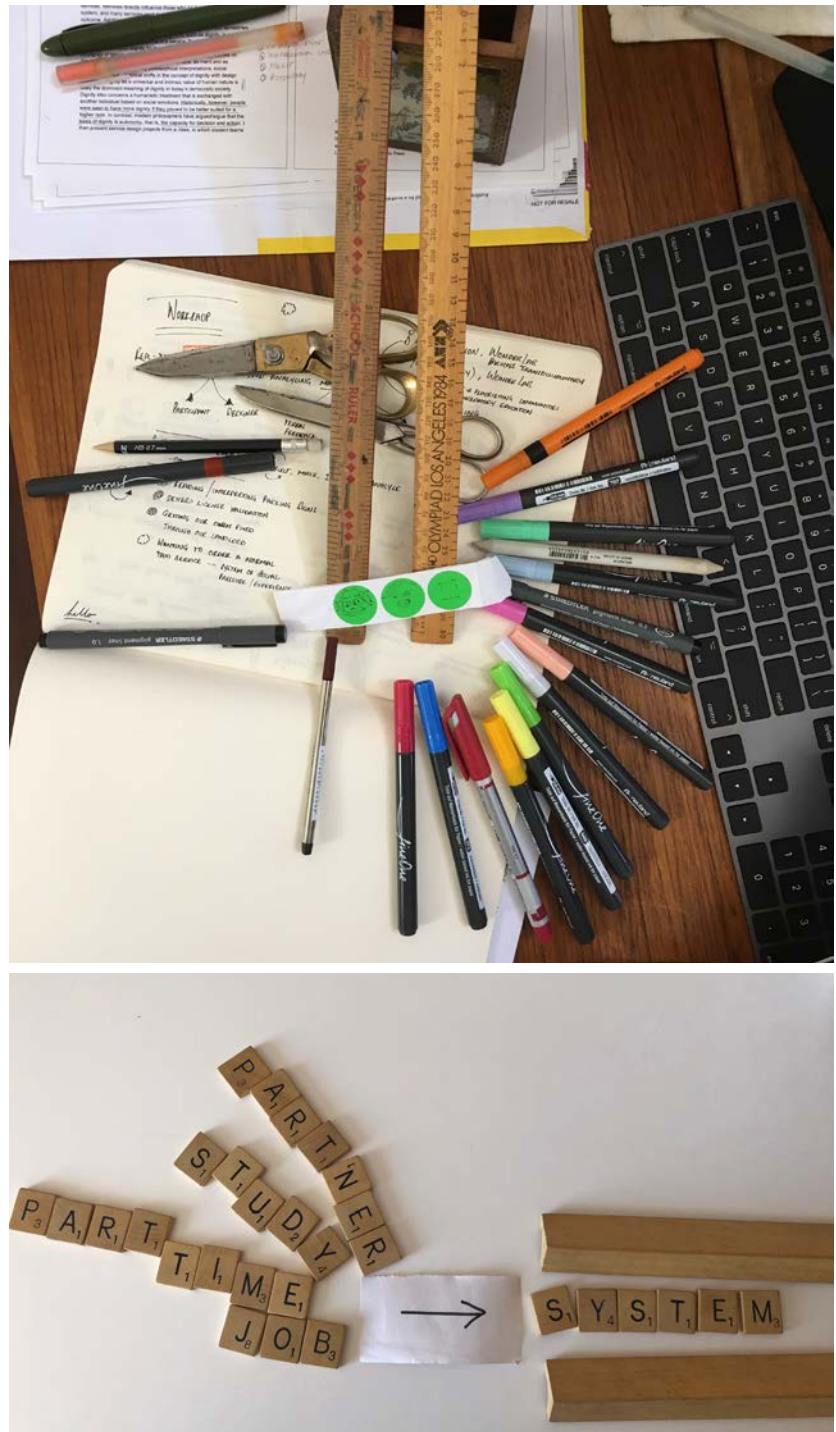
For comparison's sake, I present a table that lists these subtle yet palpable differences in workshop engagement. Illustrating the subtleties in the shift of focus from object to experience, Table 4.3 compares each workshop's reflective prompt, coding structure and positioning of participants in the design process.

Understanding the subtle difference between an object-centric and an experience-centric engagement with participants shifts the participatory perspective and overall outcomes. As they become users of an object, the overall design process can only focus on what Redström notes as, "alternative pictures of what the user of the object should be like" (2005, 133). A process such as embodied enquiry provides co-design with a way to move away from an object-centric understanding of participants into the embodied contexts they live within.

The challenge to move from making forms to making meaning is strategically aligned with a participatory approach that moves from simple engagement to empowerment. Offering space to analyse collaboratively places a central concern upon relationships that engender trust and meaningful understanding between those involved in the research. Seeking out participants as experts of their experience but not in the analysis limits their ability to engage with the meaning-making of workshop-generated data. Hartswood et al. argue that "despite participatory design's championing of user expertise and control, at the very point where this becomes most valuable to design, and users have the opportunity to drive the process, the user-designer relationship is terminated" (2002, 11). This is particularly unfortunate for participatory spaces whose ethos is ingrained in the notion of equitable contribution. I argue that co-design can be transformed into an avenue for generative exploration guided by participants, rather than defining them as users in relation to objects.

Table 4.3 Workshops' shift of focus.

	WORKSHOPS	
	Real-Time Analysis Of Material Data	*Re-Imagining Creative Data*
REFLECTIVE PROMPT	*Think of a time when a system you were in made it difficult for you to do something that was important to you.*	*Reflect on different types of data in your own practice and examine the design decisions and activities that make that data known.*
CODING	**Made it difficult** = a constraint of an experience **To do something** = need / want / desire / task etc. **Important to you** = value, attitude, belief	Different types of data = things being sensed or elicited Practice = application of methods, approaches, etc. Activities that make it known = tools, techniques, etc.
POSITIONING	Contextual understanding of and factors to consider in someone's experience	Methods applied by/to someone to collect things for decision-making

4.4.2. Sense-making as collective interpretation amplifies embodied subjectivity, exploring lived experiences through interpretation rather than material

The modality of participation also differed between the 2 workshops. While the Re-Imagining Creative Data workshop focused on object-based enquiry through group making, the Real-Time Analysis of Material Data workshop focused on collective interpretation. For instance, at the beginning of the Real-Time Analysis of Material Data workshop participants were asked to share in Zoom's breakout rooms, while in the Re-Imagining Creative Data workshop they were asked to stay in pairs or small groups, waiting until the end of the workshop actually to share and hear from each other. While there was participation within the groups themselves, the level of participation focused on making – an object-centric perspective – and continued in that modality. The Real-Time Analysis of Material Data participants collectively interpreted the wider meaning of their forms – an experience-centric perspective – in driving their enquiry, sharing insights across others' reflections and identifying similarities among the seemingly disparate stories.

By shifting from making forms to making meaning, co-design can enable understanding of the subjective experience and ways of knowing. Participatory processes such as this workshop afford generative enquiry through their scaffolding. Generative enquiry is not about finding answers but incorporating different interpretations and analyses so as to inform design decisions. The emphasis for meaning-making within co-design workshops is on holding seemingly disparate stories together and without having to 'resolve' differences. Meaning-making is not the resolution of seemingly disparate experiences, but finding the wider meaning.

Creative practitioners can loosen control over the enquiry explored within workshops, enabling participants to drive what is valuable to them to explore. This would shift co-design towards a model that reflects the ethos inherent in its participatory approach. Boehner et. al. observe that participatory approaches value:

> ...subjectivity over objectivity; idiosyncratic and felt experiences are valued over statistically significant ones; uncertainty is valued as a productive state for exploration rather than a condition to be resolved; playfulness is valued as an attribute that stimulates creativity and engagement, and intuition is valued as a powerful source of knowing and acting (2012, 195).

These qualities intrinsically communicate to participants that their different experiences are sought after and respected. While more traditional research methods preserve notions of objectivity and truth, participatory approaches value the subjective and contextual, as is the case with embodied enquiry.

4.4.3 Meaning-making as analysis actions the participants' envisioned futures, rather than envisioning futures for others

The biggest distinction between the 2 workshops presented in this section was how the stories created were 'captured'. Whereas participants in the Re-Imagining Creative Data workshop shared publicly at the end, in the Real-Time Analysis of Material Data workshop they shared privately with each other in breakout rooms. This challenged me to move away from creating data to be 'captured' and instead shifting my design attention towards making meaning.

Story-sharing vs meaning-making
Within the Re-Imagining Creative Data workshop, each group was simply asked to present their data device and pitch its use to the group (as seen in Figure 4.13). This performance explicitly answered: "What does it (the data device) do, what is it looking at, and how does it capture?". After all the groups shared their data devices, the workshop wrapped up with time for general feedback. What was left out was time to focus on the wider meaning of these devices in terms of how they re-imagined data in creative practice (the workshop's focus). Without dedicated engagement in interpreting these data devices, the creative practitioner completed the analysis away from the participants. This workshop reflected a more traditional engagement strategy, 'capturing' insights in individual stories shared rather than participatory meaning-making.

Privileging the participant-envisioned future, not our own ability to envision the future
Form-making helps to make haptic data and express a participant's values, experiences, dreams and hopes for the future; or to give shape to what Knutz et. al. describe as, "future objects, systems or interactions" (2019, 142). For instance, a participant from the Real-Time Analysis of Material Data workshop identified the collective theme of "inflexibility" in their breakout room, creating the fill-in-the-blank sentences shown below:

> [Inflexibility] creates...resistance
> negates....collaboration
> lessens....goodwill
> worsens....resentment
> requests....understanding
> demands....compliance
> encourages....disengagement
> discourages....self-care
> refuses....alternatives
> allows....control

Figure 4.13 Re-Imagining
Creative Data participants
performing data machines
(image source: Kelly L.
Anderson, 2019)

Whereas surveys and questionnaires explain what has happened in the context of lived experiences (e.g. inflexibility arose in the office's culture), interviews, focus groups and observations describe why it happened (e.g. because of an unhealthy and competitive work ethic). An analysis such as the one used in embodied enquiry provides a future-facing language, pivoting to what might happen (e.g. future instances of inflexibility will continue to discourage self-care among employees). The enablers and constraints present in such fill-in-the-blank sentences provide co-design with a language to enact the envisioned futures of participants. As seen in the list above, the simple use of enablers/constraints as verbs guided participants to articulate what might emerge in future experiences.

It is important to note here that this future-facing language does not articulate literal futures to be designed. The language here is used to articulate embodied ways of knowing. As Raven and Elahi argue, "these 'futures' produced are not actual futures, but subjective depictions of possibilities yet to be realised; and no matter how strongly backed with valid data, they are nonetheless speculations, extrapolations, imaginative works" (2015, 50). Without space for participants to explore and articulate subjective depictions of possibilities, it would be left to the creative practitioners to extrapolate, speculate and imagine for others. Like Raven and Elahi, Kankainen et al. argue, "the future is left for the designers to imagine and is thus not co-designed with users" (2011, 223). While some may argue that this is the role of design – to translate insights into meaningful products and services for future use – it is not within the participatory ethos to speculate on what is important to participants. Rather than making meaning from someone else's data, embodied enquiry offers co-design an avenue for participants to make meaning from their own experience.

Meaning-making as analysis helps to examine what enables and constrains lived experiences and can action envisioned futures. Much as products and services define participants as 'users' in relation to an object, designing a 'future' is no different from any other object designed. Shifting from making forms to making meaning demands privileging the envisioned futures of participants and finding ways to action those futures. I suggest the process of embodied enquiry offers co-design an avenue to action envisioned futures through designing for the enablers and constraints of experiences, rather than for the future itself.

Chapter 5 will discuss further the implications of participant-driven enquiry, while revisiting the limitations of this research.

05. Discussion

5.1 Literature, data and observations from practice accounts

The themes outlined in this chapter give this research's analysis structure, revisiting the 4 main fields of enquiry presented in Chapter 2: co-design as methodology, participatory design as the driving ethos, storymaking as epistemology and narrative inquiry as ontology (see Table 2.1 for re-illustration of the fields of enquiry that support embodied enquiry).

Table 2.1 Formalised mechanisms for embodied enquiry.

CO-DESIGN	PARTICIPATORY DESIGN	STORYMAKING	NARRATIVE INQUIRY
Data generation	Collective interpretation	Epistemological foundation	Ontological concepts

Embodied Experience: Form-Making

Embodied Subjectivity: Sense-Making

Embodied Ways Of Knowing: Meaning-Making

5.1.1. Data used to inform analysis of this research's findings

As outlined in Chapter 4, co-design acts as this practice-led research's methodology. It helped lay the foundation for the form-making activity within embodied enquiry and provided the approach by which I engaged participants. In this approach, workshop attendees experienced embodied enquiry as participants but reflected upon its implications and application as creative practitioners. The subsequent discourse generated by attendees is the data that informs this research's findings. Similar to the form-making activity in embodied enquiry, the diagrams and illustrations presented in this chapter visualise the observations in order to make sense of the data collected.

5.1.1. Data used to inform analysis of this research's findings

As outlined in Chapter 4, co-design acts as this practice-led research's methodology. It helped lay the foundation for the form-making activity within embodied enquiry and provided the approach by which I engaged participants. In this approach, workshop attendees experienced embodied enquiry as participants but reflected upon its implications and application as creative practitioners. The subsequent discourse generated by attendees is the data that informs this research's findings.

As a reminder, this data existed across various spaces:

> Zoom's chat function created a collaborative space for written discourse and feedback throughout the length of a workshop.

> There was dedicated open-ended discussion post-workshop for impressions of the experience, general discourse and feedback for future iterations.

> Rather than formal interviews, follow-up meetings with participants presented space for further insights and verbal discussion. These meetings continued the openness offered post-workshop for general discourse.

> Follow-up emails extended space for participants to reflect and write in further detail in their own time.

The data was made meaningful by examining what the facilitation and scaffolding enabled or constrained for participants. Specifically, I explore:

> observations made around what resonated and why, connecting back to co-design's form-making strengths and participatory design's ethos of collective interpretation

> observations made around what was integrated into participants' practice and how, connecting back to storymaking as a formalised mechanism for enquiry into lived experience in co-design workshops

> insights that provoked reflection on participants' own creative practice, connecting back to the value of narrative inquiry and stories as a disciplinary challenge to co-design.

5.2 Relationships between participant observations and literature

5.2.1 Co-design as a methodology for generating data to explore embodied experiences

The observations discussed in this section focus on the aspects of facilitation and scaffolding that resonated, and why, using a co-design lens. Connecting back to practice-led research as outlined in the terms, whereas practice-based research focuses on a creative artefact as a means of investigation, practice-led research aims for theoretical exploration for knowledge production and contribution to the field through practice (Candy 2006). This section offers reflection on knowledge production within the workshop space as contribution to the field of co-design and to inform practice. Specifically, this section focuses on two distinct observations: 'quiet' and a 'noticing of things playing out', that came from utilising form-making to make haptic elements of a lived experience. As examined through a series of participant quotes, facilitating making within workshop spaces demands more than simply following a series of steps from start to stop.

Participants (and a co-facilitator) were quick to comment on the facilitation of quiet and how it enabled engagement in new and novel ways. For instance, one participant wrote,

> "This is so good. Really enjoying the 'we're mostly going to be quietly thinking' in this session. Feels like a rare thing … I'm always in search for quiet generative spaces" and another spoke about quiet as one way they "did not feel pressured".

This quote connects to the shift in co-design from making forms to making meaning. Much like moving away from defining participants as 'users' in relation to 'objects' and thus objectifying their engagement, creative practitioners must move from defining participation as making stuff to making meaning. Van Rompay and Ludden note in their work regarding embodiment in design that,

> "Paying attention to … aspects of interaction design and reflecting on how interactions with 'old' and 'new' products alike connect to people's daily experiences paves the way for extending meaning beyond the physical artefact to include bodily action and engagement" (2015, 10).

One way to offer room for meaning-making is through quiet – not just literally, but in terms of space and place to think through the meaning of what they make. Forcing people to make! make! make! comes at the expense of their ability to make meaning in the space of a workshop. *Quiet* here acts as content to be facilitated *with*, supporting scaffolding and agendas.

A follow-up conversation with the same participant further illuminated what quiet provides workshop spaces and design processes in general. Expanding on the initial observation, *quiet* was seen as being in service to engagement, whereas 'loudness' in generation *takes away from.* This speaks back to one of my earlier commitments noted in the preface, namely, in many projects a design process's success metric is often conflated with its ability to produce lots of 'stuff' and in doing so, creative practitioners facilitate as many activities as quickly as possible in a limited amount of time (Figure 5.1), noting that discussion times tend to be short or shortened 'due to time constraints'. I argue design processes conflate generation with the production of 'stuff', privileging the product over the participant. Quiet can be one way to offer kindness and respect to participants in the design process. We facilitators ask a lot of our participants: time, energy, making and insights. In return, we present them with a cacophony of visuals, materials, activities and timing to produce stuff and meaning inside the space of a workshop (online or in person). This comes at the expense of other things, and in this research I invite you to reflect upon what these things might be in your practice. I argue that privileging product or process over participant takes away from the meaning-making that participatory spaces offer people.

Figure 5.1 An example of a "jam-packed agenda" for a co-design workshop (image source: *Medium*, 2019)

The 2-hour workshop had the following, jam-packed agenda:

1. Ice breaker: Superhero & its sidekick

We started the workshop with a small activity to break the ice, unleash a can-do attitude and get participants in the mood for stepping outside of their comfort zone and daily routines. In pairs, they take the roles of a superhero and its sidekick. The sidekick brings up a problem (*"Superhero, superhero, the city run out of water!"*), while the superhero punches in the air, shouts *"I know the solution…!"* and responds with any idea from the top of their mind (*"We will collect all the rain in huge water tanks!"*). Then, the sidekick responds to the proposed solution with a problem (*"Superhero, superhero, we don't have enough water tanks!"*) and the superhero responds with a solution again — and so on, and so on…

2. Day in the life exercise

Next, we invited participants to describe one day of their lives. Three layers facilitated immersion and reflection on their emotions, how they felt like and why at certain points of their day.

3 Experience bank

Participants had to recall five good and five bad experiences they had with a company relevant for our project. Our goal was to quickly unload people's experiences and avoid focusing on negative experiences during the rest of the workshop.

4. Introduction to the story

Facilitators explained the context of what we are about to explore through the workshop. We positioned the setting in the near future, not too far from today, where it is not possible to pay with cash and no paper bills exist anymore due to the increased expenses (of trees for example).

5. Story cube

We used Story Cubes as conversation starters about the imaginary paperless world, and also to break the ice and let creativity flowing. Participants had to throw with three dice and create a story using each as 1) the problem, 2) the solution and 3) the effect.

6. World mapping

To map stakeholders, problems and their relations, we gave participants different coloured and shaped papers.

7. Crazy Six

During Crazy Six (or sometimes Crazy Eight), participants ideate individually and have 6x40 seconds to jot down a rough idea before jumping to the next one. The benefit of this activity is that it is well documented — on a paper, which was previously divided into 6 or 8 panels through folding.

8. Wild card

We introduced wild cards (modifying situations that bring uncertainty into a situation) for narrowing the problem.

9. Crazy Six

We repeated the idea generation but with a focus on the narrowed problem.

10. Remapping

Participants were putting ideas back on the map to place them in context.

11. Prototyping

Using Lego bricks, plasticine and other tools, participants had to create prototypes of the solutions they included on the maps. According to McLuhan's tetrad theory, by

12. Presentation + Feedback

Finally, the two teams presented their concepts to each other and participants gave quick feedback individually.

Regarding the workshop scaffolding, participants frequently commented on how it presented them with the variety and accessibility of their own experience through form-giving. By visualising elements of a lived experience, embodied enquiry offers participants a way to view others' data, hearing their interpretation in a participatory space. For instance, one participant noted,

> "it was great to play with the notions of lived experience through craft". At the same time, another observed that, "as a process, I really enjoyed constructing the representation of that experience. And the power of it for anyone to create a representation. It's a lovely light-weight approach" and someone else said that they were "Noticing some interesting things playing out through this process!"

The interaction between participant and object is key in establishing a reference point for exploration and understanding. In writing about making as a means of enquiry, Sadkowska explores the role material plays in generating new meaning and states "meaning does not come out of an interplay between subject and object but is imposed on the object by the subject" (2018, 427). Participants are actively constructing meaning as they construct forms. Meaning is made in the process of exploring lived experience visually and made through material. The forms made are the haptic representation of meaning imposed by participants. However, meaning is not static and finite, but has the ability to engage further with such forms, making new meaning by interpreting and imposing new understandings upon the forms.

The idea that the process was affording a participant to "notice things playing out" is the goal of generative enquiry. Pathways for exploration become generated as participants make, giving shape to previously undefined enquiry. As noted by Boehner et al., making methods such as probes "open up possibilities, rather than converging towards singular truths" (2012, 185). Rather than seeking specific answers to predefined questions, co-design spaces can provide openness at the beginning of a design process for questions and opportunities to emerge through a participant's generative exploration. Co-design workshops can be seen as spaces to move away from asking participants to act as co-creators and instead offer them space to drive the design process rather than simply produce objects.

5.2.2 Participatory design's ethos for exploring embodied experiences

Similar to the previous section, the observations discussed here focus on aspects of facilitation and scaffolding that resonated and why, but using a participatory design lens. Specifically, this section focuses on 2 distinct observations: 'freedom' and 'different perspectives', that resulted from using form-making to make sense of elements of a lived experience. As examined through a series of quotes, facilitating exploration within workshop spaces demands more than simply handing over a method to the participants.

Whereas co-design stresses the value of form-making in exploring lived experience, participatory design stresses a collaborative ethos that shifts methods into participants' hands for generative enquiry. This symbiotic relationship of co-design and participatory design is what this research has expanded. Focusing on only the method limits design attention to output and artefact. In fact, Chu and Mazalek explore opening such attunement through their work on embodied engagement with narrative, stating that, "Concepts of embodiment posit that our physical state and situated-ness in the world provide an interactional context and bodily engagement for sense-making" (2018, 1). In offering space for participants' own enquiry, they are able to explore and articulate the context that surrounds their embodied lived experience. Since this exploration is being constructed as the workshop unfolds, what emerges cannot be predefined by the creative practitioner and must be driven by the participants. Embodied enquiry extends this notion to the analysis phase, as what participants do to their data to make it meaningful to them. Thus, much as how probes are not contingent on a specific artefact, meaning-making is not contingent on a specific method. I argue that the openness of exploration is important to get right. The emphasis is on the journey rather than the final destination.

Even though participants completed fill-in-the-blank sentences, the list produced aimed to provide space to examine lived experience analytically. While I would walk away with this analytical list of enablers and constraints, its value is not in the final product. Rather, it was the journey of filling out the sentences that proved valuable for the participants. One participant, for instance, noted that they

> "Loved the freedom to think with time and not be concerned about the usual formal tradition of reporting back from the group breakout. In other words, I enjoyed the freedom of exploring with [the fill-in-the-blank sentences]". Another noted this: "I liked how [the fill-in-the-blank sentences] really challenged me to stretch the boundaries of my understanding of my key theme word. I can see this being a good warm-up leading into an ideation session as well."

Despite the meaning-making activity acting as a point of convergence at the end of the workshop, the sentences opened up thinking among participants, with a co-facilitator noting that,

> "Several people mentioned [the fill-in-the-blank sentences] as well as invitation to look at objects from different views did open up more thinking". In particular, a participant observed that, "One thing I noticed when the prompt was first given was how quickly I had a potent fully rich 'answer/thought' come into my mind. Almost immediately followed by a whole lot of other thoughts. But that first one was so distilled and rich."

There is an opportunity to open up the design process by viewing methods that converge as moments to offer participants space for further thinking and not simply condense information for the creative practitioner. By doing so, a participatory ethos can be better integrated to provide space to make data meaningful to participants while handing off analysis to creative practitioners.

As illustrated throughout this research, embodied enquiry offers participants a way to connect the factors that emerge through collective interpretation and apply them to future scenarios (Figure 5.8). This is one step in offering participants a way to make data meaningful to them rather than simply 'extracting' data from the participant and then cutting them out of the meaning-making process. In doing so, embodied enquiry enacts a participatory ethos within interpretation and analysis in the design process. Without engagement with others, Kankainen argues that "the future is left for the designers to imagine and is thus not co-designed with users" (2011, 223). Therefore it is not participatory in its approach. In Chapter 2, I noted that Jones observes a similar pattern in her work, stating, "this agency is an important consideration in relation to design and the participatory possibilities that can be realised through the design process – to enable people to engage in the activities necessary to achieve what they want, rather than to give them what they want" (2016, 474). Whereas co-design can be seen and treated like an engagement strategy to help make decisions ultimately left to designers, embodied enquiry explores paths of enquiry not predetermined by creative practitioners.

The same way form-making affords a different way into exploration, the sense-making viewpoints offer participants a way to engage differently with their lived experiences. One participant noted that they

> "got a lot out of viewing my model from different perspectives". One other participant also commented that, like me, they had approached this exercise from the mindset of "'what difference is this really going to make' and both of us were pleasantly surprised at what we individually did see! This is definitely an exercise I can see myself playing with as a way to encourage people to think about a topic at different zooms, and from different perspectives in the community." Others noted they liked "the surprising results of looking at things with different perspectives", another noting, "I made sense of something unknown and had a great time. Understanding creates engagement."

Prompting participants to engage with their forms across viewpoints in a workshop offers avenues to make sense that they may not have in other workshops (see Figure 5.2).

"

There's the physical experience of zooming out of this actual [embodied form], but what's interesting is that it mirrors how I experience situations that happen to me in life. I get space from them, and see them in a different way, or notice details in a different way because I am further away, or seeing it from a different place in my own experience. I shared this story with you all right now, and it is very different from when I talked to [a friend] about it when it happened six years ago. And I think about details of it differently, and different things are acute to me in the moment and are deeply felt in the moment, whereas now I can be 'yeah this is my experience, yeah and whatever.

Being physically far away, it just appears very small. And it is hard to really hone in on the details of the experience when I'm seeing it from that visibly far-away perspective. It's similar in size to all the other elements around it. So it ends up paling in comparison. It looks small and insignificant to me. Not that the experience is insignificant, or what I've created is insignificant, but oh, it puts it into perspective.

It's always interesting how a tactile experience causes me to reflect on something differently than simply verbally reflecting on it. And having a visual and low bar for entry being in terms of 'you can literally use whatever materials, it doesn't matter, it doesn't have to look any certain way' – I think allows me to reflect on the experience differently … There's something about the tactile element that allows me to reflect on specifically the body experience that I felt. So that was really interesting, and had me thinking about it in ways that I hadn't before or in a while.

"

As outlined in Chapter 2, co-design is familiar with utilising probes to make haptic aspects of lived experience. Luck observes that many co-design approaches "let people speak for themselves, to document their own experience, and to tell their own stories" (2018, 100). There is an opportunity to open up the design process to extend participation in a project's analysis phase. When participants create their haptic language, participatory design integrates 'voice' into the analysis phase of projects. When participants can see the material language of others, they can point to shared signifiers found in others' coded colour, texture, shape, density, etc. These signifiers are used as a haptic frame of reference here, as a way to focus the conversation literally, with something to look at and respond to. For instance, nervousness has been a common theme between participants in a workshop. The participants were able to see how each other came to represent nervousness and to explore the context behind it. In doing so, they were able to collectively interpret the significance of nervousness in their lived experiences. By identifying the common tether between embodied qualities, such as nervousness, collective interpretation can afford co-design a way to incorporate 'anecdotal' evidence, statistical 'anomalies', 'divergent' voices and any other data deemed 'outlier'.

Form-making creates a shared reference point for others and is key in making shared meaning within the space of a workshop. Poulsen and Thøgersen note that "Knowledge can remain tacit and be communicated and shared among several participants through bodily engagement and the tacit knowledge can play a central part in opening up new ideas and design solutions" (2011, 43). Bodily engagement across viewpoints offers participants the opportunity to 'see' their experiences in new ways, interpreting new understandings and possibly creating new ideas for future scenarios.

While embodied enquiry overall enabled workshop participants to make sense and make meaning, it did constrain them in other ways. For instance, one participant noted that the workshop was

> "High energy at certain parts, low when lots of thinking is required." Moreover, use of "whatever materials are available", while seemingly open, did confront some participants' expectations of enquiry, with a participant noting that "because I was grabbing what was available, I went away from my default which would be to make a model/framework … and that meant the interpretation of what it was changed with more reflection and discussion."

While the development and construction of meaning through reflection and discussion is one aim of the workshop's scaffolding, it can challenge participants if expectations are not set.

5.2.3 Storymaking and an epistemological foundation for understanding embodied subjectivity

The participant observations noted in this section focus on the aspects of facilitation and scaffolding that were integrated into practice, and how. Specifically, this section focuses on how sharing the haptic stories offers participants space to hear and see themselves while at the same time constraining individual construction.

While co-design and its methods may visualise lived experience, storymaking supports participants in making sense from their stories shared alongside their forms. By utilising storymaking as a formal mechanism to think aloud and share their reflections verbally, participants are afforded avenues to collectively interpret and analyse their own stories. Workshop attendees were offered opportunities for discourse into what aspects of embodied enquiry they might adapt into their practice and why. For instance, one colleague who integrated aspects of storymaking into their workshop noted that by sharing stories and identifying similarities, participants were able to "meet themselves" and "hear themselves". Chu and Mazalek describe something similar when they observe, "The goal of the user test was to examine how interactors' embodied and sensory interaction, combined with the narrative role, helps interactors understand more about an object and its use" (2018, 16). I have spoken about moving past focusing on 'use' and 'users' but the sentiment here stays true to embodied work within the design process. Part of the point of offering space to make forms is to make sense through engagement and interaction. Through shared discourse and thinking aloud, participants communicate the context of experiences as haptic in material, constructing meaning as they go.

As explored in Chapter 2, Connelly and Clandinin argue that there are "three critical dimensions of human experience – significance, value, intention … In general terms the past conveys significance, the present conveys value, and the future conveys intention" (1990, 9). All 3 are present throughout the recursive structure of embodied enquiry's activities (Table 5.1): form-making represents what is significant in a reflection, sense-making helps to think aloud and articulate the present factors and values that have come to shape the lived experience, and meaning-making articulates future intentions. It is important to note that participants' intentions are not to be enacted literally. This is because, as Raven and Elahi argue, "these 'futures' produced are not actual futures, but subjective depictions of possibilities yet to be realised; and no matter how strongly backed with valid data, they are nonetheless speculations, extrapolations, imaginative works" (2015, 50). The role of the creative practitioner is then to translate these future intentions by integrating them into design decisions made within projects.

While workshop participants expressed interest in integrating some aspects of embodied enquiry into their practice, there were moments where doing so was constrained. One participant commented that "I'm quite curious as to how this process would change when it comes to co-creation/materialisation of the objects vs individual constructions". At the same time, another noted that they were "interested in how this works with non-designers – for designers being able to identify themes, doing analysis and quick synthesis is easy for us because we do it 'every day' – what are your experiences of doing this with non-designers?". More specifically, a participant noted an opportunity to improve the scaffolding with "maybe the 'let's chat through this' without forcing any 'let's make an artefact' bit". As a result of embodied enquiry focusing on collective interpretation, the value of 'individual constructions' was thus not explored. However, participants noted that they would be interested in exploring more individualised scaffolding in their practice.

Across the practice accounts presented in Chapter 4, 6 participants were followed up with a digital meeting or phone call. Each showed interest in integrating aspects of the workshop into their practice. This included scaffolding design curriculum, bringing moments of quiet and letting go of hearing others' stories, analysing community programming, adapting their PhD research studies and utilising storymaking in data collection in Indigenous communities.

Table 5.1 Embodied enquiry's overlap with the critical dimensions of human experience

Three critical dimensions of human experience (Connelly and Clandinin 1990, 9)

SIGNIFCANCE	VALUE	INTENTION
internal conditions	*existential conditions*	*past, present, and future*

FORM-MAKING	SENSE-MAKING	MEANING-MAKING
material representation signfies what is significant in reflection	*thinking aloud communicates the factors that have come to shape the lived experience*	*affordances articulate future intentions and anticipations*

5.2.4 Narrative inquiry and ontological concepts for embodied ways of knowing

The participant observations noted in this section focus on the aspects of facilitation and scaffolding that provoked reflection on practice. Specifically, I explore observations that communicate the value of narrative inquiry and story as a disciplinary challenge to co-design. This research positions narrative inquiry as a way of being and that, through making stories, we construct stories. This may come as a challenge to the design process, where divergence and convergence can be a linear experience. However, I show how co-design can embrace the recursive disposition of narrative inquiry, or what Connelly and Clandinin define as "a process of collaboration involving mutual storytelling and restorying as the research proceeds" (1990, 4).

The mutual storytelling and restorying nature of narrative inquiry came to confront many workshop attendees' practice. One participant, in particular, shared how embodied enquiry challenged the notion of a designer who "did interpret others' stories for them", making them "question that part" of their 10-year career. This comment provoked disciplinary discourse at the end of the workshop. Other participants shared that they

> love the idea of participants of codesign walking out of the room with their next actions – rather than the designer holding and interpreting the data" and were "curious to learn about the power dynamic between facilitator and participants in the live process of analysis and synthesis.

Both of these participants spoke to "shifting cultures of design" (where everybody designs), asking

> how can expert designers' roles shift towards more empowerment of the voices of people to enable their autonomous designing. As professionals, we have a mediating role between 'client' and 'user' – perhaps there's a sense of self-negation where we will eventually have a much smaller role in the active role in 'designing'.

While I did not explicitly prompt participants to converse in this manner, it is a rich byproduct of embodied enquiry given the intrinsic self-reflection throughout the process.

This research privileges the idea that knowledge can be generated from stories, and this positioning is pivotal to embodied enquiry's foundation. I do not claim to have resolved the conflicts present among research disciplines, but simply to have illustrated the value of narrative inquiry and storymaking as formalising mechanisms for meaning-making of participants' embodied data within co-design workshops. The scaffolded activities within embodied enquiry offer a process by which participants reflect, make and collectively examine in order to construct meaning of their lived experience.

While I did not get the opportunity to follow up with every participant who had integrated aspects of embodied enquiry into their practice, their appetite to do so was observed across workshops as participants regularly asked clarifying questions as to how they might adapt aspects to their own practice. For instance, a co-facilitator of one workshop observed, "People asked questions around how the prompts would work for non-designers, how to negotiate power dynamics/having funders or leaders in the room.

My interpretation is that people were curious to 'operationalise' this in other contexts, likely interested in taking this into their own work". Participants who self-identified as design practitioners oftentimes sought out practical translations of embodied enquiry into their own work. This operationalisation was observed in comments and questions across workshops such as:

> Very engaging and opened my eyes to different ways we can communicate information. Kelly, could you provide examples of what types of projects this process would be used? It would be great to gain some insight on bringing methods of capturing lived experience into this work. Maybe some examples of co-design from previous projects? because helping myself and others understand the 'how' of synthesis has been a long term design interest of mine.

And simply:

> The different perspectives were really helpful – physically moving and looking from different angles was really interesting! I would like to try that further.

Reframing perceptions of data and story was a topic that repeatedly came up across workshops. More specifically, participants observed a reframe in their approach to stories, storytelling, storysharing and storymaking. One participant noted that they were

> pondering the framing of the exploration – barriers focus vs more open stories? It felt stronger here – and I want to have a look at how much focus this had in my work", while another stated that, "I'll take away the idea that I don't have to know the source material i.e. the original stories, in order to make meaning.

In terms of data, participants noted that they had

> taken away the openness to involving everyone in the raw data collection process (interviewing etc.) rather than just interpreting the data that we as designers have analysed on their behalf" and that "data can be a playful bunch. Usually I conceive of them as boring and scary", even observing that "there is a common trend of the type of data we want to collect and behaviours/emotions we want to understand.

What I found most interesting about how participants chose to reframe their understandings of data and story is the implicit connections they were making back to the co-design and service design disciplines. While these connections might mean many things to different people, to me and this research, it is important to note the correlation between the participants' disciplinary observations and this research's encouragement to move co-design from making forms to making meaning.

5.3 Limitations of findings

As was previewed in Chapter 4, 3 main limitations are observed in this research. These observations frame the limitations on findings as stemming from limitations on practice. They are as follows.

5.3.1. Limitation 1

While the workshops offered space to understand the value of embodied enquiry and how to adapt elements of it in creative practice, the activities were not specifically co-created or iterated upon with participants. Instead, prototyping occurred asynchronously to the workshops facilitated.

As noted in Chapter 1, while the workshops provided me with space to iterate on scaffolding and facilitation, the actual prototyping and iteration of embodied enquiry's workshop process happened outside these spaces with other colleagues and researchers. Just as I have observed that the design process can open up to further participant engagement in the interpretation and analysis phases of projects, the research design presented within this exegesis did not incorporate participants into the data interpretation and thematic analysis presented in Chapters 4 and 5. While the space of the workshops illuminated the value that embodied enquiry offers participants, it did not make space to co-create or co-iterate the workshops' scaffolding.

As mentioned earlier in Chapter 2, co-design spaces and workshops do not aim to democratise all design decisions. Instead, they aim to open up enquiry for participants in order to drive exploration. The tension then is to decide when participants' insights are not being actively sought for the creation of an activity, process or product. Stated simply, not all things need to be co-designed. Some things can be improved simply through observation and feedback, as was the case in this research. Creative practitioners have expertise in designing learning encounters and it is this skill that can be brought forward to participants.

This tension around expertise and democratisation of decisions was seen to be most prevalent in discussions after the workshops. For instance, many participants highlighted being left with more questions than answers. Some of the areas of curiosity raised by participants were:

> "Another question I'm holding is how does this continue because at some point the analysis and interpretation go 'back into the office' and away from the people we are designing with" and "what contexts help the success of work like this (trust, relationship, prep/familiarity with types of thinking that involves abstracting themes and analysis – how it might vary by age or educational background or just different individual thought processes? time/is this a one time engagement or over time).

While neither concern was specifically resolved within the workshops, they are opportunities for further research and expansion.

For instance, the reality of having to go 'back into the office' was exemplified ironically within this research. I did not take real-time field notes or observations while running prototyping sessions or facilitating workshops. Perhaps I was present to a fault, or maybe I have a complete inability to multi-task while facilitating. The balance for practitioners, in general, may lie in what is attuned to in real-time during

workshops. Even in times when the work is not brought "back to the office", how meaning is made by participants is directly influenced by materiality of visual and physical forms, as well as facilitation. Here, facilitation has a materiality to it, that is influencing the meaning-making process of participants. I would guess that this influence is actually the point of facilitation, in that it is proactively helping to shape the production of meaning. While embodied enquiry de-centres the designer as the meaning-maker in terms of lived experience, designers and practitioners are still centre in their facilitation. To iterate on future workshop scaffolding, I made my own meaning to what worked and didn't, centring my interpretation to that of the participants' experience with my facilitation. Connecting back to the work of Mattelmäki, Brandt, and Sanders, who focus on the creation tools for engaging people in the telling, making and enacting of lived experience, there is more work to be done on the materiality of facilitation.

5.3.2. Limitation 2
The practice accounts investigated what data is generated by form-making and how it contributes to meaning-making, rather than investigating how form-making generates haptic data.

This limitation affected the workshops' ability to iterate upon how participants came to make forms effectively. Instead, the focus was on how participants could effectively make sense and make meaning from haptic language. For instance, some of the questions asked by a participant were:

> Are we necessarily restricting participation to a single point in a process, rather than something that could be ongoing? I appreciate that you deliberately worded your question for a broad range of interpretations, but I wonder if that resulted in us going 'off piste' because we weren't sure how to approach it. I'm unclear how your presence in the larger group influenced the reflection on the same question. we had to split time between doing co-analysis of the original prompt vs. having a meta conversation as practitioners about co-analysis, made it a little harder for me as someone new to the work to get as accurate or full sense of the full scope/runway of the co-analysis process.

5.3.3. Limitation 3
Participants create new knowledge within the space of a workshop and in doing so this research assumes a constructivist position. It acknowledges that there is no 'objective' truth brought to workshops, nor one that has been 'moved away from' due to use of materials.

While using any available materials afforded flexibility and accessibility across participants, it raised questions of bias or randomness across reflections. For instance, a co-facilitator of one practice account asked, "to what extent were the final presented concepts influenced by other participants, materials available, material serendipity?". Similarly, a participant noted that she had "attended a sonifying experience workshop" the day before that "so [it] heavily informed what I made (recorded something on my phone). I'd usually turn to material items in my vicinity and this time I went for something that could include sound". Material form-making is a basis from which to start exploring, and not the exploration itself. Other participants observed more explicitly that:

> I used Scrabble tiles to describe how the system doesn't allow diversity. Yet in the choice of a Scrabble tile, I've already chosen written language to express something – which is in itself restrictive [and] It occurs to me how different it might be for this experience if the materials

are given – a restricted set that everyone has to draw from. Making from what you have, and having choice in that is really interesting.

These observations spoke to a narrative around 'objective' use of materials, one which assumes objectivity in truth and experience. This narrative frames data as something that is 'discovered', almost as if it is lying dormant until someone comes along and 'finds' or 'extracts' it. However, data is something generated, not found, by participants. The disciplinary discourse it creates has moved the conversation from focusing on forms to what this means for co-design.

Without the type of form-making activity used within embodied enquiry, the participants would not have felt these constraints otherwise. The role of reflective practitioner is emphasised throughout the workshop scaffolding and so participants become intrinsically reflective on the activities they engage with throughout the workshop itself. The critical nature of the participant is embraced in this research and can act as a way to open up enquiry in co-design spaces.

Subjective and embodied research approaches have often been labelled 'biased'. Ellingson observes this point when arguing that, "Embodiment has always been implicit in all forms of analysis and representation, even though it has often been merely bracketed in attempts to eliminate 'bias'" (2017, 7). Implicit and tacit information is often central to the design process and embodied ways of knowing can be better integrated rather than bracketed and labelled 'anecdotal'.

Chapter 6 will explore the limitations presented here as opportunities for further research and where I would like to see my research travel in the hands of other creative practitioners.

06. Conclusion

6.1 Looking back

When I initially set out to find a way to integrate story construction and storymaking as a mechanism for interpreting and analysing data, I discovered that co-design has an opportunity to amplify its strength by acting as a formalised mechanism for form-making in adjacent disciplines. Creative practitioners can work as stewards of haptic language for story construction and for making more broadly. I became curious about how a visible, material language might be deployed as the compass by which participants enquire about their personal lived experiences and generate their own exploration.

The practice accounts presented in Chapter 4 have demonstrated evidence that embodied enquiry provides a structure for exploring an embodied experience, making sense of embodied subjectivity and making meaning from embodied ways of knowing. Going back to the definition of analysis as what participants do to the data to make it meaningful to them, the participants themselves are making what is meaningful in analysis. This incorporation of participants' interpretation can extend notions of equity in data analysis – integration of 'outliers', 'statistical anomalies' and 'edge cases' that are often literally discarded from analyses. This sense- and meaning-making invites voices and stories to be part of the interpretation, rather than an obstacle to it. Participatory design positions itself politically, with the intentional engagement of participants within projects. Having the stories shared verbally among breakout rooms shifts the ownership of storytelling to the participants. The workshop facilitator cannot access the stories shared among these rooms (unless participants specifically mention them to the facilitator). In participatory spaces, people are not simply just 'users' defined by the product or service being used.

Within co-design workshops, participants are often not experts in material or form yet are asked to create a visual representation. Facilitators deliberately scaffold and work with any discomfort, rather than using it as an excuse to exclude engagement. This mindset should be extended to interpretation and analysis. I argue that there is a gap in the design process where designers admit that they are not experts in others' lived experience and seek engagement in the early discovery or data-generation phases. However, the design process trains people to act as experts in interpreting and analysing, taking the synthesis phase away from participants and to their desks. While creative practitioners bring a level of trained expertise (such as methods and facilitation) to the design process, there is an opportunity to extend participation into the later phases. This would demand that creative practitioners let go of control when making meaning, opening up the design process in order to extend participant engagement. Just as creative practitioners can support those unfamiliar with form-making, they can facilitate unfamiliarity with sense- and meaning-making.

For the offerings of embodied enquiry to become fully enacted, creative practitioners would need to change their approach to enquiry in workshops. Here I revisit what was posited in the introduction of this section.

Form-making as data generation acts as a way to 'reflect-on-action' and visualise embodied experiences. In doing so, participants generate enquiry into their lived experience. Generative enquiry inherently demands that creative practitioners give up control and curation of what materials they use and how participants use them. Form-making as data generation demands that co-design shift from an object-based enquiry to an embodied one.

Sense-making as collective interpretation supports the understanding of embodied subjectivity, shifting the participants' position within the design process. Contextualising experiences demands that creative practitioners welcome exploring through interpretation rather than exploring with materials – moving from making forms to making meaning. Sense-making as collective interpretation demands that co-design amplifies embodied subjectivity and sees material as a guide for interpretative exploration, rather than a workshop deliverable.

Meaning-making as analysis examines embodied ways of knowing through what enables and what constrains lived experiences. In doing so, it actions the envisioned futures, rather than envisioning futures for participants. As I argue is needed, moving from making forms to making meaning demands privileging a participant's ability to envision futures.

The shift of focus away from objects affects the outcome of workshops facilitated and ultimately designed. Creative practitioners seek to action participants' envisioned futures, but this demands moving design attention away from participants as users to designing for the enablers and constraints of experiences. For instance, while I as a designer might know for certain that you need to use a smartphone in your daily life and how to physically design one for use, I do not know what enables and constrains your ability to use it in the way that you want.

The ever-changing role of the creative practitioner within the space of the co-design workshop would evidence that co-design itself is changing. Moving away from making forms to making meaning demands a shift in practice. As outlined in the introduction, Mattelmäki observes that "co-design and its practices stress the user's active role in the design process … designers should be engaged in building scaffoldings that support everyday people's design thinking" (2008, 65). Embodied enquiry is a direct response to this call to action within the space of co-design. While I do not claim that it is comprehensive in its response, it is a way to apply the ethos in participatory spaces and practices.

Part of the participatory ethos demands privileging participants' enquiry, challenging assumptions inherent in the design process and extending analysis to participants. As noted in Chapter 2, this entitlement refers to what Shuman describes as "the right to have particular kinds of experiences, as well as to the right to tell about them and interpret them" (2015, 47) and, by "claiming ownership of a story, or challenging someone else's right to tell it, points beyond the stories themselves to issues of status, dignity, power, and moral and ethical relations between tellers and listeners'' (38). Shifting from making forms to making meaning provides co-design with an avenue for participants to interpret their own lived experiences within the space of a workshop. Inviting them to drive the analysis offers an avenue to make data meaningful to them.

Connelly and Clandinin note that there are 3 critical dimensions of human experience: "the past conveys significance, the present conveys value, and the future conveys intention" (1990, 9). Rather than looking to the past (significance) or the present (value), creative practitioners are offered a way to look to the future (intention). I argue that participants convey what is significant through form-making, what they value in sense-making and their intention in meaning-making. Through generating their enquiry in the past, present and future, participants can offer creative practitioners a way to avoid putting their significance, value and intention only within analysing others' stories.

Revisiting Davis's work, which lays the groundwork for exploring the concept of affordances specifically for use of analysis, she closes her influential work with a call to action: "Moving forward, I want to see the mechanisms and conditions framework of affordances in action. This means evaluating existing technologies and systems, editing those systems when appropriate, and using the framework in the design process to map power, politics, and values from the onset" (2020, 69). While embodied enquiry is one response to Davis's call to action, I invite other creative practitioners to pick up where this research leaves off. There is more work to do around expanding upon the notion of experiential affordance. There is also value in exploring further some of the limitations this study has revealed when it comes to enacting participatory analysis within the ethos of a co-design workshop.

6.2 Looking forward

I want to use this space to explore how creative practitioners can build upon this research. I present opportunities here to expand upon the work of embodied enquiry, helping to challenge and open up the design process for disciplinary growth. While I can speculate on what future research might afford, I want to bring in 2 themes that participants themselves brought up, as these observations speak to how the discipline might grow through future research.

How might creative practitioners disrupt design power in the design process?
As one workshop participant noted, "I'm interested in how participation can move into the analysis and synthesis phases to disrupt traditional notions of power inherent in design practice." While this research has touched briefly upon notions of power in the entitlement of stories and collective interpretation, much work needs to be done regarding what other 'ownership' is inherent in the design process. The power in PhD design research, mapping out the boundaries of what is to be included and not, was not formally part of this exegesis. More investigation is needed in exploring how these traditional notions came to be, how they are present within the design process and how they affect participation. As another participant noted, they were "curious in ways in 'making sense' that removes the designer ego from the process". While less political, the notion that a single person's ego can drive the direction of participation can have significant implications. Ignoring another's opinion, observation or lived experience for one's own can affect the overall outcome and sustainability of a project. While acknowledged and known in practice, this research has not investigated the effect a single designer has throughout the design process.

How might creative practitioners reconcile going 'back to the office'
While the major theme was of collective interpretation and analysis of our own lived experience, this research has not reconciled the fact that at some point, the work leaves the workshop and goes back to the creative practitioner's desk. What then? What implications and accountability does this have for the collective work of participants, and how does the collective become seen and heard in the created product, process or service? As one participant noted, they wanted to explore more "the idea of co-analysis – rather than synth(esis) and analysis being owned by designers". The idea of ownership has been explored, but the project has been managed by someone else at the end of the day. Or, as another participant noted, "how does this continue because at some point the analysis and interpretation go 'back into the office' and away from the people we are designing with". The entanglement of interpretation and analysis in this research has been welcomed and outright invited, but if stories "breathe into each other", as Rice and Mündel argue, how does the creative practitioner respect and honour the collective at their desk? How does ownership stay with participants long after a workshop and what would that look like?

How might creative practitioners co-create variations and adaptations of embodied enquiry's scaffolding to scale up to or be made viable for different contexts?
I did not open up the research design to co-create the specific scaffolding activities present within the workshop process. In doing so, I did not explore how the scaffolding might be adapted for different contexts or what contingencies are necessary for sequential scaffolding. For instance, I asked participants reflective prompts focused on healthcare waiting experiences, digital spaces, systems and data types. How might embodied enquiry explore gender inequality, policing or even deforestation? Is the scaffolding adaptable and practical across all contexts? Which contexts would be worth using as case studies to evolve or refine embodied enquiry? Creative practitioners could build upon the contingencies among

the scaffolded activities. For need-finding, how might storymaking help participants articulate what they dream for, based on what is missing in their reflection of lived experience and their shared, common theme? For solution-seeking or idea-generation, how might the process extend the invitation for workshop participants to engage in generating ideas based on the themes?

For example, how necessary or effective is the overall sequence of form-making, sense-making and meaning-making? How could participants and creative practitioners change this sequence and discover affordances in the workshop process that I have not? While I had variation in the time allotted for workshops (45 minutes – 2 hours), what might embodied enquiry look like as an all-day workshop? What would be opened up by an extended time frame? What would it look like done with 100+ people online?

The fill-in-the-blank sentences presented to participants so as to articulate the enablers and constraints identified in their lived experience may offer the creative practitioner one way to use embodied enquiry as an analytical tool. I also see potential in using the sentences to make sense of secondary research and insights gathered before running an embodied enquiry workshop. This process could invite creative practitioners to highlight assumptions to be challenged by their participants' analyses afterwards or to re-examine the design brief before or at the end of the design process.

Beyond the specific context of a co-design workshop, what is the potential of embodied enquiry as an analytical, evaluative and reflective process with no specific design objective? How might it translate as an orientation experience for shedding light on lost opportunities in previous experiences (normalising negative educational experiences, for example) so a community might collectively assess what needs to change? Or how might it be translated into an evaluative experience at the end of a project to learn from what went wrong?

How might creative practitioners investigate the connection between material and embodiment? What materials contribute effectively and support enquiry?
The research design presented in this exegesis has focused on the meaning made by participants through material, not how to curate materials to contribute to this meaning-making directly and effectively. There is an opportunity to build upon this contribution to knowledge in what materials most effectively support meaning-making – especially for non-designers. For instance, is there a literacy for non-designers that makes it easier to work with colour, texture, symbolism or utility, or do individuals each come with their own capacities to create and interpret?

How might creative practitioners begin to move away from notions of 'objectivity' and the narrative of 'finding' data, and advocate instead for participatory data construction?
Using material to produce new knowledge inherently challenges notions of objectivity and positivist knowledge. How might creative practitioners build upon constructivist ideas of knowledge and different ways of knowing to open up the design process to interpretation and analysis? How might sense- and meaning-making challenge how data, information and knowledge are defined in the design process and by whom? What types of knowledge have gone unexplored in workshops because of positivist notions of objective truth? What kinds of knowledge are made directly from material making methods? How might this contribute to disciplinary growth and validation? While I have explored why it is important for co-design to challenge notions of 'objective' data 'extraction', more work is needed to explore how creative practitioners can begin to change mindsets and advocate for this argument.

6.3 What a future design process might offer

When thinking about where I want further research to go, I invite creative practitioners to critically examine their own practice. While I have shown how to bring sense- and meaning-making to the participants themselves, I wonder what other opportunities exist for practitioners regularly gathering data to find ways that make data meaningful for them.

Going back to what I introduced in Chapter 1, let's revisit this 'outlier' data point (Figure 6.1). Do you view this any differently now? I ask again: how do we make sense of people's stories of lived experience without making them outliers in the data? Going one step further, how can participants make sense of their own stories in order for their stories to become better integrated within the analysis of data? While I have explored one way to answer these questions, I invite those who are reading this to critically reflect upon the ways data and analysis play roles in the design process, or ways they currently do not. My intention with this exegesis has been to show how to work with data in generative, creative and reflective ways. In doing so, I invite you to advocate for all of us outliers, in product, project and process
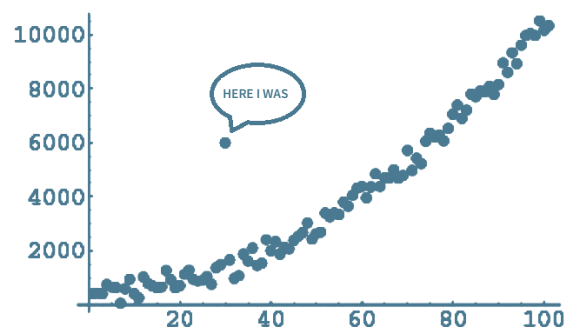

Figure 6.1. An outlier data point, revised
(original image credit: Ritika Singh, 2020, edited by Kelly Anderson, 2022)

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