

EMBODYING MATERIAL IDEATION

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ABSTRACT

New materials and technologies offer the potential for highly innovative systems. Yet also challenge us to expand how we design. ‘Post-disciplinary embodied ideation’ is an emerging approach to knowledge generation and exchange amongst designers, scientists and the public. Its purpose is to enrich the conception and design of innovative on-body systems, informed – yet unconstrained – by current knowledge. In this paper I describe three approaches to engaging the public in post-disciplinary embodied ideation. In each case, the use of video, photography, audio, and other forms of documentation are carefully curated to support and fruitfully disrupt – rather than interfere with – the aesthetic experience. So, while micro-analysis of video and audio might promise deep insights, significant challenges remain if such approaches are to be effectively leveraged. By opening this work up to the research community I hope to launch a conversation about how post-disciplinary approaches to embodied ideation might evolve to support deeper analysis. In doing so, I contribute to the development of a theoretical lens for this emerging area of research.

INTRODUCTION

Designing material interactions requires a multifaceted understanding of numerous elements. Methods and approaches are still emerging, though reflective design and craft-based knowledge are recognised to be of value (Wiberg et al 2013), and a methodology for materiality drawing on a range of approaches was recently described by (Wiberg 2014). The research I discuss here

expands these notions to include *no-*, *known-* and *emerging-tech* prototypes and provocations in reflexive embodied ideation processes. These prototypes and provocations are deployed in embodied interviews, workshop-style *thinking-through-making* circles, and Lab In The Wild cultural interventions. They use objects, artefacts, and frameworks-for-making, to support embodied-thinking and exchange. Their aim is to assist participants in imagining future material technologies, informed, yet unconstrained by current knowledge; to enable discussion of difficult to articulate, often partially formed concepts; and the ethical, social, cultural, political and personal implications of what life would be like if yet-to-be-imagined technologies were real and readily available. Outcomes – in the form of engagement with emerging prototypes, dialogical exchange between researchers and participants, and hand-made proposals for future technologies – are used to inform and shape emerging scientific and design innovation, in an ongoing, reflexive process.

To date, these methods have proven useful for designers and scientists working at the forefront of new materials and methods, but my belief is that with deeper analysis of participant engagement their value-add may be significantly enhanced. As is, they enable researchers and developers to remain in a fruitful state of unknowing for as long as possible; they bridge scientific innovation with public concerns and desires; and afford unexpected outcomes.

This paper provides theoretical and practical context, as well as an overview of three approaches to post-disciplinary embodied ideation. It includes case studies for each, points to initial findings, and raises a discussion of the challenges they present for analysis.

Significantly, even as they continue to evolve, the approaches I describe here are facilitating rich exchange between scientists, designers and the public. These exchanges are expanding the research potential and supporting innovation (Wilde et al 2014). Enabling deeper analysis of emerging outcomes will enrich their value, and assist this research to further evolve.

FOUNDATION & RELATED WORK

The research described here takes its origin in a post-disciplinary approach to crafting *cultural probes*, where the probes serve as *placebo* devices in participatory interviews and events. A post-disciplinary approach recognizes that in many contexts clear-cut categories

and separation of disciplines is no longer viable. Emerging areas of expertise often require deep knowledge and experience across more than one discipline. Many experts today are no longer tied more strongly to one discipline or another (Whitely 2008).

The post-disciplinary approach described here combines methods and approaches from design, participatory innovation, art and craft, adapting them for use in on-body and physically engaging interactive systems that use emerging and advanced technologies. In each case, prototypes are developed then tested with stakeholders and the public, in a reflexive process that results in the conceptualisation of novel material interactions. The purpose of prototypes is not specified in advance. Rather, these emerging prototypes are developed in varying ranges of resolution that suggest different research directions. The raw potential embodied in them is used to catalyse participants to develop complex ideation skills (Ingold 2006), build concepts, and articulate new ideas (Buur & Larsen 2010, Wilde & Andersen 2010, Wilde 2011, Wilde et al 2014). This process leads to outcomes that originate in *new* modes of thinking and acting, rather than accepted practices.

In HCI, cultural probes are normally used to probe participants from a distance, to elicit playful, imaginative responses that can serve as inspiration for design (Gaver et al 2009). My adaptation puts participants and researchers in culturally framed, fruitful exchange *in the moment* – leveraging the social aspects of co-location; the inherent performativity of wearables; and their potential to support an embodied enquiry (Wilde & Andersen 2009, Wilde 2011). Crucially, the aim is not just to collect inspirational data, but rather in keeping with the methodologically subversive nature of the original probes (Boehner et al 2007), to allow collected data to guide the project.

Prototypes developed within this process are designed to be worn on the body in such a way that they challenge the wearer and might provoke or support a strong emotional reaction. In this way, emerging prototypes, are used as placebo devices (Dunne & Raby, 2002), to probe participants. Their functionality is evaluated through a range of fitting and interviewing processes designed to encourage and record elements of lateral thinking and subconscious associations, and support a shift in focus from internal responses through to shared reflections and outward representation.

The different frameworks that make use of this approach afford highly empathetic and responsive exchange, balancing embodied thinking and discussion in different ways. Grounding each framework in *an embodied approach* enables researchers to engage participants in an embodied, as well discursively grounded interrogation. Doing so affords nuanced insight into how people imagine that on-body technologies might play out beyond current technological capability – across the whole-of-their-lifecycle. It also uncovers potentially conflicting views

on the personal, social, cultural, political and ethical implications of different propositions.

Embodiment is central to this research. Maxine Sheets-Johnson's understanding of movement as not only extra-discursive, but as a precursor to language that underscores cognition (Sheets-Johnson 1998); Andy Clark's research into how extending our capabilities through technologies might enhance thinking (Clark 2010); and McCarthy and Wright's research into technology's role in meaning-making through *felt experience* (McCarthy & Wright 2007), together form the cornerstone for my understanding of embodiment as situated, cognitive and multidimensional: pivotal to extending our understanding of how to transform on-body technologies into a responsive field, powerfully engaged with emerging science, stakeholder capability, and public desire.

CRAFTING RESEARCH

Crafting material interactions is not straightforward, though reflective design and craft-based knowledge are recognised to be of value (Bardzell et al 2012, Rosner et al 2010, Wiberg et al 2013, Wiberg 2014). Rosner has investigated how the inherent creative process of *crafting* affords novel ideation, applications, and adoption of new technologies (Rosner et al 2010). She found craft can serve as: *a resource for understanding the ways materials, techniques and relationships are continually re-bound in a digital age*; and that the act of making can enrich collaborative processes (Rosner & Taylor 2011). Vaughan has shown how embroidery can explore the lived relationship between artefact, user and the experience of design (Vaughan 2006). Fernaeus uses the textile craft of patchworking as a structural metaphor to assist children to code (Fernaeus 2007), and the model of the jacquard loom to identify patterns in the history of HCI (Fernaeus et al 2012). These researchers demonstrate that craft can serve as: *the condition in which the inherent qualities and economies of the media are encouraged to shape both process and products* (McCullough 1996).

In similar ways, the approaches described here use textile crafts to guide the prototyping and participation processes, and shape the research structure. Emerging prototypes leverage the familiarity and social adhesiveness of craft to play with participant expectations and provide a point of entry to critical thinking. Just as craftspeople calibrate the motions of their work in direct response to the work just performed (Ravetz et al 2013), researchers need to be open to adjust direction based on emerging data and participant reactions.

Crafting research combines an openness of enquiry with the materials and tools to think with. It leads researchers, and participants, to finding what it is they need to do. This way of working results in a: *speculative and indeterminate progression* (Bardzell et al 2012) reminiscent of what Tim Ingold terms: *wayfinding in comparison to navigation: feeling one's way rather than*

using a map (Ingold 2006). It creates a continual feedback mechanism within the research structure that is open, flexible and responsive, and has so far led to potent outcomes (Wilde & Andersen 2010, Wilde 2011, Wilde et al 2014).

Crafting materiality evolves a researcher's material consciousness (Sennet 2009). It affords imaginative leaps and guides: *towards what we sense is an unknown reality latent with possibility* (Adamson 2007). An interwoven craft-based approach suggests alternative ways of working that are flexible in structure, yet robust enough to be trusted to lead to useful outcomes. The confidence this robustness engenders supports risk-taking in researchers and participants (Wilde et al 2014).

Crucially, the strength of crafting research is its flexibility. This aspect of the approach also presents a great challenge in regard documentation and analysis, because the researchers and the research are in process *with* the public, often *within* the public sphere. It is difficult to envision how to document this process without disrupting the aesthetic experience of it.

THREE APPROACHES TO EMBODIED MATERIAL IDEATION

In this section I provide an overview of the three approaches. I include corresponding case studies to afford discussion of how video and interaction analysis might contribute to and shape this evolving approach to design research. The first two cases are from *the OWL project*, a collaboration with Kristina Andersen (Wilde & Andersen 2010, Andersen & Wilde 2012). The third is from PKI, The Poetic Kinaesthetic Interface project – a collaboration with Jenny Underwood and Rebecca Pohlner (Wilde et al 2014).

THE FIRST CASE: EMBODIED INTERVIEWS

Embodied Interviews is the first of three techniques described here. The interviews take place one-on-one, using bodyProps – design artefacts that are worn on the body – to elicit previously unarticulated opinions and desires. The bodyProps serve as a prompt for embodied discovery. They are intentionally designed with a *slight strangeness*, because: *too weird and they are instantly dismissed, not strange enough and they're absorbed into everyday reality* (Dunne & Raby 2001, p.63)

Neither video nor audio is recorded during embodied interviews. Documented outcomes include a business-card-sized piece of paper that the participant writes on (see Fig. 2), and a self-styled photograph: a kind of self-portrait for which the researcher serves as photographer (see Fig. 1). The following overview of the OWL interviews serves as a case for considering how micro-analysis might be conducted without disrupting the aesthetics of the experience. Detailed information on the project can be found at <http://www.daniellewilde.com/swing-that-thing/the-owl-project/>. Raw data can be accessed at: <http://magictechnologies.blogspot.dk>



Figure 1: OWL self-styled interview portraits (with bodyProps)

The OWL project engages participants in co-creation and collaborative imagining of that which does not yet exist. In the OWL interviews, a series of body props that do not contain technology, are used to bring the wearer's attention to the body in inhabital ways. The devices are open and speculative, designed without a predefined function and tested as design probes to ascertain their functionality.

As the interview progresses, each new device is incrementally stranger – the first two give and receive pressure, the next two destabilize by shifting the body off axis, and the third two are like mutations that extend out from the body in subtle but unusual ways. Interviewees are asked simple questions such as: How does it feel? What is it? What does it do? And if it contained some kind of technology that hasn't been imagined before, that gave you magical powers, what kind of powers would they be? The aim is to create an emergent, imaginative space in which people might be able to conceptualise technologies that do not yet exist. The desire is to plumb people's willingness to imagine through the body in movement; discover what might happen if we let people use their embodied experience and imagination to assist in the creation of unknown technologies; and bring wearers' attention to their embodied(ness) to see if this brings them present to their inner state and encourages magical thinking.

Interviews are formalised, yet open. The objects are evocative, and the interview format designed to slow

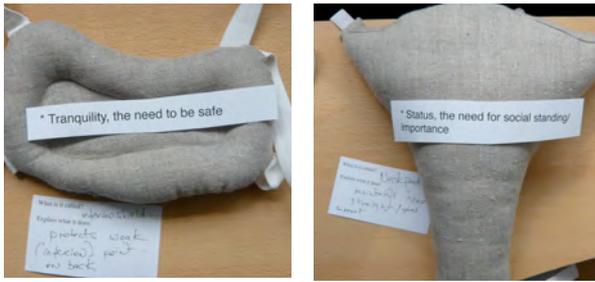


Figure 2: Two bodyProps with associated desire and description

down the moment of perception, ‘making strange’ that moment of considering an object as a worn presence within personal space (Wilde & Andersen, 2009).

The OWL interviews are a three-part process: First, participants are fitted with one of six custom bodyprops (Fig. 1, and <http://www.daniellewilde.com/swing-that-thing/the-owl-interviews/>), and are asked to reflect and discuss how it feels to wear this bodyprop. After ten to fifteen minutes of reflection, during which the researcher encourages them to articulate their thoughts and findings, participants are asked to write down – on a business-card sized piece of paper – what the bodyProp is called and what it enables them to do (Fig.2). This task destabilizes participants. They have been given as much time and encouragement as needed, to explore their answers to such questions, yet what we collect and collate as data is an extremely reduced summary.

Second, drawing from research into needs and desires (Reiss 2000), participants are asked to match a desire with the device (Fig.2). This brings their focus into a relation with the external world. Then, finally, each participant sets up a self-portrait that formalises their relationship to the bodyprop and confronts the notion of an external gaze (c.f. Fig.1).

The entire process is formalised to highlight the ambiguous nature of the devices, and what is being requested. At the same time it remains open, to shift in response to participants reactions and needs. The aim is to create an emergent, imaginative space where people will both discover and articulate what each body-device is. Many of the responses are fantastical and it’s difficult to know how to correlate the data into material that might be useful for design. A first pass at analysis can be found here (Wilde & Andersen 2010).

THE SECOND CASE: THINKING-THROUGH-MAKING
Thinking through making takes groups of participants through a carefully structured series of tasks that enable them to uncover unarticulated beliefs and desires through the act of making. This approach begins with language, and at its closure returns to language. The process between is embodied, non-lingual or mute. Excluding language from the central part of the structure allows a very intuitive and productive process to emerge. Outcomes of this approach include naive hand-made prototype proposals, built by participants; and short video interviews in which participants wear and describe the purpose of their prototypes.



Figure 3: Embodied thinking-through-making: Circles in process.

The OWL Circles serve as a case study of thinking-through-making. To enable discussion, I provide an overview of the project. More detailed information is at (Andersen & Wilde 2012). Video and photographic outcomes from OWL Circles is at: <http://www.daniellewilde.com/swing-that-thing/circles/>

Asking someone to imagine yet-to-be-imagined technologies puts a strain on that person’s ability to bring ideas into being. *What do you really want, if you could have anything?* is an awful question to ask, and when you do ask it, you will mostly get simple, modest answers. The OWL Circles were created as an attempt to find a way to blot out the most immediate answers to such a question, so that we might access more instinctual—and perhaps less plausible—responses.

OWL Circles are hosted in a neutral, utilitarian space containing a large, shared worktable with a selection of tools and various neatly organized recycled materials. Materials are chosen to afford a large range of structural possibilities and aesthetics, though colours remain neutral so that colour does not exert undue influence on participant choices. Rather they are guided by the touch, feel and behaviour of materials.

A small area is also set up for video interviews, with a video camera on a tripod in front of a black wall. Videos are conducted individually with each participant, once their making session is complete.

Circles are conducted with 12 participants and two facilitators. Their format evolved until it was reduced to the following strict sequence of conceptual shifts:

- Introduction: Welcome and brief introduction, including reading aloud Arthur C. Clarke’s third law of technology prediction: *any sufficiently advanced technology is indistinguishable from magic* (Clarke 1984), and Meno, from Plato’s Dialogue: *How will you go about finding that thing the nature of which is totally unknown to you?* (in Solnit 2005)
- The desires: A list of common desires are read aloud and placed on the table in the form of index cards (Reiss 2000). Participants are asked to choose one.
- Transfer to body: Participants are asked to identify the body part in which their chosen desire resides.
- The material switch: Participants choose materials they find appealing.



Figure 4: a selection of OWL Circle outcomes

- Thinking with your hands: Without knowing what to do in advance, participants begin making.
- Being done: When they recognize that they are done, each participant is led to the video interview corner.
- Description: While being fitted with a microphone, participants are instructed to recount to the camera their name, their desire, what their object is called and what it does. The answers are filmed in one take.
- Debrief: A short debrief is performed to complete the process.

These tasks draw on theater and performance theory, game play, psychology, and other areas to enable formalized conceptual shifts. The result is a live, volatile process, understood in the sense of Dewey's 'experience' (1958). The Circles work with ideas, not just in the form of description where only language can become knowledge and meaning, but as a 'process of becoming'. Without turning to either romanticism or mysticism, the process allows what may appear as chaos to create order and pattern through embodied experience.

Judith Butler states that we are required to: *risk ourselves precisely at moments of unknowingness, when what forms us diverges from what lies before us, when our willingness to become undone in relation to others constitutes our chance of becoming human* (Butler 2005). The OWL Circles are purposely built to facilitate this kind of risk taking, to provide a temporary space in which participants can 'become'. The project confronts desires, bodies, and dreams about technology. It effects displacement of desires by naming them and giving them form. It affords giving account from the place Butler speaks of, the place where we become and remain human. The resulting objects serve as a kind of souvenir from the future.

In her book *On Longing*, Susan Stewart (1993) proposes that souvenirs are objects of desire that assist in the formation of continuous personal narratives that connect the present with the past. OWL objects and devices connect participants through their imaginations and desires, as well as through the objects themselves, from the present to the future. They give form to and assist in the formation of continuous or ongoing personal narratives that support this connection.

The structure of the making circles is crucial to their experience. The lack of documentation during the making session, and the highly formalized nature of documentation during the video sessions seem to contribute to their success. Some photographs have been taken during making. It is unclear if adding photographic or video capture will interfere with the relaxed, quiet, reflective space that currently exists, but this option may be experimented with further, as these methods evolve.

THE THIRD CASE: A RESEARCH LAB IN THE WILD Prototyping in the wild can be understood as an evaluation set up where objects, artefacts, and other inventions are assembled and then tried out in the settings for which they are envisioned (Rogers, 2011). My adaptation of In the Wild Prototyping transplants the *research in process* – including the research and the researchers – into a public setting as a constantly evolving participatory exhibit. The intention is to fruitfully disrupt participant, as well as researcher expectations.

This framing requires researchers to adapt responsively to emerging insights; to rapidly prototype and test ideas in situ; to openly and responsively craft the research, as well as the research structure. In this process, interaction with each participant is fluidly negotiated by the researchers, who gently follow and guide participants through a dynamic process of discovery and exchange, led by emergent curiosity and the range of prototypes on offer. The result is an interwoven exchange that is at once material, embodied and conversational. The Poetic Kinaesthetic Interface project (PKI) (Wilde et al 2014) serves as the case for study of a research lab in the wild. An overview of the project is at: <http://www.daniellewilde.com/embodied-futures/pki/>

PKI aims to challenge and enrich the constrained norm of body-typical to include hypermobility, physical disability, and the evolving abilities of the mature or ageing body. It interweaves embodied creativity, choreography, motion capture, structured textile research, material and spatial explorations, garment and object construction, myotherapy and public engagement in an emergent co-design process. In doing so, it seeks to understand how to give people the experience of being in someone else's body, with different abilities and constraints.



Figure 5: Probing and weaving participants through the research concerns: PKI Lab in the Wild at *Melbourne Now* (LeAmon, 203-14)

The project uses a range of design frameworks to provide access to alternate ways of connecting with the moving body, ability and disability (Fig.5, 6). Each framework disrupts, transgresses or destabilises social and cultural norms around movement and ability, including idiosyncratic notions around the idea of what may or may not be considered ‘normal’. The intention is to support ‘shared’ physical and sensorial experience, and encourage empathy. These ‘shared’ experiences are with another – absent, alternately-abled – person’s movement experience. Figure 5 and 6 show participants and researchers engaging through prototypes, crafting in situ, and weaving engagement.

A research lab in the wild transplants the *research in process* – including the research and the researchers – into a public setting as a constantly evolving participatory exhibit that fruitfully disrupts participant, as well as researcher expectations.

The PKI lab in the wild was set up as a metaphorical *loom*. This *loom* constituted our testing context. The prototypes served as the *warp* – the structural elements of our weave. Public engagement with the research ideas and emerging prototypes served as the *weft* – the diverse and nuanced threads of concern interwoven with and through the warp. The researchers played the role of *weavers*. This construct allowed us to weave our understanding of how to interlace the different elements, and engage in rich and fruitful reflection on content, as well as process, as the research unfolded. The weaving metaphor was not communicated to the public. Rather it stayed in the background, guiding the emergent decision making of the researchers within the unfolding participatory process.

Conflating research in process and exhibit in this metaphorical loom structure enabled my collaborators and I to play with participant expectations. The Lab was an exhibit. The exhibit included the researchers, the methods in process, the ideas driving the investigation and the prototypes. The loom construct provided a structural guide for us to dynamically engage with participants and, with and through, the presentation structure. The whole enabled us to engage participants in the research in a way that freed them from the need to believe or behave in a particular manner. It allowed



Figure 6: Crafting in situ, probing participants: PKI Lab in the Wild

attendees to suspend disbelief and engage in our research “as if it were real”, and of course, it was. It also afforded discursive exchange that was free-flowing and authentic, and enabled the researchers to respond in a dynamically unfolding reflexive process, such that we could continually reflect creatively on our outcomes.

Yet, despite providing a rich construct for engaging the public in our research, the lab in the wild has proven highly problematic to document. Professional photographers and videographers were hired to document the event. Yet, many aspects of the exchanges between researchers, researchers and participants, and amongst participants, seemed to elude capture. The intrusion of the act of documenting, when not sufficiently strictly framed and contained (as described in the OWL project cases), interfered with participants’ ability to remain in authentic exchange.

A lab in the wild is a fecund event for capturing the views of a broad public. It is experientially emergent. It requires a clear spatially oriented structure and a responsive open-ness to how participation might unfold. Throughout the lab, we researchers continued to make material different design ideas and modifications inspired by participant engagement. We effectively crafted our participatory structure on the fly, in response to participant reflection and engagement. Importantly, testing a spectrum of prototypes in this construct provided multiple points of entry for participants to engage directly with our ideas. The openness of this spectrum gave participants permission to discover what each prototype might be, and to propose possible uses, while still connecting back to the research question.

The entire construct proved fruitful. Participant responses were rich and diverse (see Wilde et al 2014 for detail). The lab effectively leveraged new understandings of science, technology, the body, fashion and dress, and significantly expanded the research potential in terms of working with advanced scientific innovation (ibid.). Those promising outcomes underline the potential of this strategy. Yet, the challenge with collecting data that affords micro-analysis, and the benefits that would come with such analysis, remain.

DISCUSSION

Each of these frameworks is an in-situ, emergent structure designed to elicit participant response through embodied probing. They each afford highly empathetic and responsive exchange with participants by balancing embodied thinking and discussion in different ways.

They foreground the body, rather than technologies, freeing participants from the requirement to be articulate and knowing. Instead, participants discover, explore, imagine, and share what emerges. The resulting exchanges are authentic; free from constraints that often underlie knowledge exchange. As a result, engagement and interaction with core research concerns is enriched; exchange among stakeholder groups is greatly enhanced; and the researchers' vision of how to move forward is expanded.

Probing, thus – *in the moment* – can enable subtly nuanced engagement with participants in very different ways to how probing typically takes place (Gaver et al 1999; Boehner et al, 2007). Each context described here affords different qualities of response. The Interviews, for example, take place in participants' homes or workplace, with no-one present aside from the researcher and the interviewee. The quiet complicity that this privacy affords in sharing is very different to when a probe is responded to with the designer or researcher in absentia. Similarly, in the interviews, the role of the researcher is crucial to the unfolding of the event, as well as the qualities of presence when documentation takes place. The researcher's presence acts as a formalized, destabilizing influence, as well as a kind of guardian of the authenticity of the exchange – of what is eventually written down, photographed, recorded. This occurs as a direct result of the constructs and formal qualities of linguistic and embodied engagement that the *embodied interview* structure provides.

The Circles support the embodied emergence of ideas in a group setting. Previously unconsidered and unarticulated ideas are generated through a grounded process of thinking-through-making and materiality. They are then brought into language: divulged and made real. Like the Interviews, the Circles leverage language as a performative act (Austin, 1962) – where saying something makes it so (as in when a bride or groom says: *I do*, or an employer says: *you're fired*).

According to Austin, for language to perform or 'enact' *that, which is spoken*, the circumstances under which an utterance takes place are important. The speaker or other persons should perform certain actions (whether 'physical' or 'mental') or even the further uttering of words. The Interviews and Circles provide clearly structured frameworks to enable such enactment: circumstances in which participants explore and discover by thinking through the body, then bring the emerging ideas into language. They extend Austin's ideas beyond the linguistic to allow for other forms of action and sources of agency. The embodied processes assist participants to discover, give form to and retrospectively name their ideas, and in the naming help us researchers move towards understanding.

The Lab in the Wild extends these ideas through another perspective. The Lab is an exhibit. People come and go. The context is very public and the formal framework,

hidden. The researchers respond to participant engagement on the fly – dynamically adjusting the hidden framework and guiding engagement as it unfolds. In doing so they weave participant experiences, and interweave intermediate outcomes that may later be metaphorically draped and folded to understand where to go to next.

Probing in this way connects to the social potential of the original cultural probes, where participants can chat with each other, compare notes, reflect on their answers if they so desire. Yet, unlike cultural probes, Lab in the Wild participants do not have a choice about whether or not their engagement occurs in public. Additionally, the use of language in a Lab in the Wild is less formalized than in the Interviews and Circles. In contrast, the embodied engagement with participants – as the researchers dress them in the probes; provide the different structures for engagement; and craft on site – is highly formalized, ritualized. This formalisation of embodied engagement supports performative acts by bringing participant responses, through the body, into language.

CONCLUSIONS

As these frameworks and structures have evolved, the formalised nature of documentation has also evolved. Nonetheless, detailed analysis at times remains elusive. In earlier publications (c.f. Wilde 2011) I discuss why this is far from problematic. Nonetheless my interest now is to open the work to other forms of analysis, to understand what doing so might bring.

With creative thinking, conversation analysis (CA) (Sidnell & Stivers 2014) might effectively extend the research in exciting ways that enrich analysis. Yet CA is a very time-consuming research method that involves micro-analysis of video and audio after the fact, and in CA, context is deemed unimportant (ibid.). In the experiments described here, video is used as a documentation tool only when its carefully curated use enriches experience; audio alone has not, so far, been captured; and context is crucial. For CA to be effectively leveraged, the research described here must evolve. The practice of CA might also need to shift, to ensure the requirements of its practice not compromise the aesthetic integrity of participant experiences.

If conversation analysts were included as researchers operating in situ, would this enable an emerging micro-analysis of unfolding events as they occur, as well as after the fact? Such an approach, while outside the tradition of CA, suggests a promising, if radical way forward. To succeed, the methods used to probe, as well as the methods used to analyse would need to evolve in ways that are coherent for the researchers, as well as for the interaction aesthetics of the probing frameworks. The conversation analysts may need to contribute in significant ways to the design research development, making them instrumental in shaping the frameworks that they analyse. Such an approach would also shift the

practice of CA in the cases in question. Just as the requirements of CA would shape the emerging research.

To conclude, this article is intended as a conversation starter. Moving forward, the intention is to investigate the effectiveness of such an approach, as well as others that may be put forward.

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