

# Design Disruptions in Contested, Contingent and Contradictory Future-making

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**Abstract.** This paper aims to problematise how we step into situations that are often contested, contingent and contradictory. In this context, how can we sharpen our sensitivity to the role design plays in generating understanding and future-making possibilities? Here, we employ the term *disruption* as a way to question our own knowledge construction and research practices in design anthropology and participatory design. We pursue disruption as a *political and necessary* consciousness when design anthropology meets participatory design and discuss the generative, reflexive and analytical dimensions of disruption through three vignettes. These vignettes raise questions of how we interrogate disruptions of power to consider different ways in which this manifests when entering into and participating in on-going changing process. They also highlight the need to displace existing knowledge, rather than pursuing 'mutual learning' that had been a defining commitment of participatory design. Lastly, the vignettes reveal the need to disrupt the designer-researcher in order to surrender to contradiction and contingency as part of future-making.

**Keywords:** design anthropology, participatory design, disruption, politics, heterogeneity, contradiction.

## 1 Politics of disruption

We embark on this paper to problematise how we step into situations that are often contested, contingent and contradictory, and in such contexts, discuss how we can sharpen our sensitivity to the role design plays in generating understanding and future-making possibilities. Grappling with design anthropology (DA) and participatory design (PD) is a useful start because a common aim they share is to enable social change by intervening in existing realities. These fields both explore interventions as a method for change. PD's intervention is driven by an ethical motivation for design to support, enhance and empower people in shaping their world and workplace [1]. In turn, the emerging field of DA incorporates design as a robust future-orientated research methodology. DA differs from the pragmatic orientation of design ethnography by emphasising interventions as acts of doing and making as forms of critical inquiry into emerging worlds and possible, potential alternatives [2, 3, 4, 5]. Some of these are methods combined from design and ethnography to expose

habits, norms and standards [6] and as ways to embrace generative forms of uncertainty [7]. Ethnographic knowledge is created through action and interventions [8,9], and in negotiation with traces of the past and conditions in the present to create future imaginations [10]. Designing thus becomes a political question [11] of what, how, when, why and with whom such interventions happens. This political question seems to be more pronounced in the ethically oriented approaches in PD than in the future oriented DA discourses. At the nexus of DA and PD, we therefore find a challenge related to what critical questions are posed, how they are explored and how negotiations about them take place. Here, we employ the term *disruption* as a way to problematise our own knowledge construction and research practices in DA and PD.

‘Disruption’ has multiple lay meanings ranging from disturbance, disorder, disassemble and interruption. It has a problematic association than the term ‘intervention’ and it has precedence in design. Disruption is implicitly pursued, for example, in critical and speculative design that takes the form of fictional and absurd future-projections to ask difficult and ignored questions and to provoke and disturb common understandings [12,13]. Such initiatives follow intellectual trajectories of avant-garde movements in art and design such as Dada, Situationists and Deconstructionists where objects, environments, and performances carve alternative cultural spaces for ambiguity, play, humour, critique, provocation, debate, imagining and creativity. This broader framing helps us situate our discussion as part of an ongoing trajectory to make visible the plurality, heterogeneity and incompatibility that design meets in cultural and political encounters. As such, we touch on the suggested themes of ‘understanding vs. emergence’ or ‘description vs. intervention’ in this journal’s special issue, and aim to go beyond this by pursuing disruption as a *political and necessary* consciousness when DA meets PD. Disputing and discontinuing existing practices through critique and analysis, as well as in catalysing shifts, involve re-thinking and transformation as a generative move. We foreground disruption in this paper as a fulcrum for reflexively problematising disputes, rather than proposing disruption as a framework for how interventions should be made in DA and PD. Thus, the disruption we speak of is less about defamiliarising, ‘making strange’ or questioning bias or assumptions, as the classical ethnographic interpretation of disruptions is related to methodological reflexivity. It goes further. We have observed that other conditions of disruptions characterise contexts of design anthropology, as illustrated in our vignettes.

We see the notion of disruption as a productive idea because of its various connotations, and thus we do not seek to fix and define what it is here. Instead, we seek to explore how its various meanings can open up our understanding of interventions when aiming for social change. For example, its unpleasant connotations are helpful in recognising the confusion and turmoil that often accompanies the changes that design brings to bear. Change is hard work. There is labour, emotion, resources, knowledge and expectations that become invested in it. Yet, unpleasant and confusing accounts have often escaped capture in case studies of design, perhaps in pursuing a desire to report on successful outcomes rather than on failures (see [14]). If we foreground design as a disruptive practice, how could this help address conflicts of situated knowledge when feelings, mindsets and values do not align? The vignettes interrogate the generative dimension of disruption that can reveal incompatible practices, entrenched value systems and contradicting politics.

Secondly, when we design with people, we are interventionists or researchers that often view change as external, applying only to those whose conditions we are seeking to improve. In other words, change that is required in others' behaviours, in systems, in products. DA can help extend this perspective as it already has a body of literature on anthropological critique and methodological positioning. How can DA contribute to PD with a reflexive discussion of the changes required of those that provoke disruption as part of designing? Where is the disruption of the designer / researcher? To recognise that change can be upsetting and confusing, demands a consideration of ethics beyond the standard research guidelines in a way that brings in a level of care, sensitivity and inter-personal mindfulness [15]. Disruption is pursued as an analytical lens in the vignettes to problematise how we engage with contested, incompatible, conflicting and resisting entities. Disruption is also explored reflexively to help us understand the cultural challenges and changes of design processes.

## **2 Disruption in Design Anthropology and Participatory Design**

As an emerging field, DA is not a neat, seamless coupling of design and anthropology but one that can be characterised as being disruptive when combined. We see this field led predominantly by anthropologists who are attempting to bring design into their research by working with designers or integrating creative, speculative practices. A prominent anthropologist like George Marcus argues for this disruptive process to 'dismantle ethnography's aging frame, tear it down to its most basic elements, and then reconstruct something new ... with the goal of rebuilding the core engine of anthropology' [16:261]. This also means that DA is actively disrupting the transactional relationship of design ethnography where ethnographic research served the purposes for a designed outcome. This has the twin consequence of including interventionist and material approaches within anthropology, but also of creating new discourses around ethnography in design as an interdisciplinary endeavour that provides a form of disruptive practice to embrace uncertainties [7]. Interdisciplinary research and teamwork requires that we "give up the safety of competence and specialism, and instead enter a terrain beset with fears of inability, lack of expertise and the dangers of failure. The transformational experience of interdisciplinary work produces a potentially destabilising engagement with existing power structures, allowing the emergence of fragile forms of new and untested experience, knowledge and understanding" [17]. As a discipline still in its infancy, DA "lacks tools and practices to actively engage and collaborate in people's formation of their futures" [4:3], and with it, ways to embrace disruption and cultivate methods for dealing with incompatible and resisting entities.

In contrast, PD has a rich history of dealing with disruptions. Early Scandinavian approaches to PD addressed conflict and contradictions as resources for design [18,19,20] and these are still encountered in contemporary PD discussions [21,22]. There is precedent of embracing 'breakdowns' and controversies as generative forms of disruption that offer rich learning experiences and new insights that open up avenues for exploration [23]. Bødker and colleagues argued to see breakdowns as triggers to re-examine, re-focus and re-shift approaches taken for granted, and provide

a variety of breakdown examples. These include situations when the object or focus changed between actors that revealed contradictions and assumptions held, or when users improvised certain actions that revealed new approaches for designers. Instead of attempting to avoid such breakdowns as failure indicators that often happen unexpectedly and serendipitously, their account suggests a reflexive, open and co-operative learning process among project stakeholders.

The constructive controversies in early Scandinavian PD pursued 'democracy at work' in political, imaginative and passionate engagement of empowerment. In more recent discussions, PD has deliberated ways to manifest and align a variety of conflicts, controversies and 'matters of concern', reflecting design contexts that are more "heterogeneous, partly open and public" [22:57]. Björgvinsson and colleagues draw parallels with 'agnostic democracy' in political theory to describe 'democratising innovation' where it "does not presuppose the possibility of consensus and rational conflict resolution, but proposes a polyphony of voices and mutually vigorous but tolerant disputes among groups" [21:48]. This includes breakdowns and controversies to be considered as forms of productive and generative disruptions. These seek to challenge the status quo and can be pursued as political acts by design researchers.

When DA meets PD, we believe DA can help bring awareness to disruptions that may be invisible as a way to examine the unintended consequences that are impossible to know in advance. This is needed more so because contemporary discourses in PD are transgressing 'bounded' views of design to embrace the heterogeneous, poly-voiced perspective of complex constellations of users, contexts and purposes [24]. PD processes are no longer neatly delineated with a start and finish in bounded workplaces, identifiable sites, stakeholders and contexts. These are emerging perspectives that PD is wrangling with [22], and requires a shift from its history and tradition where participation and intervention were directly coupled inside work-place settings, usually via designing information and communication technologies (ICTs). We do not view PD merely as a literal process of user-participation in designing artefacts or solutions, but one that demands care [15], cultural relations [25] and consideration for challenges of handling local knowledge and experiences [26] in collaborative processes. This is important especially in its contemporary framing where design is distributed, mobile, diverse and heterogeneous. However, this means that the political in DA needs to go beyond writing reflexive representations and academic accounts of design as cultural critique [27]. The ethical and political motivation of PD will enable DA to examine its political act of disarranging configurations of everyday life. This means when DA and PD are brought together, there is a commitment to an ethical and political approach whilst entering into conflicting and contested contexts without requiring a design resolution. These will be further explored in the vignettes.

The vignettes are written from each author's current research projects in participatory design. They are undertaken in three different continents, Australia, Northern Europe and South Africa, and in three different empirical fields of indigenous governance, science communication and health promotion, and explored through practices in design, ethnology and anthropology. This diversity provides a fruitful context to examine the variety of ways in which complexities were encountered, manifested and reflected upon.

## 2.1 Vignette 1: Complexities of collective self-determination

Yoko Akama is a participatory design practitioner who works alongside Aboriginal and Torres Strait Islanders (ATSI) to strategise self-determination in the absence of formal nation recognition by Australian governments<sup>1</sup>. This inquiry undertakes a participatory action research orientation to promote governance and capacity building for Indigenous communities to self-govern effectively, to exercise jurisdictional power, to manage natural resources and regulate economic activity in accordance to Indigenous nation's identified goals. The political orientation of this research aims to challenge the Australian government policy that focuses on Indigenous disadvantage and ignores Indigenous innovation. Akama is in a research team that partners with Indigenous nations to develop structures and strategies to mobilise agency in engaging with the State in order to decentre the coloniser. This is a process of 'nation-building' and is part of a strategy to enhance ATSI peoples' capacity for collective self-determination [28]. Diversity plays a complex role in Indigenous nation-building as there are many other multi-ethnic residents and non-indigenous Australians like Akama's research team who are also actively participating in Indigenous nation building processes. In other words, Indigenous nation building is not undertaken in cultural and social isolation by ATSI people alone. As a way to make visible and promote poly-vocal conversations, activities and engagements of Indigenous nation building in Australia, the team is pursuing an idea of designing a digital platform where people can upload their stories of nation building. Whilst this appeared to be a democratic and participatory way of collecting content and sharing stories, this also raised critical questions of the sensitivities involved with cultural knowledge. The Indigenous Cultural & Intellectual Property (ICIP) in Australia uphold rights of Indigenous peoples to protect their traditional knowledge, practices and cultures to be based on the principle of self-determination. This also means that some individuals or groups have permission to speak for a particular people, Country and traditional knowledge, and some do not. It required Akama's team and their Indigenous research partners to interrogate who gets to decide the appropriateness of stories and the cultural knowledge relevance of these, and once uploaded to the digital platform, who then owns the stories? Here, we see a clash between democratic and pluralistic view of sharing and participation with Indigenous cultural laws that determines the gender and kinship specific ways of telling certain stories in a multi-ethnic society like Australia. When these concerns were discussed with the Indigenous partners, the elders' opinions came with status and authority that dominated the conversation, creating a condition where others were respectfully silent. Collective guilt about past and present wrongs to Indigenous Australians shape such discussions and relationships [29]. Negotiating this emotional, difficult and incompatible terrain is a real, living experience for ATSI people, further compounded by the complexity of Australian colonial history and multi-cultural society. The Indigenous writer, Alexis Wright expresses, "I am interested in the reality of our social, political, economic and cultural position in today's Australia as a consequence of the continuing invasion and

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<sup>1</sup> *Indigenous nationhood in the absence of recognition: Self-governance strategies and insights from three Aboriginal communities* is a Australian Research Council funded three year

our on-going war against genocide. However, I am also interested in our lives before the invasion, our culture in spite of the invasion, and I'm searching for the corners of the soul where joy can be found" [30:19]. Here, she alludes to various complex dimensions that are part of the Indigenous nation building experience, such as the entrenched colonial treatment and racism that many ATSI and multi-ethnic Australian residents encounter; the temporal bridging of cultural traditions "before the invasion" and the "cultural position in today's Australia"; and despite the obstacles, a desire for hope and demonstration of resilience by searching for joy in the "corners of the soul". It is important to imagine how things might be different, and design can play a role here. Indigenous nation building is a movement undertaken by many as an intersection between conscientisation, resistance and transformation [31] and Akama's team is willingly stepping into this conflicting and contested space, sharing the discomfort and challenges by reflexively questioning what design interventions could mobilise, support and sustain in Indigenous nation building.

## 2.2 Vignette 2: Transforming institutional practices

Dagny Stuedahl is an ethnologist involved in the science communication project *EXPAND* in Norway<sup>2</sup>. The project aims to expand science education and communication to re-think how science can engage young people. Participating science educators are passionately involved in the project to integrate theories of learning in exhibition design. Exhibitions and installations in science centres are usually purchased from external design firms without involvement of the educational department. The lack of input from science education, often perceived as having a lower position in museum hierarchies than curators, has resulted in installations that communicate science very poorly. Educators are concerned that this may lead to misconceptions of and even disengagement with science. The goal of the project was therefore to empower educators with methods, knowledge and skills to argue for new practices and inclusion of the whole staff in exhibition design. *EXPAND* meanwhile also attempts to question the educators' own practices. This is because education in science centres and museums, for different reasons, resemble instructional learning in classrooms. Educators in science centres are concerned in keeping relevant to school curricula, mainly to engage schoolteachers to prepare and follow up on the visit to the museum. Meanwhile, schooling methods leave little room for the free-choice learning that museums and science centres potentially provide. Questioning this orientation, the *EXPAND* project aimed to form educational activities that both support school based learning but that also promotes alternative learning experiences specific to science centre exhibitions.

The idea behind *EXPAND* was to teach collaborative design methods to science educators as a strategy to change established practices and introduce alternative ways of doing learning designs that better include exhibition activities. The project

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<sup>2</sup> *EXPAND* – Exploring and Expanding science centre research, 2011-2017, financed by Statoil, has collaborated closely with science educators from nine science centres in Norway. See Name Withheld et al (2014) for more.

undertook participatory action research and embraced the internal disputes in the science centres and supported the educators in handling institutional conflicts and controversies they encountered as a consequence. Participatory methods such as Future Workshops (FW) were introduced as tools for including staff in collaborative practices as a future oriented approach in the project. The educators' design-diaries revealed that they found the FW exciting and helped them believe "that everything is possible." It enhanced their progress from "absurd ideas to ideas with more substance" and to arrange idea generation in an open ended way without "being constrained by economic, institutional or technical normative". They also understood the method as a "way to bring more people in to creative processes." However, few educators saw the FW as relevant for establishing new collaborative practices in their museum or science centre. None of them reflected upon how FW could be used as a method to involve other staff in establishing other practices of exhibition making. This prompted Stuedahl to interrogate whether the co-design method was the right one, whether the action research approach needed to communicate its radical aim more clearly, and whether transformative processes needs to attune more closely to the context, activity and consequences of the educators' practices. FW reminded of brainstorming methods they were familiar with, and if appropriated, it could potentially have provided tools for the staff to generate interdisciplinary ideas. However, Stuedahl critically reflects that they were not provided enough evidence to convince of its advantages as a strategy for re-design and therefore lacked the characteristics of a credible method strong enough to introduce new practices of collaboration. In other words, the FW method did not build capacity and authority to argue for change, and to seed impact in the longer term.

It is impossible to know whether the educators will pursue the FW method at a later date, because their changes-in-practice is a matter of continual becoming [32]. Yet, this critique provokes questions of what design methods can accomplish when its role, meaning and relevance does not enable various actors to change their local and situated contexts.

### **2.3 Vignette 3: Contested spaces of culture**

Izak van Zyl is an anthropologist involved in a human-centred design project since 2013 in Grabouw: a small town located in the Overberg District on the outskirts of Cape Town, South Africa.<sup>3</sup> The intervention was conceptualised by a design-research team from a local University of Technology, in conjunction with a non-profit organisation in the community. The organisation contracts community health workers that are responsible for disseminating information on healthy living, contraception, and medical male circumcision. This is due to the prevalence of sexually transmitted infections and HIV/AIDS in the region. Health workers are stationed at 'high transmission areas' like taxi ranks and shopping centres and their task is to discuss health-related matters with community members. The overall aim of health promotion

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<sup>3</sup> See *At the Intersection of Indigenous and Traditional Knowledge and Technology Design*, Informing Science Press, 285-295, (2015)

in Grabouw is to help change high-risk sexual behaviour to reduce the prevalence of sexually transmitted infections.

The goal of the design-research team was to explore and address the challenges faced by health promoters. Based on this, they aimed to propose a collaborative intervention, initially with the view to harness information technology in disseminating health information. They conducted ethnographic fieldwork, and invited health workers to co-design interventions suited to their 'needs' (as mediated through the team's own observations). Team members strongly believed that they were collaboratively developing necessary interventions in a community burdened by high disease rates and poverty. Together with the participants, the designers intended, thus, to alleviate the disease burden by emphasising health promotion, awareness and prevention of sexual diseases.

The design team quickly fell victim to their own (sometimes naïve) assumptions, however, as they became entangled both in the cultural complexities of reproductive health, and in the politics of power that so often plague 'external' (e.g. non-local) designers. When the project commenced, designers were intuitive adherents of a biomedical model of health promotion, with its focus on prevention, contraception and treatment. As the project unravelled, conversely, they understood that health promotion in Grabouw – based on a biomedical model – is often rejected in the face of 'cultural scripts of indigenous knowledge': values, customs, and 'accepted' sexual behaviour that are exhibited by members of the community. These scripts are widely held ideologies that determine sexual behaviour and inform assumptions and expectations [33]. As such, they regulate attitudes toward reproductive health, including the beliefs that condoms are unnatural and unreligious, that HIV testing is unnecessary, that transactional sex is customary, and that medical male circumcision is non-customary, especially in a context where nonmedical circumcision is an important initiation rite. Paradoxically, these beliefs may well contribute to higher incidences of sexually transmitted infection, disease and eventual death [33, 34].

In light of this, members of the community often regarded health promoters with some suspicion, as if they were campaigning for something completely alien to the local context. This was largely because health promoters adhered to a biomedical model of intervention; one that did not generally accommodate cultural scripts, and thus disregarded the community's cultural systems of local belief. Here, the complexities of human-centred design became articulated: firstly, the predominant biomedical model (as advocated by health promoters) was unwittingly at odds with local cultural scripts; and secondly, designers somehow needed to promote social change within this complexity.

This narrative brings two key aspects to bear: the intrinsic role of culture and indigenous knowledge, and the existential position of the designer in instituting participative intervention. To affirm: "this is a confronting pursuit for the technology designer, as s/he is challenged with carving out acceptable interventions amid contested spaces" [26:8]. These spaces are contested precisely due to their heterogeneous ideologies – for example cultural scripts in relation to biomedical prevention – and existing power dynamics. Could design-researchers further contest these spaces both in principle and in practice? From a conventional anthropological perspective, their immediate objection was that they could not change the current



practices and beliefs around sexual wellbeing, especially in a time-constrained project. When reflecting on this project, Van Zyl maintains the contrary

### **3 Disruption in and of Design**

The vignettes raise important questions about the practice of design and its implications in very complex settings. Here, foregrounding disruption can help us problematise tensions, conflicts and controversies when design intervenes. All three vignettes describe accounts that contrast with how design interventions are commonly reported as problem-solving or problem-stating acts that starts at one point and end at another, controlled and evidenced in place with a clear (external) origin, and a linear progression toward collaboratively realising an outcome. Meanwhile, this linear perspective of the design-use divide seems to miss that complex changes are already in train among people [25], and that design interventions cannot be the only or main agent of change. Instead the accounts shared above point to design as critical tools for enquiry beyond defined problems. Interrogating how disruptions happens usefully reminds us that change is also a contested process involving power, knowledge and self-reflexivity which design can stimulate awareness of and support collaborative forms to explore possibilities. These are discussed in more detail below.

#### **3.1 Problematizing disruption of power**

Vignette one and three highlight disruptions of power in a politically charged setting, undertaken not just by the researchers but also by partners and the community as well. The first vignette on Indigenous nation building is a forceful and political disruption that challenges Australia's colonial history of Indigenous cultural extinction yet arguably, it is not simply a disruption of power, authority and dominance of the coloniser by the colonised [35]. Vignette three describes power in relation to biomedical and traditional understandings of health and sex. Whilst both highlight issues that typify post-colonial concerns, the vignettes also reveal how power-relations are not fixed states but always partial, liminal and negotiated in constant flux. Vignette two illustrates the difficulty of entering into existing power-relations, and how design methods need to be built on deep understanding of on-going alignments in institutions and disciplines in order to enable epistemological disruptions. By problematising the disruption of power, all three vignettes illustrate different ways in which this manifests when entering into and participating in the on-going changing process where multiple sites and expressions of powers collide.

This way of articulating disruption of power contrasts with the traditional view of PD, which was to provide resources "with a view to the empowerment of weak and marginalised groups" [22:57]. Some of the seminal contributions in participatory design regarded power transference through collaboration as central to achieving whichever were the desirable aims [36,37,38]. The argument goes that, if situations were to be intervened in, the 'recipients' of such interventions need to stake a claim in them so they can partake in the betterment of their lives. However, descriptions and

distinctions of power-relations are not as clear-cut between ‘weak’ and ‘marginalised’ versus the ‘empowered’ anymore, as the vignette disclose. In today’s global and public context of PD, design is involved in social change processes that go beyond the defined workplace. If we are not careful, the empowerment or ‘betterment’ could inadvertently invoke a type of colonial and patronising relationship. Thus, the act and intention of PD could bear similar resemblance if we do not pay attention to power-relations in new ways. This is echoed by Arnstein [39:216]; “the idea of citizen participation is a little like eating spinach: no one is against it in principle because it is good for you”. The dilemma here, she adds, is that participation quickly becomes an empty, distorted ritual; a vehicle of directing power rather than of change.

Also, questioning how power is disrupted helps us avoid the problem of external power and ‘Othering’, reminiscent of Said’s *Orientalism* [40]. Escobar [41:23] has long argued that, with the deployment of power and intervention, social groups can be segregated, mapped and produced. By means of this discourse, underlying the concerns of empowerment are individuals, governments and communities seen as ‘underdeveloped’ (or placed under conditions in which they tend to see themselves as such), and risks being treated accordingly (ibid.) Design can become an alternative way to convince people of better alternatives; a way of instituting power, of segregating and mapping ‘other’ worlds [41]. This does place people under conditions in which they perceive proposed alternatives as fundamentally necessary. As designers, we are wielding power and we can also inadvertently construct Third/Other Worlds. Design in contemporary society and in the context of increasing global and digital world needs a better framework for supporting these emerging forms of collaboration [42]. As such, it is useful to re-think how design can disrupt its own power, and how design disruptions potentially may switch or illuminate order, and function as acts of critical thinking [11] or making publics by projection [43].

### **3.2 Displacing existing knowledge**

The vignettes reveal the need to displace existing knowledge in order to accommodate or generate new forms of knowing encountered through acts of designing with others. They speak to the need to confront security and comfort of existing knowledge in order to pursue a risky and discomfiting change process towards future possibilities. On the surface, vignette two might appear like a ‘conventional’ PD project where participants enjoyed learning novel design methods during the Futures Workshop in order to change their workplace practices and structures. This attests to PD’s commitment to knowledge exchange between users, designers and researchers, in order to guarantee immediate benefit from their participation in designing. This is often described as the translational work needed to collaboratively envisage future technologies and to equalise power relations [44,45,46]. In the past, this knowledge exchange was understood as ‘mutual learning’ based on existing practices [47]. Currently this understanding is placed under scrutiny by the need to include learning as an outcome of intra-actions with a range of entities, imagining prospective outcomes and figuring future possibilities [46,48]. The expected positive, productive and beneficial qualities of knowledge exchange that arguably used to demonstrate the advantage of PD process is challenged by the vignette, and may need further

broadening.

Vignette two contains critical reflection on the relevance of Future Workshops to change educators' practices, and it probes how enactments of methods also needs re-thinking, as the temporal nature of co-design interactions may not carry forward beyond the sites and moments of participation. It reveals how simply learning collaborative methods was not enough to catalyse shifts in the longer term, and that the design methods did not have sufficient agency to enable the science educators to change their institutional practice. Similarly, in vignette three, the need for disruption was revealed when local health workers and designers recognised the prevalence of biomedical language with a focus on prevention, contraception and treatment and to displace this with an understanding of cultural scripts and systems of local knowledge and beliefs. When disruption is foregrounded, we can problematise 'mutual learning' that had been a defining commitment of PD [46] to question how design can disrupt the knowledge asymmetry between actors.

### **3.3 Reflexively disrupting the designer-researcher**

DA can contribute to PD by provoking disruption of the designer-researcher and introduce reflexivity as an integral part of the participatory processes. The vignettes speak of the constant negotiations that are taking place between boundaries, positions, value and knowledge systems among designers, researchers and participants. They remind us to reflexively question the role and expectations of designing when encountering entities and cultural systems where conflicts and controversies already exist [49]. This is seen when the science centre educators in Norway resisted alternative methods of co-design as a legitimate strategy to changing their institutional practices; and how the community in Grabouw had suspicions of health promoters and perceived them to be campaigning for something completely alien to the local context. Similarly, incompatible value systems manifest when a digital platform is proposed, catalysing questions of governance, structures and participation that are also necessary considerations for a broader Indigenous nation building discourse. Taken all together, a designer's position emerges by being shaped by the encounters, relationships and emotions of the research, which necessitates the need to embrace these contingencies.

Acts of disruption can surface contradictions and promote frictions to reveal phenomena and agendas previously hidden from view. A democratic process necessitates ways to embrace conflict [50,51] and some scholars in PD are exploring theories of agonistic pluralism [52]. In some settings that include ordinary people, the issue resists identification and articulation [43,53]. As such, the coordination of contradictory perspectives poses a challenge for design because it demands these to be articulated synchronously in one setting, when arguably, these cannot be scheduled and are often revealed accidentally through rubbing up, colliding and bumping into one another. The shift here is subtle. Foregrounding disruptions can acknowledge and consciously invite dissonance as political acts through turbulence and contingency of designing, as we see in the vignettes.

Disruption of the designer-researcher means to relinquish the need to 'align' conflicting 'matters of concern' among plurality and heterogeneity, and instead,

surrender to contradiction and contingency as part of future-making. Here, we may all experience an aspect of 'thrown-ness' [54] more than 'situatedness' [55], when designing involves social process of silent influences. Being thrown out of one's certainty and comfort is to also to discontinue, abandon and reorient one's approach and to change tack. Disruptions in these settings might be about agility, improvisation and handling incompatibility. This points to how intersections between participatory design and design anthropology may further understandings of conflicts in collaborative endeavours.

## 4 Concluding thoughts

We have argued that foregrounding disruption usefully challenges ideological expectations in design. We believe that researchers, participants and all involved can participate in emergence and encounters to notice, learn and act according to what are being revealed. This reflexive understanding of design's situatedness in time, space and location is relevant for practices of change [56] and this was a domain of anthropologists to provide accounts of. However, DA and PD need to go beyond providing accounts and make an ethical and political commitment to willingly step into unknown futures together with all their constituents who are embarking on change. Within this perspective, disruptions could be pursued as a generative force in collaborations between designers, anthropologists and research participants.

Indeed, our explorations of disruptions prompt fundamental questions about design, where the 'design' enterprise can be extraneous, paradoxical and linearly inclined. It is precisely these contested and 'emerging' spaces (see [57]) that DA and PD must problematise within its discipline and methodological approaches toward complexities of social processes of change. As we have argued here, disruptions are constitutive of imagining futures, of collective sense-making, and influence the quality of participation in design processes. Focusing on disruptions has helped us carve out core aspects of design processes in the three cases; of the incompatibility that the design case in Australia has to deal with, of the challenges of finding design methods that give a good fit with participants epistemic cultures in the Norwegian case, and of the need for design processes to be aware of already on-going cultural change in the South African case. In this way, the focus on disruption address the primary ingredients that have been part of PD's concerns with participants' abilities to take position in decision making, access to information, control of process, appropriate participation methods and technical or organisational arrangements [58, 59]. A heightened consciousness of disruption in design can help us reflect upon how all these concerns of PD processes are involving disruptions of practices or mindsets that are difficult to articulate, but that need to be traced. The shift we suggest is to build upon how PD has seen conflict as resource, and to reflect on disruptions as 'mutual changing' of constituents [60:70] instead of 'mutual learning' [61]. As discussed in the introduction, PD's shift of reference from intervention inside bounded work-place settings towards heterogeneous and distributed socio-material assembly of actions coincides with DA's interest in the ontological view of design as enmeshed and assembled [62,63] activities to emplace the design-use divide. This

enables an understanding of design, not as introduced externally or objectively [64], but as processes constantly in the 'middle of things' [35] and we may find ourselves always somewhere in-between [65]. The three vignettes further remind us that design interventions and its impacts are often imperceptible, fuzzy, vague and intangible, where it is harder to articulate and demarcate change. Too often, the incremental details of transformation remain hidden by their very nature of being silent, internal, layered, ephemeral, dispersed: all of which are difficult to capture and articulate [65,66]. We need to articulate these emerging qualities of knowledge, transformations and matters of becoming in and through design processes as a valuable contribution in DA and PD.

DA has the potential to help PD re-position itself as a form of social change, to provide theories and perspectives of social and cultural dynamic processes. Our focus on disruptions rests on perspectives in anthropology that embrace an understanding of culture as constituted by pluralism, heterogeneity and multiplicity. Regarding disruption as on-going, transient, heterogeneous, fluid and contingent requires us to understand how design is a living change process that involves other forms of power relations and resistance than we have seen in earlier PD. We also remind that PD has to work differently to withhold its goal of being a tool for empowerment, as the concerns foregrounded today may be more about designing infrastructures that can enable and support people with agency [21,52], and embrace multiplicity. Disruption then implies to step willingly and carefully into this risky and uncertain condition but also to take responsibility for challenging existing power relations in ways that participants alone cannot. This may include embracing 'failure' from the outset and pursuing an 'error friendly' approach [42]. Intervention into cultural resistance and conflict are disruptive in any dynamic process. This is DA and PD's empirical context, as well as a methodological, ethical and political challenge for us all to pursue.

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