DESIGNING EMPOWERED, SOCIALLY ENGAGED YOUNG DESIGNERS: FUTUREBNE WATER SECURITY CHALLENGE CASE STUDY

ENGAGEMENTS

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ABSTRACT

This paper is a case study of the design and facilitation, undertaken by our practice, of Brisbane, Australia's largest one-day educational event, the FutureBNE Water Security Challenge, held in both 2016 and 2017. 11-12 year-old students were asked to design ideas to secure Brisbane's water supply with the understanding that this will be under threat over the coming century due to mounting future challenges, not least frequent flood and drought events.

Our objective was to give participating students the experience of and power to design ontologically, with design ideas that comprehend the complexity of these future challenges. Key to the success of the event was the ability to give participating students the power to design thoughtful and relevant outcomes. This paper explores how, through design, power was inscribed in the project: empowering children to recognise their power as social change agents, the power inherent in the privilege of their geopolitical location and the power inherent in the geographical unsettlement of their region.

INTRODUCTION

At the most basic level, design is power. The least amount of power, the least able people are to make design decisions at a societal level. This broad statement is evidenced by observing the social hierarchy of many contemporary and historical accounts of societies, where the amount of power that somebody has to exercise and make design decisions is indivisible from the level of privilege they occupy in that society. Children are at a disadvantage in any society, they're powerless, they cannot vote, they cannot earn a living and sustain themselves, but what they can do is exercise their will through design fictions, if given the chance. In the FutureBNE Water Security Challenge—a one-day critical future-oriented design thinking event held in 2016 and 2017 in which the intention was for participating 11 to 12 year olds to be empowered social change agents—children learned how design ideas live and force directions of power over time.

With Brisbane City Council (BCC) as a collaborative client, we designed and facilitated the project. From our own critical political and ethical position, our practice makes every effort to approach designing events with an emphasis on designing into both the unfolding and the message taken home, the notion that design is inescapably an ethical decision making process. Working with these children gave us the chance to provide a sense of ethical design agency often lacking in their day-to-day life. Yet at the same time the privilege that comes with living in Brisbane, Australia requires decentring, by designing triggers that give the children a sense of the geopolitical power they occupy. Power was inscribed in the project in this and the following nodes.

As much as Brisbane, Australia may appear politically and socially stable, it is positioned in a volatile and threatened region of the Asia Pacific (Littleboy, et al. 2012: 6; Steffen, et al. 2012: 9; Whitfield, et al. 2010)

power enabler as citizens learn informal, resourceful and resilient modes of dealing with such unsettlement. As Foucault reminds us (2007), when central authority fragments from centres of power, it awakens the passive into local cosmopolitan action. Triggers are built in to help the students comprehend this agency. This goes to the next node of power embedded in the event; the ability for children to psychologically and incrementally deal with this kind of unsettlement and embrace a future in flux. Finally, an undercurrent of power, not to be overlooked or ignored as insignificant in the design of the event, is the political tension between the neoliberal and politically 'safe' agenda of the council who hosted and paid for the event, and the (frequently perceived as 'radical') decolonial and social-democratic agenda of our practice, the designers of the event.

This case study describes the five stages of the event. We do this in the context of systems we put in place in line with the power relations introduced and theoretical parameters below.

EVENT AND GEOGRAPHICAL CONTEXT

Brisbane, Queensland, Australia is a sub-tropical city of approximately 2.3 million people. Like all cities globally it is facing a series of future challenges over the coming century including climate change, population growth and transforming technologies. Built on a floodplain, in a part of the world that frequently suffers from drought conditions, water security is an important future challenge. Considering this, and as part of Brisbane's inaugural hosting of World Science Festival 2016, BCC commissioned our practice to design and facilitate the city's largest ever one-day educational event. The invitation provided a means to empower 400 students in 2016, increasing in 2017 to 600 students face-to-face and 300 participating through livestreaming. The students were led through an intensive design thinking process where they were asked to design ideas to secure Brisbane's water supply amidst mounting future challenges.

THEORETICAL BACKGROUND

As a design practice, we engage in design from a position that we are facing serious future challenges and 'wicked problems' (Rittel & Webber, 1973). As designers, we have opportunity to provide meaningful ways of adapting to, mitigating or redirecting around these challenges. We draw on the following theoretical positions and techniques to confront these future challenges in the way we designed FutureBNE.

EDUCATION

Above all, FutureBNE is an educational event. Our educational approach acts to raise critical consciousness (Freire 1985: 68; Illich 1972: 108) in participants. This is in contestation with the dominating productivist form of education exported around the world; a national system of education from Great Britain established in response to the demands of the Industrial Revolution (Robinson 2011: 53, 57) and focused on subjects most relevant to the economic growth paradigm (Robinson 2011: 59).

Besides a long history critiquing the dominance of this paradigm, contemporary circumstances such as the economic turmoil of the recent Global Financial Crisis, youth unemployment and precarity illustrate the need to educate children in skills beyond what the economic status quo requires. There is a need for people to be educated to be critically conscious, reflexive and agile enough to survive the complex future challenges we are facing. This requires engagement in situated and experiential learning, described by Lave and Wegner as an "emphasis on a comprehensive understanding involving the whole person" (Lave & Wenger 1991: 33). Learning in this way provides the student with the ability to develop, as Freire writes,

> their power to perceive critically the way they exist in the world with which and in which they find themselves; they come to see the world not as a static reality, but as a reality in process, in transformation. (1998: 77)

Freire contrasts this to the banking concept of education, which he believes acts to "minimise or annul the student's creative power" (1998: 69).

EVENTING

FutureBNE is a 'designing event': our intention is for it to be a futuring experience that remains focussed on transformative processes of designing-in-time, rather than dwelling on static realities such as final objects, artefacts, images and products. It is historically situated, since the gathering of the past in the present directs our perception of what is possible in the future. Because the focus is on redirecting, not making, FutureBNE challenge provocations geared toward eliminating present or potential designs, as much as creating them. The focus of design events for us aligns with conception of 'thinging' (Heidegger 1977: 7): in this case 'the thing' (the event) is brought into existence, which when seen and engaged in triggers a 'thinging' (a hermeneutic designing event). Designed triggers are mobilised during the two hours aiming to transform the children's experience of perceiving each next step with the intention to make the invisible visible, which renders the event an active agent in interpretation and perception of what is possible. This experience transforms what the participants do, which transforms who they are, which transforms their engagement with thinking about water security both during the event and in their future encounters of water security (and other wicked problems).

DECOLONISING DESIGN

Designing as Event posits ontological designing qualities on the project. Our practice, in contesting liberal pluralism too often succumbed to in participatory design and community engagement (Keshavarz 2016), seeks to further add directional

agency to those ontological qualities, a decolonising agency. This is two-fold; in the agency being brought to thinking about decolonised futures, and in decolonising the design practice, that is, the scaffolding of the event and its mediating tools.

Following more than half a century of activist, revolutionary and intellectual thinkers such as Frantz Fanon and bell hooks, and contemporary thinkers including Walter Mignolo and Arturo Escobar, Nelson-Maldonado Torres writes coloniality remains

> "alive in books, in the criteria for academic performance, in cultural patterns, in common sense, in the self-image of peoples, in aspirations of self, and so many other aspects of our modern experience" (2010: 94).

Decolonising the minds of the FutureBNE participants is no smaller a task than to shift their genealogy of thought away from the one-world story; to re-accent the way they think of designing with the wicked problem of water security beyond the bounds of Eurocentric thinking. First, this requires designing into an event an *unlearning*, which can be discomforting to privileged Western children. The power of their privilege in coming from Brisbane, Australia was made visible through at least two tactics in the event: through amplifying marginalised and oppressed voices in the knowledge cards; and through incorporating the darker side of technological and industrial advancements coming from Western modernity in the knowledge cards, i.e., the perceived privilege the children embody in relation to their physical, technological and infrastructural security is exposed by amplifying the actual geographic unsettlement in the region due to climate change caused by those colonial and industrial advancements.

After *unlearning* and putting the children in a state of unsettlement, the next phase in a decolonising process, for us, is to provide a means to *learn* otherwise. In this case, for example, that geographical unsettlement due to moving with climatic conditions offers affordances in creating conditions of contra-western colonial norms; of non-striated, non-centralised power relations, which in turn have potential to empower local agency and authority. The students are encouraged to think beyond current geopolitics, borders and nation states, beyond striated cities and infrastructure and towards thinking between these conditions in a future fragmented and 'pluriversal'[1] world.

In providing a means to *learn* otherwise we offer the students a third phase of a decolonising design; *praxis*. To de-link thinking from universalising scientific rationality and deliberately contest the logic of coloniality that denied the validity of other forms of knowledge production and their use in the manifestation of patterns of information, for instance, through storytelling, dance, narrativised visual mapping and other forms of knowledge production (Mignolo 2011: 206), we adapt Cognitive Redirective Mapping and Design Fiction techniques. This is not explicit to the children; this is implicit in the conceptual and critical development of the triggers in the designed event.

DESIGN TOOLS

For children, and others to see their lives, and design, as a reality always in a process of transformation we utilise Cognitive Redirective Mapping (CRM). CRM was developed to spatialise visually the phenomenon of ontological design, to "uncover connections and relations previously unseen as well as realities previously unimagined." (Schultz & Barnett 2015: 3) CRM provides a series of suggested steps in exploring and understanding complex future challenges, used as a tool within our creative practice with a significant depth and breadth of impact as has been described elsewhere (Schultz 2015; Schultz & Barnett 2015). For FutureBNE we adapted the process of CRM to provide more prompts, for example, year cards to encourage long-term thinking.

Within our practice we frequently use design fictions, outlined by Anne-Marie Willis (2014) to help design and develop alternative visions of the future. Design fictions provide a way to think about the future in a situated way and provide tangible scenario's that consider what everyday life might look like in 10, 20, 50, 100+ years, drawing on what has been uncovered during a cognitive redirective map (in our practice the two always go hand-in-hand). These fictions offer the potential to be designed back from. Anne-Marie Willis describes "designing back from the future" as "a prompt for designing now – for designing processes and things that could contribute to the arrival of preferred futures." (2014: 159) Within FutureBNE design fictions help the students think about the potential of how different life could be in 50 to 100 years, they are encouraged to design from this perspective.

PARTICIPATORY DESIGN

Our engagement with people draws on the practice of participatory design, while recognising the criticisms that it "has over the years developed into a key actor in user driven innovation and other neo-liberal pursuits" (Ehn, et al. 2014: 8). We also aim to go beyond Chantel Mouffe's 'agonistic pluralism' (1999) which critics identify neglects to step outside of an ethico-political principle of liberal democracy (Keshavarz 2016; Kiem 2013). By way of countering this and to give our practice of participatory design agency we work on bringing to the fore the ontological agency of decolonising thinking and design praxis. We also learn lessons from Redirective Practice who identified, through work in facilitating two large scale participatory design community events in Brisbane,

[1] Pluriversality calls into question the concept of a universal way of being commonly imposed in Western thought, it describes the co-existence of multiple cosmologies discussed by thinkers such as Mignolo and Escobar and practiced by many Indigenous peoples worldwide.

Australia, a "disjuncture between participants' traditional perception of the role of the designer and the role of the designer in the participatory design context." (Redirective Practice 2017: 223) FutureBNE introduces the children to the role design plays in a participatory design context. This gives them more power to successfully engage in a different understanding of design.

FUTUREBNE: WATER SECURITY CHALLENGE

There are five stages in the development of FutureBNE, described here in context of the theoretical parameters and power relations outlined.

The *Conceptual and Critical Development* was grounded in a decolonial politics and ontological design agency as has been described. Two imperatives particularly drove this development: 1) We looked to steer clear of merely instructing the students to design fanciful, gestural solutions and instead established a sequential workshop that took them on a journey, a design event; 2) It was vital to re-interpret the approach we typically take with workshops designed for adults and develop an age appropriate suite of triggers and themes that would set the tone and tempo to both excite and engage children.

The *Strategic Pitch to Council* had to be done in a way that 'sold' Brisbane City Council (BCC) on the event during our communications with them. A clear example of the challenges present in this was the absurdity of the 2016 embargo on the term 'climate change': in 2017 insistence of dropping this allowed its use. This is an example of the political tension between BCC and us. While as the 'client' they held the balance of power we could circumvent some of this conflict through relying on the power inherent in the process unfolding in an ontological designing event to build discourse surrounding climate change. This tactic meant that we acted as an active agent in the perception of what is possible for BCC to openly discuss. Their exposure to this experience of potentiality transformed the 2017 event.

The *Strategic Pitch to Participants* had to be 'sellable' to local schools and teachers to ensure attendance. Because of this BCC required the event to be fun, engaging, empowering and different from an in-classroom experience, which matched many of our own expectations for the event. However, it also tested the boundaries of what is possible without the event being reduced to gestural pluralism. Again, our strategy was to let the power inherent in the ontological designing qualities of the event uphold our critical position, while ensuring touchpoints in the Australian Curriculum were clearly illustrated when pitching the event to BCC and teachers. Present here was political tension between the education system and our practice. Yet leading by example with a re-interpretation of what is allowable using the curriculum allowed the teachers to perceive transforming what they might justify as aligning with the Australian Curriculum.

The *Collateral* was designed for engagement before, during and after the actual challenge. This included a pre-attendance teachers kit for teachers to use prior to the event day and an 'on arrival' activity to encourage the students to start thinking about water as they waited for the challenge to begin. It also included a student take home kit (Fig. 1). This aligns with our intentions of creating an eventing process that prepares the students to encounter another way of thinking. In keeping with setting the right tone for the event that made the students—who had newly begun high school—feel as though they were being treated as young adults, not as young children, the design collateral took on a mature sophisticated aesthetic (Fig. 1 & 2). This added gravity to the seriousness of the concern; water security and future challenges. Furthermore, engaging the students in this way legitimises the power they have, to design ideas and have their voices seriously heard.

Figure 1: Montage of FutureBNE 2017 collateral including a set of knowledge cards and pages from the student take home kit.

A major component of this collateral was the knowledge cards (Fig. 2), designed for use during Step 1 of the Challenge, 'Evidence Gathering'. To provide sufficient, relevant and digestible information to the students to help their design process required a well-considered design solution: students needed to be able to understand the information presented; they needed to be able to engage with the information, at an individual and group level; they needed to be able to see how they could use the information in the design process. The knowledge cards met these requirements in several ways.

Firstly, the cards were designed in sets of ten, numbered accordingly to correspond with a groups table (Fig. 2). The students gathered the cards by racing about the venue searching for their number and coming back with all ten cards, an exciting physical and team building activity. Secondly, by pairing the knowledge cards into binaries—human and technology; city and tap; global and local; clean and dirty; flood and drought—students were encouraged to look at a broader picture, the technology card might, for example, be contradicted by alternative views or methods identified on the human card.

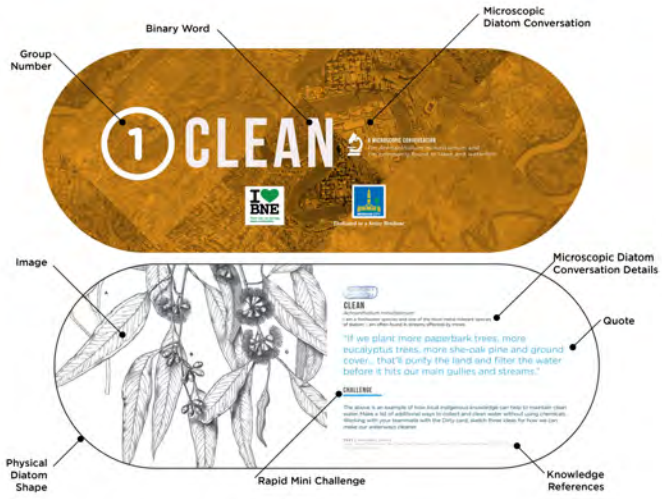

Figure 2: The 'Clean' card, front and back, for Set 1. This card highlights Indigenous Knowledge regarding keeping water clean and encourages the students to think about how they could put this knowledge to use.

Each card contained a rapid challenge (Fig. 2) for the students to undertake, often paring them with their binary card to work together to sketch, list or respond to a question drawing on the knowledge from both cards. In 2016 the sets of ten were loosely focussed on an overarching topic such as oceans, flooding or thinking about water differently. This was a design decision made to encourage different outcomes from the student groups. In 2017 we further reviewed the structure of the knowledge cards and redesigned the sets of ten to respond to a series of possible future scenarios. This provided more of a design focus for each table and further differentiated the outcomes.

To take steps towards decolonising design many of the cards included information about water practices from First Nations peoples around the world (Fig. 2). Further, to take steps towards curbing a logocentric emphasis on the written word, the knowledge cards made use of a relevant picture or diagram and had a symbolic physical form that was also tactile and interactive. Designed in the shape of diatoms (Fig. 2), a major group of algae that indicate the water health and type of water body, students could engage on another level with the cards with the 'microscopic conversation' providing further details about the diatom in question and build sculptural forms with them by clicking them together (Fig. 3).

Figure 3: Students built sculptures with their knowledge cards.

Finally, we approached the design of collateral from an understanding that information design techniques play an important role as mediating and scaffolding tools. The hierarchy of information on the knowledge cards wields power as it directs the way participants engage with the design process; how they interpret importance, consume or neglect information and re-produce new insights.

The Challenge was paced by an opening video, four countdown videos and a closing video, designed to create a multisensory, spatial and temporal experience. The videos were designed in a similar way to many theme park rides. This was to engage, excite and inform the students of what is to come in the challenge while keeping with our tone of serious entertainment in a sophisticated aesthetic to match a serious concern. The design fiction created drama and realism around the design task to get students to embody the same kind of intensity and performative imperative to make a water secure Brisbane in 2100.

Narrated by Atticus, a fictional time traveller speaking from Brisbane in 2100, the opening video calls to action the students, assigned the role of the '2100 *Future BNE* water security response team'. The video explains that the citizens of 2100 have spoken of the transformations that occurred to overcome water security, with the message, that *"actions need to start now in order for theirs to be the future we know"*. The narrator makes clear that due to designs that have been implemented from the FutureBNE Water Security Challenge—that take into account shifting geopolitics, technologies, demographics and Climate Change—Brisbane's water supply is safe and clean. An excerpt of the video script reads:

"They said in the 2020s water riots were averted, and in the 2030's countries closely avoided a 'Great Water War!...because, by 2020 Rainwater harvesting systems were common place. By the 2030s, greywater recycling, waterless toilets and aquaponic farming were everywhere. By 2040, the way we thought about water really changed. It was better shaped by knowledge and

caretaking in each localised place. Local Indigenous knowledge became a massive inspiration for designers and city builders too!"

These design fictions are strategies to illustrate to the children ontological designing-in-time empowering them to both deal with unsettlement psychologically and enter the next steps of the challenge with a vision of how one might incrementally design steps to get to more viable futures.

Step 1- Investigation: Evidence Gathering is a fast-paced activity where students collect the knowledge cards and complete a quick mini-challenge on returning to their table. Designed from the perspective that design should be a theoretically informed practice (*praxis*) the students' responses to the mini challenge (Fig. 4) help lay the ground for writing their own design fictions (Fig. 5).

Figure 4: Students working together on the mini-challenges from their knowledge cards.

Step 2 - Ideation: Design Fiction asks the students to share commonalities in their different ideas, thoughts and sketches from the evidence-gathering step and work together to create scenarios about life unfolding up to 2100. The students were provided with a props-kit (including human figure cut-outs and time cards) to create 'playful triggers'[2] (Fig 5.) that help them scaffold the narrative. Creating these design fictions is a vital step in the challenge. It acts as a futuring activity that remains focussed on processes of designing-in-time while giving students a chance to converge the knowledge they've gathered and convert it to speculative ideas. A performative, political and participatory act that encourages reflective design practice in the students as they negotiate possible scenarios (Fig. 5).

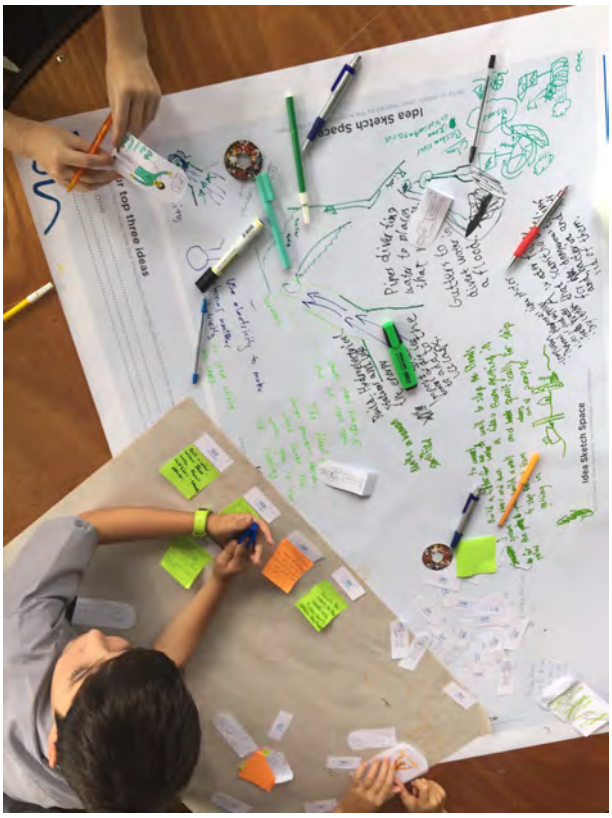

Figure 5: Students use a variety of props to develop design fictions about life in 2100.

Step 3 - Implementation Model Making tasks the students to use their design fiction and knowledge cards to fabricate models (using e-waste, cardboard and other recycled junk pieces) that illustrate their response to Brisbane's water security. Importantly, they are prompted to think of the model beyond stereotypical hi-tech or lo-fi gadget products like extravagant pumps or LifeStraws.[3] As important as these devices may be, they do little to address systemic issues related to water security and are seldom designing redirected behaviours in society. Instead the students are asked to think about whether their design is an artefact, an experience, an art installation or an event. This communicates the breadth of design, to be thought of as a transdisciplinary practice where the medium or output is based not on 'users' but on its ability to affect ontological agency.

[2] Yoko Akama et al. (2007) following Daria Loi, similarly utilises playful triggers within participatory design activities.

[3] The LifeStraw was designed to provide safe drinking water in parts of the world without it, it is now sold to hikers and adventurers too.

Figure 6: One of the models from FutureBNE 2017.

Step 4 - Communication: Video Pitch requires the students create a two-minute video pitch to articulate their response and justify its design. Creating the video script challenges students to confidently and persuasively communicate their ideas, empowering them to exercise their will on the world by having their visions voiced in the public sphere and to those in positions of power.

The *Closing Video* finishes the event. The fictional Atticus returns to thank the students for their work and congratulate them on their ideas. Finishing in this way ensures the event ends on a positive note and reinforces the sense of empowerment the children have developed over the course of the event.

DISCUSSION AND CONCLUSION

The 2016 event was well received by BCC, teachers and students. Through our own reflections and analysis of the event it became clear that identifying the long-term efficacy of the event and its ontological designing qualities was going to be difficult, no data was requested from the participants at any point to determine if their behaviours had changed or if they felt more empowered due to their experience. However, it is clear from our reviews of The Australian Curriculum (Australian Curriculum Assessment and Reporting Authority 2015) that we were providing students, and teachers, new and empowering ways to talk about water and engage with design. As social change agents, we had the power to go beyond the curriculum and use design as a powerful means to overcome the political tensions between the education system and our practice.

Through our own reflection on FutureBNE we have identified that the layout of the knowledge cards lends itself towards a scientific rationality, an assertion of authority is present in the visual language employed and the enframing of concerns, that has opportunity to perform a reductive compartmentalisation of issues, rather than invoking relationality. This is a point of tension we hope to remediate in our practice more broadly.

Overall, the outcomes of the Challenge—the models and the video pitches—clearly demonstrate that the knowledge cards supported the children in leading them towards new insights and critical, creative design responses unfolding in long term time-scales. We are confident in the events' ontological designing qualities having a significant impact on the children, setting them on a course to acknowledge the complexity of future challenges while giving them design techniques not just to provide a service, but to imagine designed/ing options beyond the suite of knowledge acquired through their education under the rubric of the 'modern/colonial world-system'. So too, the project provided us with the opportunity to iterate our practice and create new knowledge which continues to inform our overall ambition; to mobilise design techniques to empower people to navigate toward more viable futures.

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