Foraging Tangibles for Participatory Design

Decolonising Co-creative Processes through Sustainable Engagement with Place

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ABSTRACT

The sustainability of materials used in Participatory Design processes—be they tangibles, or other—typically provided by the designer; is not commonly foregrounded. We focus on the social and environmental impact of tangibles by considering two cases. The first concerns the conception of a Forest-Library. A steering committee gathered to map stakeholders across a municipality, using foraged elements from a barn. The second case brings together organisations concerned with waste activism, to collectively compare and negotiate their stakeholder interrelations. The foraged tangibles are environmentally sustainable by virtue of a) being foraged rather than designed, and b) their ability to be returned to use or to the nutrition cycle once their usefulness to the PD process has ended. Following Liboiron's conceptualisation of pollution as colonialism we consider if their connection to place might assist in troubling the ways that these mapping processes might be considered socially, as well as environmentally sustainable.

CCS CONCEPTS

• **Human-centered computing**; • **Interaction design**; • **Interaction design process and methods**; • **Participatory design**;

KEYWORDS

Tangibles, Participatory design, Stakeholder mapping, Environmental sustainability, Social sustainability, Decolonial

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1 INTRODUCTION

The call for design to be sustainable is hardly new [15, 17]. But the urgency to respond to this call becomes more pressing every day. In a modest contribution to this matter of concern, rather than consider the sustainability of the outcomes of design processes, we look to the processes at the core of participatory design (PD), and the use of tangibles to support these processes. When considering the sustainability of tangibles, it is easy to first consider their environmental impact, and whether the materials at hand can return to the nutrition cycle after use. However, social and material sustainability cannot stand apart; they must be entangled if sustainability is to be robust, and lead to regenerative practices. We must take seriously the impacts of our work on humans and non-humans alike.

To consider the social and environmental sustainability of our design things—objects, actions, methodologies and intentions—from more-than-human perspectives, we tentatively turn to Liboiron [13] who positions colonialism as emerging from a lack of respect for Land ownership, and the critical need to understand and respect the interconnections of people and place, or—in the case of participatory design—people, place, research object and research objects. Liboiron capitalises Land, following Styres and Zinga [27] to indicate a primary relationship that extends beyond a fixed material space, positioning Land as "a spiritually infused place grounded in interconnected and interdependent relationships, cultural positioning, and is highly contextualised". We tentatively transpose this understanding to PD's engagement with more-than-human environments through situated action. Liboiron [13] speaks about colonialism as "a set of contemporary and evolving land relations that can be maintained by good intentions and even good deeds" (p.6) and makes three key points in this regard (pp.6-7):

"pollution is not a manifestation or side effect of colonialism but is an enactment of ongoing colonial relations to Land." There are ways of doing pollution action using methods that are "specific, place-based, and attend to obligations." Methodologies "are always and already part of Land relations and thus are a key site in which to enact good relations (sometimes called ethics)." We critically consider our methods, methodologies and actions 'in place' through this understanding of colonialism in an attempt to open up the ethics of our practices to scrutiny and evolve our understanding of how to practice design as a set of good relations.

2 THE STATE OF PLAY

To lay the groundwork for engaging with these ideas, we consider the role of tools and techniques in PD and the shift towards community-based research focused on environmental and social sustainability.

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Figure 1: A figure found in a barn, the site of a stakeholder mapping exercise.

2.1 Towards Sustainable Tools and Techniques in PD

Historically, design has been about things. In the Bauhaus tradition, designers and artists produce mundane objects that support people in their everyday life. The design process is collaborative and interdisciplinary, and brings together art, craft, architecture and technology [1]. PD shifted the narrative in design from designing things *for everyday life* to designing things *for and through collaborative processes*. Design 'things' thus became tools to empower people during the participation process. PD is a "process of investigating, understanding, reflecting upon, initiating, elaborating, and supporting common learning between participants in collective reflection-in-action" [19] where designers and users learn from each other [8] through ongoing social interactions and engagement. From the beginning, the focus of PD has been on the design process and not on the outcome [5] with interactions facilitated using a variety of tools and techniques such as, mockups and low-fidelity prototypes, future workshops, and organisational toolkits [4]. As [21] argues, those tools and techniques help people "express themselves visually and verbally" in participatory activities.

PD techniques and tools are meant to foster collaboration among diverse people, to include them in the design process. As such, the tools used need to be plastic enough to conceptually act as bridges among people who bring different perspectives. They need to serve as boundary objects [9, 26]. For example, with tangible business models Mitchell and Buur [14] explore how to facilitate the participation of people without business training in discussions about innovation in an organisational context. Their dialogue is enabled by the openness of the objects used, which are described as *"evocative, suggestive, explorative, questioning, tentative and not commercial products in themselves."* [14]. The use of such 'ready-mades' is not new and comes with its own affordances. In empathic design [11] for example, 'ready-mades' create common points of reference for PD participants, acting as "social lubricant to encourage open discussion and ideas to flow". Such ready-mades are typically introduced by the designer. The main argument for their use is that participants' familiarity with the objects helps them be inspired and release their imagination; however, there has yet to be a discussion on the environmental aspects of bringing ready-mades into play. In a different approach, [10] invite participants to use personal objects as prompts to imagine future self-tracking systems. People's personal objects become tools for ideation through object theatre [20]. The objects are foraged from participants' personal surrounds; bring rich personal resonances, in addition to idiosyncratic material characteristics, which is useful for the design process; and are returned to their original function after use in the PD process, perhaps affording lingering reminders of the ideas and discussions that emerged in the PD process. They thus point towards social, as well as material sustainability, not only of the objects, but of the PD process itself.

In recent years, PD has shifted from system design towards long-term community involvement in social development [24] a move that corresponds with the need for a better understanding of the

Figure 2: Negotiating the stakeholders' position on the map by moving around the foraged objects.

ecological, economic and social environments that design inhabits. From a process perspective, PD is crucial in bringing local people of a community together to express their needs and aspirations towards a more sustainable future [22]. Communities influence the role and impact of the tools used in participatory processes, as they determine how the tools themselves are understood. Tangibles thus have shifted from being tools to support the design of things, to artefacts that can form relationships, human and non-human.

As an example, the Farm Lab is a participatory design project which transformed an "urban waste land" into an environment for fostering social and environmental sustainability, where underprivileged people engage with nature and *"contribute to maintaining and developing the farm as a beautiful, inclusive, safe, educational, and welcoming space for everyone"* [16]. Within Farm Lab, the Bug Hotel aims to foster "interspecies cooperation". The Bug Hotel is a living sound sculpture, designed to be inhabited by insects and pollinators and as a place for humans to listen and learn about the "residents" of the installation. The installation fosters participation and nuanced reflections about its non-human inhabitants and the visiting humans' relationships with them. In another example, in the Stage, the Neighbourhood and the Factory—three living labs in Malmö—designers work with marginalised people to foster democratic innovation [3]. For example, creating artefacts, events, and systems to enable the local youth to engage in local politics through artistic interventions. These two projects use prototypes to empower people to explore relationships with nature and to engage in public acts related to their identity and local politics. They thus foster socially and environmentally sustainable futures.

3 SUSTAINABLE STAKEHOLDER MAPPING

We present two cases that use foraged tangibles to deepen engagement with food system transformation. The first involves the conception of a forest-based library of foraged foods (hereafter Forest Library) that has as its aim to introduce diverse publics to the possibilities and impacts of foraging; the second is a workshop that brings together organisations who work with food waste and climate adaptation, from top-down and bottom-up perspectives, to imagine possible futures that bring co-benefits.

3.1 Forest Library

FUSILLI is a four-year project that uses food living labs [6] as its core methodology to overcome barriers to support a transition towards sustainable food systems in urban and peri-urban areas. Within this project, a Forest Library was envisioned as a growing, library-in-the-land; a cultural venue that aims to support residents and visitors of Kolding in gaining embodied knowledge about the edible plants that grow locally, and to learn about what can be mindfully and sustainably foraged from local forests, fields and fjord. The Forest Library aims to support visitors to connect to, respect, engage and grow with nature; share knowledge through more-than-human, creative and playful, place-based exchange.

3.1.1 Collaboratively envisioning the Forest Library. To define the vision of the forest library we conducted two activities ten days apart with the newly formed steering committee, including a museum director, education leaders, permaculture experts, chefs, professional foragers, botanists from the botanic gardens and more. The first activity was a walk-and-talk in the forest, including a discussion over coffee and home-made cakes made using foraged and fermented fruits. The second activity was a mapping and envisioning workshop followed by a dinner of foraged foods prepared by a local chef. The workshop took place in a barn in the forest area, next to the (forest-based) home of a future Library steward. Situating the activities in a built structure on the edge of the forest assisted us in recognising our status as visitors, preparing to collaborate with a community of non-human stakeholders, and begs us to consider in what ways our forest library might be planning to colonise this fertile, natural space. National forests in Denmark have as their remit to produce products. Historically that product has been wood. More recently, the forest is reconsidering what its output should be in the twenty-first century. Our intervention in the forest space forms part of that consideration process, though it originates in the community, not in the forestry commission or highest level of government.

As part of our workshop, we held a stakeholder mapping exercise using tangibles foraged from the barn. The barn contained a variety of objects, from embalmed animals to dried flowers and crafted objects (Figure 1). We arranged two tables in the space, napped with

Figure 3: (a) Discussing the influence of the stakeholders and (b) positioning them spatially – both vertically and horizontally – based on levels of influence.

white paper, and provided markers, blank cards and foraged some objects from the barn to set the tone. To commence the mapping process, we invited the steering committee members to identify and write on cards the groups, communities, humans, and non-humans they thought were stakeholders in the Forest-Library. We asked them: Who should be involved in developing the Library, what their role could be, and to consider the role of non-humans. Once the stakeholders were identified, we invited the participants to walk around the barn and forage an object for each stakeholder and attach the name card. This was an unusual request for most of our participants. It involved suspending their disbelief that these random objects might have anything to do with the stakeholders they were mapping. It was not an easy shift. However, they supported each other to collectively negotiate the process. When one participant was in doubt, another rephrased our instructions: "If you feel that there is something that symbolises [your community as stakeholder], then you put it on." The final stakeholder groups included: the botanic garden, the local museum, the permaculture association, local universities and colleges, primary schools, nature, the forest, the state forest, the municipality, local restaurants, chefs, tourists, the local library, the ecologists' association, hotels, the local peninsula council, the nearby national park, two private companies, the two people who live in the forest, the national Nature Agency and garden communities.

The foraging activity led our steering committee members to make abstract and tangential connections, and to think in subtly new ways about each stakeholder group. When reflecting on the process, one participant explained: "The first one I did is the flying bird [pointing to a ceramic bird]. Right now it's calm but that represents tourists. . .somehow activating them or making sure they know about this place [Forest Library]." By associating a ceramic bird to people who will be visiting the forest library, they made a metaphorical connection between the attributes of a living bird and the characteristic of people crossing through places. Another participant explained: "...it's just an object. I didn't think much about it, I'm sorry." Then said, "I only took nature from the garden [outside the barn]." They thus made a literal connection between nature as stakeholder and as object to be foraged. This conflation naturally followed the flow of the exercise and raises questions about the ethics of our process. If we think of nature as vibrant matter (following [2]) and ourselves as settlers, in the sense brought forward by Liboiron [13] and take seriously the growing calls to decolonise design (e.g., [7, 18, 23, 25]), we can begin to open up new kinds of conversations around how we collaborate with nature moving forward. There are no clear guidelines for how to do this. For now, in our work, we aim to open up a space for engaged reflection on the challenge.

The next step in the Forest Library process involved mapping the interrelations between the identified stakeholder groups and the forest. Participants placed labelled objects on the table and drew connections on the underlying paper to make the negotiation tangible (Figure 2). They proposed their perspective of the stakeholder relationships, opened them up for collaborative negotiation, and thus brought them to life. Once everyone was satisfied with this first map, we asked the steering group members to reposition the stakeholder-tangibles in terms of influence. In an unfolding process of action and reflection, the objects were moved to a second table, and placed in new configurations (Figure 3). They began by working from the centre-out, with the most influential stakeholder in the middle of the table. However, it quickly became apparent that there were multiple centres and perhaps also multiple levels of influence. The stakeholder tangibles were slowly rearranged, and vertical positioning was initiated by participants to build upon what they had placed in the centre. To complete the process, they positioned soul and nature on top of everything explaining that they believe that those two have influence over all other stakeholders. The combination of vertical and horizontal positioning allowed for more nuanced interrelations of influence, as well as more nuanced reflection. It enabled the steering committee members to recognise that their first mapping represented the current state of interrelations only. In four years, those interrelations will be completely different, and while there is no way of knowing what the future might hold, it's potential must be considered. This process brought dynamics and contingency into the discussion, afforded by the fact that participants could both reposition objects and remove them.

Figure 4: Participants eating, building, and taking a playful approach to their stakeholder map.

3.2 Food Waste Utopia

Our second case concerns a workshop run by Food Reformers (FRF), a volunteer-led, grassroots food waste NGO in Kolding, Denmark. The workshop brought together organisations who work with food waste and climate adaptation, from both top-down and bottom-up perspectives, to imagine possible futures of co-benefit. FRF is well known in the city and engages with stakeholders at all levels, using foraged surplus food to agitate for change around food waste. Surplus food is food that is still within its use by date but is close to expiry, that supermarkets and other food distributors dispose of. What makes the foods foraged surplus, as opposed to waste, is that it is collected (foraged) from the food organisation before it is disposed of. FRF have agreements with supermarkets and bakeries around the city, who donate their surplus, for FRF to collect and redirect to citizens. They do this through a Free Fridge, dinners, events and participatory co-design workshops where they use the foraged food as sustainable conversation starters for communication and co-design.

3.2.1 Using foraged food as tangibles. The Food Waste Utopia workshop was held in the garden of a well-known community space, around three tables arranged with foraged surplus food. The food served as catering, tangible design objects, a physical manifestation of the food waste problem, conversation starters and an informal way to initiate participant interactions. There were 11 participants in the workshop, representing three broad stakeholder types: local government, grassroots organisations (other than FRF), and FRF volunteers. With the view to affording cross-fertilisation, participants were mixed into three groups, each group with at least one representative of each stakeholder type. Prior experience co-designing with tangibles was also considered when assigning groups, to scaffold active participation.

The workshop involved several activities, including a stakeholder mapping process, undertaken with tangibles. This activity was similar to the first part of the Forest Library stakeholder mapping, described above. However, instead of foraged artefacts from the immediate surrounds, in Food Waste Utopia, foraged surplus food served as the tangibles. Each group was given a large sheet of cardboard and markers and were invited to use the foraged surplus food to represent stakeholders, and to reflect on their selections. They could also supplement their selection with objects from the garden if desired. Using food as a tangible was novel and disruptive. It defamiliarized the subject [12] enabling it to be seen, and thereby considered, anew. It served as an easy icebreaker, at the same time as it was targeted to the workshop outcomes of forging

Figure 5: Stakeholder mappings: *left*: Group 1 positioned the culture-house where the workshop took place, and where one of them worked, in the centre of their map, using strawberries to represent *Building 5*, and leaves to connect it to other stakeholders. *Centre*: Group 2 placed FRF at the centre, as an aubergine, and drew lines on the paper to connect it to the other stakeholders. *Right*: Group 3 placed the sustainable market in the centre, as an orange, and drew connections on the paper; one of their group members is the founder of the market.

new connections and deepening knowledge exchange. Using food in this way provided a common point of curiosity: why work with food? and raised concerns about waste: it's highly problematic to waste this food. Such questions and concerns afford an emergent understanding and collective agreement that if the food is handled mindfully, it can still be taken home and eaten. Therefore, working with food, in a workshop on food waste, can be intrinsically ethical in the ways that it aligns with commitments to address waste, both in situated circumstances and systemically, as it brings focus to such concerns.

The stakeholder mapping exercise was limited to 10 minutes, to support fast ideation. Participants seemed immediately comfortable using food to represent stakeholders. They seemed immersed, were laughing and took a playful approach (Figure 4). Once each mapping was complete, the groups presented their maps to the others and explained their choices around stakeholder representation. During these presentations, they continued to negotiate their understanding of their stakeholders, and participants from other groups made suggestions to expand the map. This collaborative expansion of each other's maps supported the workshop intent to broaden the knowledge of potential stakeholders, for the participants and FRF.

Participants seemed intrigued by each groups' choices around stakeholders and the item chosen to represent them. There was large overlap, but also inherent differences. Each map had the organisation of one of their members at the centre (Figure 5), a common approach to mapping. Other group-member placed their organisations near to the centre, signifying importance. The mapping, thus, made biases clear, but was not without value, as the purpose was to find connections between the participants, to expand their understanding of their own organisations' stakeholder landscape, and find opportunities for collaboration and co-benefit. Unsurprisingly, all maps included the municipality, and the most active (and thus prominent) local organisations: the sustainability market, the Green Business organisation, and a clothing swap organisation. However, they selected a different food to represent these organisations. The municipality was presented as an orange "for no particular reason" and as green kale. An employee of the municipality explained: "the municipality can be a bit boring sometimes, so we chose the kale" their group member added that "both [are] available all year." In another group, kale was used to represent a climate organisation called Green Kolding, who chose it because of the colour. All groups, to some extent, reflected on which food selections they made but some justifications seemed more explicit than others. For one group: "the broken banana represents Repair Cafe" because the organisation repairs broken items. Another used the banana to represent a bakery called Easy Food: "because it is easy for the stomach". In a different map, Easy Food was represented with a pastry "because they produce sweet bakery goods". This final selection was literal. For the most part, though, groups seemed to work metaphorically. Divergences were interest driven. For example, the participant who initiated an urban garden included gardening stakeholders in their group's map. Despite the workshop being run by FRF, and the importance of supermarkets in their surplus food foraging model, and FRF volunteers in each group, only one group included supermarkets in their map.

At the end of the workshop, participants explained that as the food was foraged surplus—rescued on its journey to becoming waste—they felt comfortable and inspired to be playful with it. They felt that this foraged surplus food assists in conversation- and awareness-raising about food waste. One said: "Food is a way to people's hearts. It is an easy way to encourage people to take action and do something about the climate or their usual life. It is a nice way of changing people's view on consumerism and that we do not need to throw away things that can be used. The food can be used to have something physical to point out to people, so they can see that they can do something." At the end of the workshop, we donated, or participants brought home the majority of the food that was used, thus returning it to the more-than-human nutrition cycle.

4 CONCLUSION

We present two stakeholder mapping processes, conducted using foraged tangibles. The first used articles foraged in the workshop locale; the second from within the local food system—rescued surplus food on its way to becoming waste. In the first instance neither the articles in the barn, nor the stakeholders to be considered were known in advance, and the tangibles had little to do with the subject matter beyond sharing place. In the second case, the stakeholders

were known, and the tangibles literally embodied the matter of concern. Both cases involve nature – the forest and fruits and vegetables – to afford deeper engagement with the idiosyncrasy of the context, and placed participant assumptions about context and belonging into question.

Robertson & Simonsen [19] argue that "design can be studied as moments of idiosyncratic individual illumination, where a novel solution to a problem occurs." We propose our participants' mapping efforts as a step in a negotiation process that aims to forge connections and form community. The foraged ready-mades eased communication between workshop participants, and troubled their connections with place, leveraging juxtaposition and collision to defamiliarise assumptions, and enliven the mapping process.

Using any kinds of materials in PD raises the spectre of sustainability. We challenge ourselves to consider material sustainability in social, as well as environmental terms. We turn to Liboiron's [13] assertions that pollution is an enactment of ongoing colonial relations to Land; that there are ways of doing pollution action using methods that are specific, place-based, and attend to obligations; and that methodologies "are always and already part of Land relations and thus are a key site in which to enact good relations (sometimes called ethics)" (p.6-7). We do not pretend, with this nascent work, to solve the challenges of making PD processes sustainable. More humbly, we take seriously the idea of decolonising design in more-than-human, social and environmental terms; raise an idea and open our thoughts-in-action to the scrutiny of the PD community. The hope is that others might join us in this inquiry moving forward.

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