Enabling Design for Sustainable Futures:
Design-led research and research-led design.
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Abstract

In addressing the theme of design as a catalyst for social change I will specifically look at the role of
design-led research. The contemporary issue of sustainability, however ambiguous, is highlighting the
need for social change; in particular the need for researching possible futures and inspiring the
implementation of effective change. Focusing on research may not seem to be a direct application of
social change. However in enabling social research projects across the disciplines to utilise a design-led
methodology, I propose, could increase the creative capacity of our society to envisage and implement a
sustainable change for the better. This paper explores what such a design-led methodology could look
like, how it should work and why it ought to be of significant value. As an example of how this
methodology can be operationalised I will outline my community based project in Tumut which engaged
participants in a process of designing sustainable wellbeing for their communities’ future. The purpose of
this study was to construct a methodology that acts as both design-led research and research-led design to
give an approach to researching possible sustainable futures.

Keywords: Sustainability, Research, Design-led Methodology

1. Introduction

This paper looks at the outcome of my PhD thesis study to construct a design-led methodology for
researching sustainable social change. This methodology is the outcome of a study which concentrated
on design as a process rather than focusing on the ability of design to produce cultural artefacts. The
design practice is not ‘in itself already a kind of design research’ (Findelli, Brouillet, Martin, Molneau,
& Tarrago, 2008, p. 73), though it forms the basis from which a design-led methodology can be
constructed. That is to say design can be remoulded into a kind of research for addressing particular
sets of questions in a particular way. Design questions are characterised by questions about the future,
but not what will be as in forecasting used in the science or social science disciplines, instead
questions about what we might want, such as what could/should/ought\(^1\) to be (Cross, 2001) – that is questions about change. In addressing these questions design generates ‘knowledge for acting’ rather than ‘knowledge of what is’ (Glanville, 2006, p. 66). Hence this design-led methodology could help to reposition design in social research as a methodological approach to facilitate social change.

This study focuses on sustainability as the key concept of positive social change to be addressed by the design-led methodology. Sustainable design theorists such as Ezio Manzini have been working for over a decade on the notion of sustainability as positive social change by reassessing our concept of wellbeing. Manzini makes a strong claim that environmental issues cannot be addressed without consideration of the social systems of everyday life (Manzini, 1992). This suggests a sustainable resolution cannot be obtained without positive social change. Such ideas have culminated in the recent conference *Changing the Change* (Cipolla & Peruccio, 2008) which focused on furthering design’s role in positive social change towards sustainability. Delegates discussed not only the contribution the design field can make through formulating more ‘eco-friendly’ products but more importantly the contribution of design research to exploring questions about what kind of sustainable change we want for our future. This study explores the construction of a design-led methodology developed to address such questions.

This approach is based on the notion of design as research (Glanville, 1999) also known as ‘research through design’ (Archer, 1995; Frayling, 1993), ‘practice-based’ or ‘project-based’ research (as outlined in Findelli, 1999, p. 2). Where other design researchers have examined a design approach to research for the field of design (Like in Bowen, 2009 thesis on a critical design methodology; or the cultural probes method of Gaver, Dunne, & Pacenti, 1999) this project aims to construct a design-led methodology of use to both design research and social research more generally, for investigating sustainable social change. Here I will discuss the design outcome of this project; what this design-led methodology looks like, how it works and why it might be of significant value.

2. **What this Design Approach to Research could Look Like**

This methodology is designed to produce ‘fictional possibilities’ (Wood, 2008). The study sets out an approach to researching questions like what kind of sustainable change a community might want and there by construct results in the form of design outcomes of possible futures. The approach is embedded in the epistemology of constructionism. Hence focuses on the meaning we as a society derive from our world in order to construct new meaning, fictional possibilities, and thereby make

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\(^1\) ‘The natural sciences are concerned with how things are...design on the other hand is concerned with how things ought to be.’ (as cited in Cross, 2001, p. 51; from Simon, 1969).
changes in that world\textsuperscript{2}. The methodology is contained by the theoretical perspective of post-industrial design (see Moles, 1988), particularly the systems approach to design for sustainable change\textsuperscript{3} as formalised in the Munich Design Charter (Doordan, 1991) and explored through the Changing the Change conference (Cipolla & Peruccio, 2008). This theoretical perspective comes from sustainable design theory, predominantly although not exclusively from European theorists who set up a systems approach to design in order to generate sustainable change (see Doordan, 1991). Such theorists have explored designs role as; creating a habitable world (see Manzini, 1992; Papanek, 1971), increasing wellbeing (see Manzini & Jégou, 2003), considering the interconnecting systems of artefacts, people and environment\textsuperscript{4} (see Baudrillard, 1968/1996; Doordan, 1991; Manzini, 1992; Manzini & Jégou, 2003; Pantzar, 1997; Papanek, 1971) producing enabling solutions (Manzini, 2003) through a process of co-creation (Maase & Dorst, 2006). From this perspective I have derived the core concept for the methodology: enabling design from within the system of the everyday (see Fig.1).

Figure 1: The Concept: Enabling Design from within the System of the Everyday. In this image the matrix depicts the system of the everyday and the central object in the process of construction depicts design from within that system.

This concept suggests the design of sustainable change needs to come from within the system of everyday life not from outside the system as dictated by an isolated expert – that is we all need to be

\textsuperscript{2} The idea of research as both reflecting and constructing reality is also explored by Law (2004).

\textsuperscript{3} In my paper ‘An Ecology for Design’ I explore, in more detail, the systems approach to design for sustainable change as growing out of the notion of the ‘ecology of the artificial’ (Hocking, 2009b).

\textsuperscript{4} This systems approach first appears in the design literature as the ‘ecology of the artificial’ (see Manzini, 1992). I have explored in more detail the use of ‘ecology of the artificial’ and the systems approach to design in my paper ‘An Ecology for Design: From the Natural, Through the Artificial, To the Un-Natural’ (Hocking, 2009b).
part of answering the question of what kind of future we want. Developed from this concept the methodology proposes an approach to research able to work from within complex systems of the everyday to facilitate change. Design is enabled within this system by placing the researcher in the role of facilitator of the design process whereby participants, as representatives of the system, are engaged in that process. The methodology produces a design outcome able to act as a vital link in the social activity of constructing and reconstructing our culture of living. Hence this design-led methodology is formulated in such a way as to reposition design, in the form of design-led research, as a catalyst for social change, in the context of social research on sustainability.

The design-led methodology enables design from within the system of the everyday by adopting a structure based on the design process (Fig.2), as a series of six steps:

![Figure 2: The Design Process. A six step process adapted from the process of design taught at the College of Fine Art](image)

These steps in the design process are translated into six phases in the research project. The ‘brief’ phase sets out an investigation into the research question being asked, the system of the everyday being investigated and any specifications required for the project or the outcome. The ‘background research’ phase stipulates investigations into all things related to the brief, encouraging both relevant and irrelevant explorations to establish a wide scope of possibilities for the project. In the ‘concept’ phase these possibilities are distilled into a core concept for the research project. The ‘concept development’ phase acts to translate the concept into a plethora of different ideas. Then in the ‘design outcome’ phase these ideas are transformed into a series of outlines for possible futures, from which the most appropriate can be chosen. In the ‘presentation’ phase this chosen outcome is clearly communicated; what it looks like, why it is of value and how to put it into practice in the system of the everyday it has been designed for. Each phase acts to generate the next phase until an outcome is reached.

This design-led research structure has been constructed in such a way as to utilise the nature and characteristics of design practice in research form. Design has the ability to work within the

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5 These steps in the design process are based on the philosophy of design taught at the College of Fine Arts (CoFA) in Sydney during my undergraduate time there. I have modified these steps in two minor ways. Firstly instead of the heading ‘research’ I have called it ‘background research’ to avoid the misinterpretation that research stops after the second phase. Secondly, I have added the heading ‘Design Outcome’ which was always an integral part of the design process but never specifically named, causing it to float somewhere between concept development and presentation, so it made sense to formally add it in. Otherwise the steps are the same as those we were taught at CoFA. I have not made a survey of which other institutions teach this process but it seems to be acknowledged among my fellow design colleges as a fair description although over simplification of the design process.

6 In my paper ‘Design with a Thousand Faces’ I have explored in more detail the nature and characteristics of design practice and it’s significant value to social research such as sustainability (Hocking, 2009a).
messiness of a complex system without having to ‘clean up’ first and in so doing generate an outcome that fits into the social activity of reconstructing our culture of living. By implementing a design process the methodology can monopolise on these abilities of design in four key ways. Firstly this design process is described by Cross (1990) as using abductive reasoning, also referred to as productive or appositional reasoning (p.131-132). Abductive reasoning describes the ‘logic of discovery’ for creating new hypotheses (Peirce, 1958 as cited in Honderich, 1995, p. 1) in this case for formulating future possibilities. Secondly this abductive process is conducted in a playful manner or as Cross (1999) describes ‘exploratory’ (p.28). These playful phases do not try to pre-empt the outcome, instead each phase focuses on generating the next phase. Thirdly this playful generation creates a dynamic quality to the phases which means they can incorporate unforeseen, serendipitous circumstances, which Cross (1999) calls ‘opportunistic’ (p.29). Finally the dynamic nature of the process is able to work within uncertainty, giving the process a quality Cross (1999) calls ‘ambiguous’ (p.30). This ambiguous quality also requires a suspension of disbelief as the existence of an outcome is not known till the end, this is what Cross (1999) calls ‘risky’ (p.30). Design’s ability to work within complex systems also comes from what Findeli (1994) calls ‘intuition’ a skill derived from aesthetics (p.63). All these qualities work together to give the design-led methodology an ability to work within messy systems to generate outcomes for social change. Many of these design qualities and abilities are shared with other disciplines and individuals (Cross, 1990, p. 132), however, designerly practices are neither easy nor straightforward so there is a need to build creative capacity in order to operationalise the methodology.

3. How this Design-Led Methodology should Work

This research process is operationalised through engaging participants in the design-led process. This means inserting participatory methods into the phase structure and building participants creative capacity to enable design. Hence choosing an appropriate method requires selecting ones which fit into the design-led structure and help build participants creative capacity. Design researchers such as Bowen (2008) suggest one of the greatest obstacles for participants, not trained in creative practices, is the ability to imagine something new and different to what already exists. Hence, the methodology applies methods that utilise disordering techniques. These kinds of methods disorient participants in such a way as to help them make a break with what already exists, enabling them to imagine change. Gaver’s ‘cultural probes’ are examples of a method which uses disorder in this way (see Gaver, et al., 1999). These kinds of disordering participatory methods are particularly important for the initial phases of the project whilst working towards the generation of a concept. The next concept development phase requires methods which allow participants to play with the concept which has been generated by the previous phases. Methods like the game format used by the research project
Underdogs & Superheroes (see Mazé & Jacobs, 2003) are useful in engaging participants in game play to explore and develop the concept. The design outcome phase requires methods that consolidate the previous phase into a set of design ideas for future possibilities. The scenario building method used in the Sustainable Everyday Scenarios of Urban Life project (see Manzini & Jégou, 2003) is an example of methods useful for producing a set of future possibilities. I used these set of methods in my ‘Project Tumut’ fieldwork for this study, in the rural NSW town of Tumut. I went to Tumut several times over the course of a year to engage community members in this design-led process. The three methods above where fitted into the design-led structure to form a research project on ‘what kind of sustainable wellbeing does the community want for Tumut’s future?’ (Fig.3).

Figure 3: Research Design for Project Tumut. Participatory methods where inserted into the design process to engage the community of Tumut in the process of designing future possibilities of sustainable wellbeing in Tumut.

This project is used here as an example of choosing and implementing methods. However within my PhD study ‘Project Tumut’ was part of the process of designing the methodology; to play with initial ideas, further developing the studies concept and reflecting on what happened. In ‘Project Tumut’ I used the basic outline depicted in fig.3 and implemented the first four phases with participants from

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7 Tumut is a country town in New South Wales. It is predominately known as a forestry town however the Tumut Shire is also known for its orchards ‘Batlow Apples’, other Agriculture, Snowy Hydro and the shire borders the north west side of Kosciusko National Park.

8 Preliminary findings from this work were also presented at the Change the Change Conference (Hocking, 2008a) and the Undisciplined Conference (Hocking, 2008b).
Tumut. The following explanation of the phases gives a brief outline of how I used the methods and how each phase worked within the overall structure.

**Phase 1:** This phase created a creative questionnaire to slot between the ‘brief’ and ‘background research’ steps. I created a pack (Fig.4) based on cultural probes to establish what kinds of creative activities people preferred interacting with and which sustainability issues were most important to the community.

![Figure 4: Creative questionnaire pack for phase 1 of ‘Project Tumut’](image)

This was a very tentative phase to find out a little more about Tumut, the results of which helped design the Phase 2 packs.

**Phase 2:** This phase slots between the ‘background research’ and ‘concept’ steps. I further developed the packs from phase 1 to include more cultural probe activities in order to explore ideas of sustainable wellbeing in Tumut (Fig. 5).

![Figure 5: Tumut Project Packs, including culture probe activities for phase 5 of ‘Project Tumut’](image)

The results of this phase generated the concept: to diversify cohesively. This result helped to design the next phase.

**Phase 3:** This phase used the game format method to slot between the ‘concept’ and ‘concept development’ steps. I included two parts to this phase in order to experiment with both a three dimensional interactive object (Fig. 6) as well as a game based on card and board games (Fig. 7).
Figure 6: Larry the Story Tree Creature: Participants were asked to think up a story about everyday life in Tumut and write a one sentence outline of the story on a leaf shaped piece of paper. The paper was then clipped to Larry’s braches acting to foliate him with stories of Tumut.

Figure 7: The Storyscape game. A board and card game in one designed to engage participants in the concept of diversifying cohesively using sustainable principles from Manzini & Jégou work (2003, p. 56)
The results from this phase developed the concept into stories about the need for a diversity of culturally based activities to engage different age groups and to be organised by members of the community.

**Phase 4:** This phase used the scenario building method to slot between the ‘concept development’ and ‘design outcome’ steps. These scenarios were based on the idea of facilitating public creativity in such a way as to motivate community members to develop social activities for the Tumut community. From this I compiled three visualisations; (a) Guidebook, (b) Co-Creation Projects, and (c) Time Bank. I created four posters (see Fig. 8) and a take-home information booklet to give to participants. Participants were encouraged to give their feedback on the three scenarios by talking with a research representative or filling out a question sheet.

![Figure 8: Future Visions for Tumut. From top left clockwise: Information poster about the project, Guidebook scenario poster, Co-Creation Projects scenario poster, Time Bank scenario poster.](image)

The scenarios visualised received positive reactions. A couple of participants requested that some booklets be sent into members of the Tumut Shire Council who then contacted me interested in finding out more. After talking with two council members it became clear that, even though this project was only conducted in an experimental way on a very small scale, it had got to the core of an important issue for Tumut. This meeting highlighted a real need for the community to be enabled to develop
their own socially oriented projects. The results of ‘Project Tumut’ where able to initiate some suggestions on motivating the community to develop activities, so I hope the project gave the community ideas for their future or at least initiated a conversation which can continue within the community. However the meeting also highlighted that there is still a long way to go before design is more widely accepted as having a significant, legitimate and valid role to offer as a catalyst for social change. A wider acceptance of this design-led research methodology can only be gained through continuing this discourse within the research community and the application of the design-led methodology in research practice until the possibilities described in this paper have been established.

4. Why this Research Methodology ought to be of Value

The value of this design-led methodology lies primarily in repositioning design in social research as an approach to researching sustainable change. This role is of significance to design research, social research and sustainable social change. For design research this methodology works towards giving the discipline legitimacy in the wider research community. Sharing this design-led methodology with other social disciplines can offer social research a different approach which is able to address the need for ‘messy methods’ (Law & Urry, 2004, p. 390). For sustainable social change this design-led approach offers an adductive process of discovering new propositions for society.

For design research this methodology offers a designerly approach aimed not at the production of artefacts (as do many other design approaches to research) but at addressing research questions about sustainable change. This methodology adds to the ‘research through design’ (see Archer, 1995, p. 11; Findelli, 1999, p. 2; Findelli, et al., 2008, p. 71; Frayling, 1993, p. 5) approach which is gaining momentum in the design research field (see for example Findelli, et al., 2008). This kind of methodology gives design researchers more of an opportunity to approach research in a designerly way by asking questions about ‘what next’ instead of focusing on questions ‘about’ or ‘for’ design (see Archer, 1995, pp. 11-12; Findelli, et al., 2008, p. 70). This methodology is articulated in such a way as to enable the design approach to be shared with other social research disciplines. For the design field, the act of sharing the approach helps to legitimate design research in the wider research community. Sharing this approach is of value both to the design field and other social researchers.

For other social researchers this is a fresh approach to research, able to address issues of importance to sustainability studies – like innovations for sustainable social change. This design-led methodology responds to existing social science discourse calling for innovative methods. Within social research the need for more diverse, imaginative methods, has been voiced from various sectors, such as John Law who in his book *After Method* initiates a discussion on the need ‘to unmake many of [social science’s] methodological habits’ (p.7) in order to be able to rethink methods: ‘The task is to imagine methods
when they no longer seek the definite, the repeatable, the more or less stable. When they no longer assume that this is what they are after’ (Law, 2004, p. 6). The design-led method presented in this paper engages with Law’s aim ‘to begin to imagine what research methods might be if they were adapted to a world that included and knew itself as tide, flux, and general unpredictability’ (Law, 2004, p. 7). I propose this design-led methodology has the potential to offer social research one way of addressing Law’s aim.

The methodology also gives different approach to sustainability research able to work within the complex messiness of social systems to discover propositions for sustainable change. For society, a design approach could deliver innovative propositions for sustainable futures. Implementing such a methodology shares an approach which is at once, design-led research and research-led design, able to increase the creative capacity of our society to envisage and implement sustainable change for the better. Hopefully sharing this design approach will widen the acceptance of design research such that one day we will see design researchers called upon to develop interdisciplinary research teams to work on sustainable change.

5. Conclusion

There is still more work to be done on developing this design-led methodology including: conducting a comparative analysis with other research methodologies; establishing more ways of implementing methods into the methodology; to continue the conversation of a design approach to research with other social researchers; and to establish the methodology’s ability to facilitate sustainable change. By focusing on the construction of a design-led approach to social research this paper has aimed at adding to the conversation about repositioning design in society as a catalyst for social change.

In order to research innovations for sustainable social change this design-led methodology is constructed to enable design from within the system of the everyday. This concept is achieved through placing the designer in the role of facilitator and the participant as representative of their system of the everyday. The process of design is enabled through setting up a series of phases which follow the steps of the design process. This process is operationalised with the insertion of participatory methods into the design phases. These methods need to be chosen and developed in such a way as to fit into the particular design phase, build the creative capacity for participants specific to that phase and there by engage them in design.

This design-led methodology offers an approach to sustainability research which utilises the qualities of design to develop innovative propositions for sustainable change. Design's abductive reasoning sets up a research approach for discovery. This playful, dynamic process enables the design-led approach to work within the messiness of the everyday without having to ‘clean up’ first. This methodology has
the potential to be of value to design, social and sustainability research. For design research this methodology gives a designerly approach of ‘research through design’. For social research the methodology offers an approach to ‘messy methods’. For sustainability research the methodology provides an approach to discovering change. The further development of this design-led methodology is working towards repositioning design within social research as a catalyst for social change.

Reference List


