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Tristan Schultz is an interdisciplinary designer, strategist and researcher with a Master of Design Futures (Hons) and Doctoral Candidate. To watch Tristan’s recent TEDx titled “Unsettled? Map & Design Futures” see the link below. He co-founded the ‘Sold Coast Project’ and ‘Redirective Practice’, both social design collectives. From 2014-2016 Tristan has been appointed a panel member of the Australia Council for the Arts as an Aboriginal and Torres Strait Islander Arts Strategy Panel Member.


COGNITIVE REDIRECTIVE MAPPING: DRAWING TOGETHER KNOWLEDGE PRODUCTION

Extending from earlier work (Schultz and Barnett 2015), this paper is focused on four considerations of drawing together knowledge production using Cognitive Redirective Mapping: Drawing together with the hand; drawing together assemblages and mess; drawing together information design techniques and performing drawing together. Two case studies are also explored. Cognitive Redirective Mapping confronts an imperative to ‘see’ and explore knowledge production that can navigate paths through a problem and draw things—causalities, concerns, appearances and gatherings, together in order to contribute to redirecting destructive futures.
Introduction

As was the case for Walter Benjamin in his reading of Paul Klee’s artwork print *Angelus Novus* (1969) of future challenges piling at our feet, it has become increasingly clear that ‘we’, that is predominantly Modern Western Society with our backs turned to the future, lack the ability to ‘see’ the complexity of future challenges. These challenges include climate change, population growth, and a continuation of colonialism, war and the effects of technology amongst others. To adequately see future challenges we need to find ways to see relational complexity, however this skill has been lost to rationalism.

Cognitive Redirecive Mapping is a performative drawing of assemblages that contests such linear rationalist thinking, a somewhat visual approach to Bruno Latour’s ‘Actor-Network-Theory’ (2007). The processes and case studies discussed here will be useful to anyone, as evidenced by participants ranging from school children to senior executives. It is especially useful to those feeling a responsibility to utilise design thinking and creative methodological processes to enable platforms of participant capacity building and research gathering that exposes controversial things. Bruno Latour called designers to action, in a famous speech in 2008, where he noted that designers, since the Bauhaus, and even long before that, have demonstrated great skill in designing objects, in drawing architectural sketches, mechanical blueprints, scale models, prototypes—making visual languages. But in this design work he did not find the controversies and the many contradicting stakeholders that these objects bring with them. He suggested that the designerly ‘drawing’ skills of designers could be put into play – not just to design objects, but rather to draw things together, by opening up controversial things (2008). Frederic Jameson argued in 1990 that we lack ‘cognitive mapping’ skills to make our own world intelligible to ourselves through a situational understanding of our own position in it (Srnicek 2011).
With these calls to action in mind, the ambition of Cognitive Redirective Mapping (CRM) is to facilitate a way to rethink ways to think, to fundamentally revalue and redirect our thinking. The pressures of today, twenty-five years after Jameson’s call and seven years after Latour’s, are not only more difficult to ‘see’ but are increasingly threatening ‘a future’ for sustainable lived experiences. This recognition directs an imperative to explore knowledge production that can navigate paths through a problem and draw things—causalities, concerns, appearances and gatherings, together in order to contribute to redirecting destructive futures (Schultz, Barnett 2015).

However, as with all maps, there are traps in drawing Cognitive Redirective Maps. They run the risk of being perceived as a spectacle where the referent disappears. They historically have been too culturally authoritative, such as colonial cartographies. To perform against, or at least in recognition of these traps, CRM takes into account five considerations: Sustainment, the ‘thinging’ of the ‘thing’, the intercultural, design as an hermeneutic practice and working alongside the method of design fictions (Schultz, Barnett 2015) (Figures 1 & 2).

![Figure 1: Authors: Tristan Schultz, Title: Cognitive Redirective Map: Gold Coast’s Golden Year of 2018: Ontological Design as Event in Practice of Redirection and Repair, including Cognitive Redirective Mapping diagram overlay, January 15, 2015, Pens, 30x200cm.](image1)

![Figure 2: Author: Tristan Schultz, Title: Cognitive Redirective Map: Gold Coast’s Golden Year of 2018: Ontological Design as Event in Practice of Redirection and Repair, January 15, 2015, Pens, 30x200cm.](image2)
This paper extends on this earlier work by focusing on the praxis of the act of drawing Cognitive Redirective Maps with four further considerations: drawing together with the hand, drawing together assemblages and mess, drawing together information design techniques and performing drawing together. Two selected case studies from numerous workshops of Cognitive Redirective Mapping undertaken by the author will be also discussed.

**Drawing together with the hand**

The work of the hand and of the tool in the hand, i.e., the pen, pencil and other drawing tools, for Martin Heidegger, is an instrument of world forming (1992, 80). It delivers an engagement that is both thoughtful and reflexive (Ingold 2011c, 82) unlike, according to Heidegger, animals’ paws, claws and talons! Leaving aside Heidegger’s ‘hand’ being critiqued as anthropocentric (Ingold 2011a, 82, Agamben 2004, 49-56, Derrida 1987, 173), Cognitive Redirective Maps associate with his work in two ways: a) Value of authentic handwork; drawing with the hand as thinker, as ‘the path of thinking’ as cognitive redirection, and b) Value of protest against the mechanization of man; drawing with the hand to curb a world rendered meaningless by the hands dissociation from action (whether a human’s hand renders meaning more uniquely than a non-human animal or machine is of course ripe for debate) (Ingold 2011c, 81) (Figure 3). Terry Winograd and Fernando Flores (1987) critiqued rationalistic traditions of systems design for being too techno-utopic. Their work helped develop the now widely accepted notion that technology ontologically designs humans’ relation to the world.
In designing technological tools that produce maps autonomously, we are designing out our own associative meaning we make with the world through the action of drawing. We are separating thought from action. CRM counters this by placing the designer/s and participants cognitive thinking squarely in the hand. This performative process of cognitive-hand-action encourages a drawing out of concerns directly related to ones situatedness (at hand), rather than outside their world (at the machine). This forces a reflexive process in the map-maker. In this way, as with more recent Design Thinking processes, including CRM, it shifts the focus on human-machine interaction (HCI) away from the power with the computer, to power with ecologies of human minds.
Drawing together assemblages and mess

Johanna Drucker calls for humanist approaches to mapping that contest Cartesian logics of time and space and scientific rationality all too present in contemporary information visualisations (2014). Aside from the argument any ‘humanist’ approach is anthropocentric therefore receiving a similar critique to Heidegger’s hand, how one configures on a page ‘assemblages’ in a ‘messy’ humanist fashion is important to CRM. When drawing Cognitive Redirective Maps they should not be bordered or framed by grids, lines, or edges of paper. As Tim Ingold suggests when reflecting on Norman Bryson’s perception of distinctions between the blankness of the surface when painting and drawing (Ingold 2011b, 220). Drawing is not to follow ‘the law-of the all-over’ like painting, but rather to see the page as an endless messy reserve of localised space and time. This fits well with CRM in that there should be no enframing, no fit boundary in which one locates a finality of social worlds, rather drawing should be a constant tangle of life’s thread and paths, “ever ravelling here and unravelling there, within which the task is to improvise a way through and to keep on going”. In this, one is nomadically letting the hand manifest ‘lines of flight’ and ‘becoming’ (Deleuze and Guattari 1987, 325) amongst ‘matters of concern’ (Latour 2008, 2) (Figure 4).
Drawing together information design techniques

As much as one might treat their page as an aforementioned endless messy reserve, adopting information design techniques such as hierarchy, sequencing and flow is also important. However, another layer I consider is that CRM should aim to be nomadic; no beginning, no origins, only turbulent multiplicities of concerns flowing in all directions between lines of fight. This understanding fits well with relational pattern thinking in Indigenous Knowledge too (Sheehan 2011). Drawing CRM should keep this in mind while adopting syntax in; the ‘timeline’, but without Cartesian and Babylonian measurements of evenly spaced time; or with the ‘flowchart’, but without rigid categorisations; or with ‘radial convergence’, but without aesthetic fetishising of circular symmetry. The
messy ‘rhizome’ might be the most appropriate name for a typology (Deleuze and Guattari 1987, 1-28).

Traditional universal conventions and rules that pertain to information design are also strongly avoided as traps, such as an assertion of neutrality, aesthetic fetishisation and scientific authority. As argued by Drucker (2014), humanistic forms of representation push at the limits of formal means where ambiguity and contradiction are more important to be expressed. Taking this into account, there are some obvious forms employed by CRM such as gestalt techniques to indicate movement and spatial orientation, colour hues and values to indicate hierarchy and differences. However, the main concern when drawing CRM is to focus on cognitive thought processing and redirecting, rather than formalist graphical language making.

Performing drawing together

As claimed by Jeremy Crampton (2009) about maps in general, Cognitive Redirective Maps are not neutral artefacts. They have directional and consequential force in-situ at the ‘drawing together’ map-making event and afterwards as produced knowledge to draw upon for further research and practice (Schultz, Barnett 2015). This performative position has shown to be key to mobilising participation in community capacity building contexts. In this CRM is consistent with leading edge Participatory Design in the way that the field is outlined by Ezio Manzini (2013) as a complex, interconnected, and often contradictory performative process where the designers role includes “the role of mediator (between different interests) and facilitator (of other participants’ ideas and initiatives)” (Manzini 2013, 65) (Figure 5).
CASE STUDY 1: Making an Age of Repair Event

Part One of the Making an Age of Repair Event took place in Brisbane on April 17, 2015, run by the author’s organisation Redirective Practice (Figure 5). The goal of the event was to gain a better understanding of the futures that local community members were facing in Queensland in order to draw together alternative scenarios. Fifty-seven attendees across six tables created six collaborative Cognitive Redirective Maps (Figure 6).
Large format paper with a very loosely guided template was sprawled across the tables, along with ample coloured pens. Participants mapped their present concerns, pasts that brought-forth those concerns and these concerns gathering in the future. They then focused on navigating future challenges by drawing lines of redirected futures on the map. Groups were forced to negotiate with each other and improvise ways through future obstacles to keep developing desired future scenarios. This performance occurred literally on the paper, as participants struggled to draw lines that justifiably connected their desired futures to past concerns. The paper was set in a way that encouraged a messy rhizomatic timeline. They were also advised not to dwell too much on colour hues and values to indicate hierarchy and differences unless it aided their conversation. Post-event, these languages were graphically imposed on the map to assist in post-event legibility (Figure 7). The Redirective Practice team of design practitioners maintained the role of mediator between different interests while facilitating and providing guidance using their critical expertise.

Figure 7: Table 5 at Making an Age of Repair Event Cognitive Redirective Map: Post-Event Digital Overlay, April 20, 2015, Pens, Vector Drawing 60x200cm.

Focusing on Event 1, and particularly on table 5 in Event 1 (Figure 7), the overall theme of ‘environment’ and ‘economy’ as narratives were decided to map. Table 5 discussed machino-facture and the associated economic risk in developing the symbolic value of a no-emissions, ecologically sound agricultural industry.
I was facilitator on this table, I suggested we start by naming the appearances of things in the present. For example, the naming of ‘drought’, ‘water security’, and places like ‘Lockyer Valley’ and ‘Gladstone’ were drawn onto the map. This meant workable places to begin. This orderly suggestion affected those drawing as at first it seems to stifle cognitive thought processing. I then asked to draw the naming of the past that connected to the present, on the far right of the page. In this action, participants visually see ‘the gap’ between pasts and presents. Connecting pasts and presents by drawing lines fills this visual gap, but still does little to draw together the concerns. Participants were asked to articulate their concerns by writing them along the lines, which subsequently drew out further concerns. In this map, as in most others, the act of drawing this way affects a kind of spatial and temporal mental orientation. People seem to ‘see’ the surface as a landscape to draw on. It is important to provide ample space on the paper for participants to feel their landscape has no borders but rather to see the page as an endless messy reserve of localised space and time in which they might nomadically let the hand manifest, literally through ‘lines of flight’.

**CASE STUDY 2 – GNIBI Map**

This map is the result of ‘tracking’ mental patterns of information in yarning sessions with a group of Australia’s leading Aboriginal & Torres Strait Islander academics, held at GNIBI (College of Australian Indigenous Peoples), Southern Cross University, Lismore in 2013. The author visually ‘tracked’, in a Cognitive Redirective Map, non-linear conversations while immersing and listening to insights of the workshop discussions (Figure 8).
Participants discussed what ‘cultural competency’ looks like from Indigenous Perspectives, and how it might be activated as an event in process across a university. The map overlays commonalities-in-difference between a Canadian First Peoples knowledge, Australian Indigenous Knowledge and a Western conception of a hermeneutic circle.

As digital version, the map has become a ‘mediating object’ for future intercultural conversations. The culturally sensitive parts of the information mapped have been concealed here (Figure 9) which is the way these maps are exhibited in the public sphere. This concealment is itself a commentary on what actors and networks are deliberately left out of maps. Maps are always a
reductive selection of what one decides to include in and leave out, therefore inescapably bound in wielding power. This subjectivity in maps is itself concealed by an ongoing perpetuation of grand colonial cartographies and assumed neutrality in information design. Colonialism has destroyed, taken and concealed enough without giving in return, and participants feel that some knowledge begs to be kept private. In order to conceal the knowledge in relational patterns it was also decided we produce a repeat version for public viewing (figure 9).

Figure 9: Authors: GNIBI - College of Indigenous Australian Peoples, elders and community, academics, and students. Title: Cognitive Redirective Mapping of three-day yarning circle workshop repeat pattern March 11-14, 2014, Pens, Digital repeat 100x60cm.
In contrast to the first participatory map-making case study, this map was produced only by my single hand. The inherent bias in this version of producing knowledge is important to both acknowledge as unavoidable, yet able to be moderated with some control.

As mapmaker the act of drawing in a rhizomatic spiral afforded a non-linear spatial and temporal mental orientation. A spiral suggests an endless three-dimensional axis of becoming in space and time rather than the timelines two-dimensional plane. This is more difficult than a visually linear timeline approach as in case study 1. Rosenberg & Grafton contend that for the modern Western mind, the chronological timeline is amongst the most inescapable of metaphors for representing history (2011). In drawing this rhizomatic spiral I was attempting a performance of a tracking of the landscape hermeneutically; locating how experiences might be transformed, how this might transform who one is, which might transform what one does, which opens worlds of new perceptions for new experiences, which transform who one is, and so on.

I found that this fits well with the Canadian First Peoples participants’ conception of knowledge production. This is not a forcing of a narrative, but rather a being receptive to relational patterns in the map. The act of drawing the map in this way affected the outcome in that the inherent order in a spiral and the locking against its compass quadrants, meant the pattern that manifested was aesthetically inviting. Important to note is that was an unintended outcome of the performance of working with two theories, which happen to be in these shapes. These relational patterns were then ‘read’ as containing information in and of themselves. This is the kind Indigenous Knowledge relational pattern thinking all participants were receptive to during the event.
Post-event the map was reconstructed digitally to assist legibility when using the maps as an ongoing mediating object (Figure 10). Neutrality was further compromised by this process, along with the absence of the value of hand-work touched on above.

In this case the map can be less regarded as having directional and consequential force in-situ at the ‘drawing together’ map-making event, since the author made the map alone. But as has been outlined, reading into the patterns arising worked as a mediating object to open discussions. The digital version continues to be a mediator of produced knowledge from that workshop to draw upon for further research and practice. This case sought to respect the ‘yarning circle’ collaborative experiences while using the map as a supplementary repository and forceful trace; a kind of drawing of the spilling forth, of the visible action and the patterns of information of the workshop event.
Conclusion

The pressures of today direct an imperative to explore drawing ways beyond linear, textual form that combine cognitive thought processing with visual knowledge production that can navigate paths through a problem and draw cognitive redirection of destructive futures (Schultz, Barnett 2015). Drawing together with the hand, drawing together assemblages and mess, drawing together information design techniques and performing drawing together are four considerations in the act of drawing the Cognitive Redirective Maps. Although the case studies selected here show variable emphasis on these considerations, CRM affords this kind of reflexivity all the while maintaining critical agency. Other CRM sessions, including with school age children, rural Aboriginal communities, Australia Council for the Arts and within critical conference workshop sessions, have also proven to effectively act as a mediator of drawing together knowledge production, through the hand.
References


FIGURES

Figure 1: Authors: Tristan Schultz , Title: Cognitive Redirective Map: Gold Coast’s Golden Year of 2018: Ontological Design as Event in Practice of Redirection and Repair, including Cognitive Redirective Mapping diagram overlay, January 15, 2015, Pens, 30x200cm.

Figure 2: Author: Tristan Schultz, Title: Cognitive Redirective Map: Gold Coast’s Golden Year of 2018: Ontological Design as Event in Practice of Redirection and Repair, January 15, 2015, Pens, 30x200cm.

Figure 3: Photo credit: Tristan Schultz. Title: Unfinished Cognitive Redirective Map: Gold Coast’s Golden Year of 2018: Ontological Design as Event in Practice of Redirection and Repair, January 15, 2015.

Figure 4: Photo credit: Tristan Schultz. Title: Unfinished Making an Age of Repair Cognitive Redirective Map, April 01, 2015.

Figure 5: Photo credit: Tristan Schultz & Sarah Engelhard. Title: Photo Compilation of Making an Age of Repair Event Participation, April 17, 2015.

Figure 6: Photo credit: Tristan Schultz. Title: Making an Age of Repair Event Table Participation, April 17, 2015.

Figure 7: Table 5 at Making an Age of Repair Event Cognitive Redirective Map: Post-Event Digital Overlay, April 20, 2015, Pens, Vector Drawing 60x200cm.

Figure 8: Authors: GNIBI - College of Indigenous Australian Peoples, elders and community, academics, and students. Title: Cognitive Redirective Mapping of three-day yarning circle workshop *Deliberately pixelated to conceal sensitive cultural knowledge. March 11-14, 2014, Pens, 100x100cm.

Figure 9: Authors: GNIBI - College of Indigenous Australian Peoples, elders and community, academics, and students. Title: Cognitive Redirective Mapping of three-day yarning circle workshop repeat pattern March 11-14, 2014, Pens, Digital repeat 100x60cm.
Figure 10: Authors: GNIBI - College of Indigenous Australian Peoples, elders and community, academics, and students. Title: Cognitive Redirective Mapping of three-day yarning circle workshop digital version. March 11-14, 2014, Adobe Illustrator, 100x100cm.