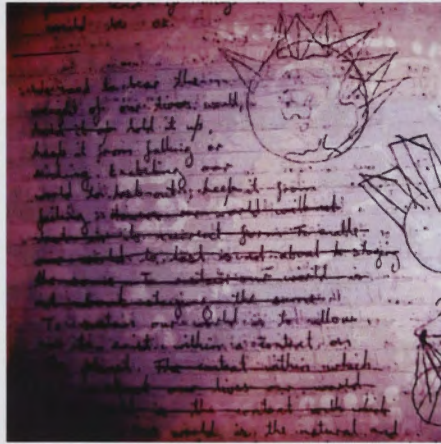
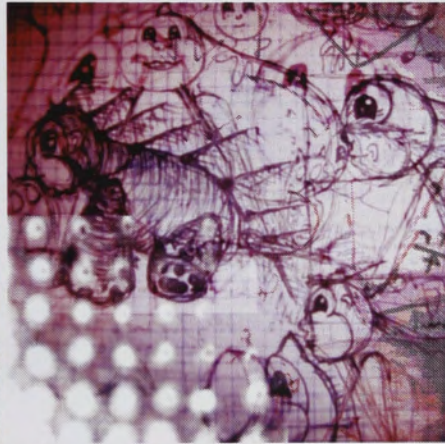
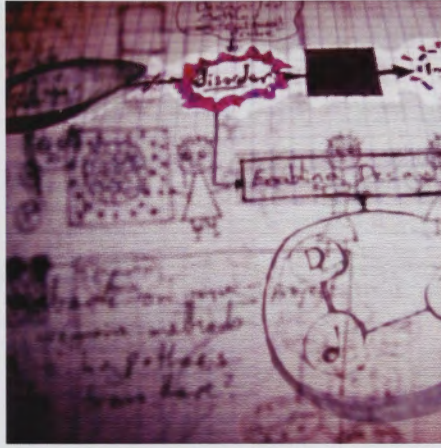
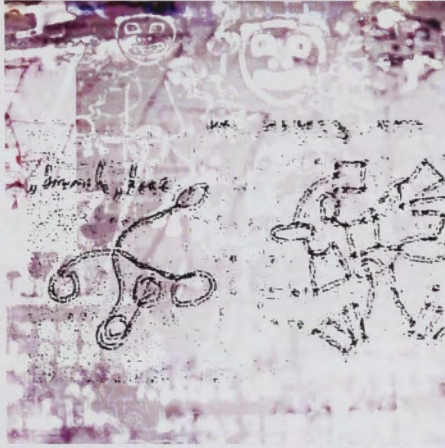


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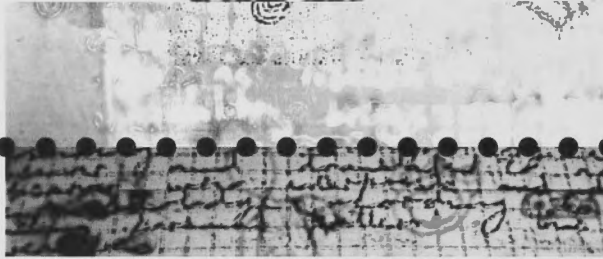
An intersection of design and research within a sustainability context



By
Viveka Turnbull Hocking

Submitted in fulfilment of the requirements for the degree of
Doctor of Philosophy
of the Australian National University

2011



Candidate's Declaration

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university. To the best of the author's knowledge, it contains no material previously published or written by another person, except where due reference is made in the text.

Viveka Turnbull Hocking

Date: 16/10/11

Abstract

Since the notion of ‘research through design’ was included in Frayling’s now famous 1993 paper ‘Research in Art and Design’ many in the design discipline have been exploring the nature of such an approach. This study explores what a research-through-design approach could be like for developing socially oriented research outcomes particularly in regards to sustainability. Much of design research focuses on constructing knowledge related to artefacts. In contrast, this study uses the design approach to construct non-object-orientated knowledge about possible futures. By non-object-orientated I am referring to a design process which does not focus on the artefact and instead is seen as facilitating the practice of everyday life. Hence, the purpose of this study is to construct a design-led methodology for the context of sustainability.

To construct this design-led methodology I compile components from design practice, design research and sustainable design theory to re-mould design into a research methodology. I have also used a design project approach to construct the methodology which is reflected in the structure of the thesis. This approach includes starting with a brief, then compiling the theoretical components and context in the background research, to be distilled into a concept for the methodology. This concept is encapsulated in the notion of enabling design from within the system of the everyday. Then I use field work conducted in a rural Australian town to develop this concept, where participants are engaged in a process of imagining possible futures of sustainable wellbeing for their town. This step applied a ‘thinking by doing’ approach to further develop the concept into an outcome. The outcome is a proposal for a methodology which I call Bigamatics. This final methodology is presented as a mock-up of a guide book for early researchers to develop their own design-led research projects.

I see design research as sitting within a socially oriented research context as all design outcomes are fundamental about society. Hence this design-led methodology should be of use not only to design but to socially oriented researchers more generally. However, this study only attempts to initiate this conversation between a wider variety of researchers, hoping to continue this discourse into the future. The proposed methodology is constructed for an academic context though could also be developed for wider application such as community-based and practice-based projects.

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Preface

Behind the Scenes



The Thesis Entanglement

The impetus behind this PhD project is derived from my desire to see the design discipline play a more significant role in research. This thesis is an attempt to contribute to that cause. My perspective on how to achieve this position is through sharing our approach to what is a common human activity and valuable form of knowledge construction – to design. This section briefly explores how I came to this position by outlining the personal context of my academic background, how it brought me to this PhD research project and how my PhD evolved.

Personal Context

This thesis has been a grand tour, where I have set out to imagine the possibilities of research in my field of design. My personal context has allowed me to consider the nature of knowledge construction in the different disciplines. I started this journey in zoology and philosophy before moving on to the study of design. As a PhD candidate I continued my journey first in the school of tourism, then again in a school of design, and finally ended up in an interdisciplinary school, while engaging in discussion groups with creative practitioners as well as social and environmental scientists. This has focused my attention on the innovative potential of research in design and forged a strategy of sharing the design approach in order to increase the opportunities for design within academic research.



The perspective from which I write is inevitably influenced by the time and place from which I work. Consequently, my passion for finding design a role of significant value in research is contingent on my experiences at this time and location in Canberra where design and other creative practices are largely on the periphery of academic research. From my experience design is not seen as a core research discipline and instead exists on the fringes of academic and research pursuits. These circumstances may not be the case elsewhere; however, my insistence on finding a place for design in the wider research community grows out of the context of my experiences.

The Thesis Journey

I started my journey in the Tourism department (for reasons of relative unimportance which I will not go into here) at the University of Canberra (UC). I did not understand much about tourism theory however it did set up what seemed to be an appropriate analogy¹ for my thesis journey – I was the tourist. I continued my ‘grand tour’ in the department of Design before finding secure funding at ANU’s Fenner School of Environment and Society. Each move, exploration and conversation became an important part of my travels as ‘designer as tourist’. The aim of my thesis became embedded in the question of how the ‘designer as tourist’

.....
1 This analogy is explored further in the An Allegory for Design Research section in the Concept chapter

could become the 'tour-guide'. My thesis journey influenced the context of such a design-led 'tour guide' for research.

My undergraduate education at the College of Fine Art (CoFA) in the School of Design in Sydney has been a significant influence on my practice. This design education focused on concept and process. An influence which is evident in this thesis; from the design process I outline, to the conceptual framework I establish, and the perspective I have on design's approach to knowledge construction. During my final years at CoFA I became involved with the Eco-Design Foundation, which became Change Design. Cameron Tonkinwise, one of its principle organisers, often called Change Design the 'Manzini fan club'. It is involvement with this organisation and the influence of Cameron Tonkinwise that brought me to sustainable design practice and the work of Ezio Manzini. I wrote my honours thesis on Manzini's work, which in turn forms the basis for this PhD thesis.

When I started my PhD, Canberra had only one university design school, located at the University of Canberra (UC). During my PhD a Design Arts department was established in the School of Art at the Australian National University (ANU). In addition, Canberra Institute of Technology (CIT) provided trade level design education. My research community centred on the Creative Research Discussion Group which I set up with my colleague Andrew McKenzie at UC, this group engaged with ANU and CIT as well as UC participants. I also found an external research community through the Human Ecology Forum at the ANU's Fenner School of Environment and Society where I finished my PhD. These groups influenced the way I learned to communicate my approach and my perspectives on the value of design in knowledge construction. In addition, conversations with a visiting scholar to UC, Ranulph Glanville, have been extremely influential to my perspectives on design as research.

I connected to a wider international design research community through the PhD Design list, the Design Research Society e-news and International Design conferences. The PhD Design list is a forum for discussion, via email, connecting design researchers all over the world. This forum kept me in touch with key issues and perspectives important to the design field. I have belonged to this group since my

undergraduate years and noticed since starting my PhD the number of opportunities for Design PhD projects has grown significantly, although mainly overseas. The Design Research Society e-newsletter has been a source of high quality design conferences and publications. I attended as many international design conferences as possible which enabled me to not only gain access to the emergent research in my field but also gain feedback on my work from international experts. The conferences influenced my perspectives on design research, the design approach to knowledge construction and how to best contribute to the field. I also attended a social science conference, this influenced my perspective on cross disciplinary conversations which still remain limited between design and other fields.

Through all these travels I gained a strong sense that the creative disciplines such as design have great potential value to offer the world of research. I also became aware of the need for an ongoing concerted effort to realise this potential through engaging in conversations with the wider research community on the value of creative practice based approaches to research - like the design-led methodology I have explored through this study. Through this thesis I have produced a proposition which I hope initiates a wider conversation into a design-led approach to research and helps establish a role of significant value for design in socially oriented research.

Acknowledgments

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I would like to acknowledge those academics I met through the University of Canberra (UC) School of Design. I would like to thank Craig Bremner for his ongoing advice throughout my PhD and for always being interested in my work. I am grateful to my colleague Andrew McKenzie for helping develop my concepts through diagrams and many great conversations. I would like to thank Ranulph Glanville (a visiting scholar at UC) for his generous conversations which have been so influential to my work.

I would also like to thank all the groups I have been involved in during my PhD. The PhD design list for keeping me up to date with the international design conversation and all the wonderful people I met at conferences. I am grateful to all the members of the Creative Research Discussion Group at UC for being my support group and inspiration. I am also thankful for the Human Ecology forum at ANU for helping me bump up against otherness (in the natural and social sciences) to see the similarities and differences with a design-led approach.

I thank the community of Tumut, particularly Rhonda French and Cate Cross for

their support and all the members of the community who participated in my fieldwork.

Finally I would like to share my appreciation for the Colleges of Science at ANU for providing me with a scholarship to help complete my PhD.

Without the support of this myriad of people, groups and institutions my thesis journey could not have been so fruitful.

Chapter I

Introduction



The many details may appear evasive
but the purpose of the total was obvious
& uncompromising

Last verse of *The 'Utopia'* by Lee Harwood
(Germain, 1978, p. 299)

The possibilities for design research extend beyond the object. Similarly, in Lee Harwood's *The 'Utopia'*¹ the numerous lines of this surrealist poem describe the many objects which filled 'the table', the stories that surround them, and the environment they exist in, to talk about people and society. I have used the last verse of this poem as the first lines in this thesis to frame the intersection of design and research in the context of sustainability.

When considering the design of everyday life, if the focus is placed on the object then, as Harwood's poem suggests, 'the many details may appear evasive'. But when design is reconsidered in the whole context of the everyday 'the purpose of the total was obvious'. With growing concerns relating to sustainability the need to pursue 'the purpose of the total' is becoming 'uncompromising'.

Despite the good intentions of many, Design still continues to be far more "part of the problem" than "part of the solution"; serving more to accelerate unsustainable processes rather than promoting new ways of being and doing (Manzini in Cipolla & Peruccio, 2008)

Then perhaps, although design is most often thought of in association with the construction of 'the many details' of artefacts, design as 'the purpose of the total' could also become a process for constructing socially relevant knowledge for action. In response to the growing concern raised under the title of sustainability, a purpose for design research may also be to reconstruct design into an approach for, the 'utopia' of, sustainable social change '...the total was obvious & uncompromising'. Thus, it is from within this frame that the thesis constructs a design-led methodology.

.....

1 A full transcription of the poem *The 'Utopia'* by Harwood's can be found in Appendix 1

Design as a profession may have arose out of the industrial revolution, producing many more ‘details’ for everyday life; however, design is also a process that we all do and have done for quite some time. Within the intersection of design and research in the context of sustainability exists an opportunity for designers to share a designerly form of knowledge construction. This thesis positions design within socially oriented research to propose a design-led approach to sustainability.

Terminology

Before further outlining the thesis context, area of investigation, structure, aims and objectives, I will first define how I intend to use the words ‘design’, ‘socially oriented research’ and ‘sustainability’ in this thesis. A more detailed list of defined terms can be found in the Glossary section at the back of this thesis.

Design, design & design

The word *design* in the English language has many uses. Although I explore the nature and characteristics of design in more detail later², it is important to initiate, here, how the word *design* will be used in this thesis. Design is used to suggest a practice; an activity of formulating ideas, often visually, in relation to artefacts and proposing them for implementation: this is the *practice* and *activity of design*. This practice goes through certain processes that characterise the activity: this is the *design process*. Design also describes a discipline of study within academic settings: this is the *design discipline*. Design is also a profession where designers work, often in association with clients, to construct graphics, architecture, industrial products, fashion, interiors and landscapes: this is the *design profession*. Many examples can also be found where the word *design* is used to suggest a finished artefact; however, this sense of design will not be used in this thesis.

The design discipline can be identified as belonging to a diverse group of *creative practices* which includes a wide variety of other fields such as the visual arts, crafts, music, creative writing and so on. The term *creative practices* is used in this thesis as a loose grouping of fields which share a ‘creative’ and ‘practice based’ context with design and have a similar origin of knowledge construction³. The use of this term is not intended to suggest that other disciplines, outside this grouping, do not use creative forms of practice.

In addition this thesis does not try to assert that design, in the form of design practice and the artefacts which are produced, can be directly thought of as research⁴. Instead, I use *design as research* to mean the remoulding of design into a designerly form of research (ie. research-through-design).

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2 See the Design Practice section of the Background Research chapter.

3 Discussed further in the Historical Context section of the Background Research chapter.

4 Explained further in the Context of the Study section below.

Socially Oriented Research

For this thesis I define *socially oriented research* as all research that has a social aspect and I include design under this umbrella because all design is, inevitably, about society. I would have otherwise used the words *social research*, however, this term is most often used specifically for social science approaches and I want to broaden the definition to all disciplines that conduct some form of socially oriented research, which could come from across the research community (eg. natural science, social science, humanities, design research). Consequently, I use the term *social research* to categorise a set of approaches from the social sciences which are distinct from (although like action research or ethnography are sometimes used in) design research and I refer to *traditional research* as dominated by all forms of the humanities, natural and social sciences, both socially oriented or otherwise.

A socially oriented research outcome is (the same as a social research outcome) the construction of knowledge that has a social context, explanation, use or application. Although the argument that all research outcomes are relevant to society may be true, however in using the term *socially oriented research* I am trying to distinguish this kind of research from research focused on nonhuman entities like stars or soil ecologies⁵ or topological quantum field theories. The significance for this study is that I see design research approaches as most appropriate to research directly dealing with a social element than those that do not. In addition, instead of the research outcome being an *artefact* or *product* as is common in design research, in this thesis, I use the *outcome* of socially oriented research to focus design-led methodology on a non-object orientated research practice. This thesis attempts to contribute to designs place in the socially oriented research community and in so doing open up possibilities for future research.

Sustainability

Sustainability is widely acknowledged as having ambiguous and contested meanings (Daniell, 2007; Davison, 2008). A term used as a response to our pending social and environmental crisis, as an alternative to the project of modernity and consumption,

.....
5 For example, in the case of soil ecology the study of the effects of salinity on a soil ecology would not be socially oriented whereas the study of the management implications would be socially oriented research.

as a different mode of responsible non-destructive practice, as a ‘triple-bottom-line’ accountability mechanism, as a pragmatic approach to ecological recovery and a way of changing our future. Despite the plethora of meanings and uses, collectively this ambiguity can be valuable in defining sustainability as a complex socio-environmental issue, which is ‘wicked’ (Rittel, 1972)⁶ and ‘messy’ (Law, 2004).

Although many theorists still consider sustainability to mean ‘meeting the needs of the present without compromising the ability of future generations to meet their own needs’ (Brundtland Commission, 1987, p.43), I see the ambiguity of sustainability employed more usefully in the form of a less constrained definition. For example, from a policy perspective sustainability can be defined as ‘a long-term social goal’, where sustainable development addresses that goal (Dovers, 2005). Similarly, in this thesis I define sustainability as the idea of *a kind of change for the better*, this then becomes fundamentally a design question about what kind of future we want and is used to prompt a series of questions about what kind of change, what is better, for who and who chooses?

Imagining sustainable futures is an integral part of the paradox, uncertainty and complexity of sustainability research. The ‘wicked’ nature of sustainability needs both critical and creative approaches ‘to be open to different ways of thinking, to use imagination to the full and to be receptive to new ideas and new directions that match the times’ (Brown et al., 2010, p.4). Although creative practices such as design have not been seen as a significant part of traditional research, as Brown et al. (2010) highlight, the aptitude for creative thinking and imagination is paramount to addressing sustainability and thus a design-led approach is of significant value to contemporary research. In addition, as an area of research and a social goal, sustainability involves many different disciplines that lie within socially oriented research. Hence sustainability is used in this study to provide an opportunity for design to engage with the socially oriented research community more widely, to show design’s value in such research, to share approaches, and establish a more significant role for design among these many disciplines.

.....
6 Rittel’s wicked problems theory is explained under the Complexity part of the Sustainable Design section in the Background Research chapter.

Context of the Study

By way of introducing the study, this section initiates the context and area of investigation, which will then be discussed further in the next Brief chapter and then built on in the following chapters. This section starts with the contemporary discourse in design research, auxiliary movements in other socially oriented research disciplines, and opportunities arising from the area of sustainability research. This context gives rise to the question for this thesis.

Over the last decade or so there has been much talk about design research: what it contributes to knowledge (see Downton, 2004), how it works (see Cross, 1990, 1999, 2001) and why it is of value (Manzini, 2000). These discussions predominantly centre on Frayling's (1993) idea of research *into*, *for*, and *through* art, craft and design, with the focus on research *through* design. Since Frayling's paper, design scholars have been exploring the potentiality for such a research pursuit. Design in the most part is thought of as producing artefacts – cultural products; however, the ideas evoked from the notion of 'environmental crisis' have caused a reflection on design and what it does. In order for design to avoid proliferating an unsustainable culture of living⁷ it needs to take the focus off the object. This follows a move in the discipline⁸ to change the focus to the role of design in society: as a systems approach that facilitates our everyday lives (see for example Manzini's work since 1990). In turn this re-designing gives design research opportunities to move beyond the object and towards knowledge construction for socially oriented research outcomes.

At the same time, within social research there have been calls for innovations in methods, which are opening up spaces for a design-led approach. Various sectors of social research are highlighting the need for more diverse, imaginative methods, including methods which bridge disciplines; from post-development theorists like Gibson-Graham (2005, p.6) who discusses the need for more imagination and creativity in research practice; to environmental scientists like Will Steffen who talk about the necessity for 'bridging the disciplinary divides' in order to 'achieve

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7 The idea 'Culture of Living' is discussed further in the Concept chapter where I use the idea to construct a conceptual model for this study.

8 This move is documented in work on sustainable design such as the Design Issues special double issue 'Designing the Immaterial Society' vol.4 no.1&2 1988

a new level of complex understanding' (in Grafton, Robin, & Watson, 2005, p. xii). Another influential voice in the social sciences is John Law (2004); 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 research approaches:

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).

Law (2004) sets the challenge for social research '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' (p. 7). Law's proposition opens up a space for design approaches to offer ways of addressing this aim.

In addition, socially oriented research in sustainability also provides an areas of opportunity for design approaches. The issue of environmental concerns and sustainability will take an immense amount of social imagination, creativity and innovation from all parts of society – academic, local, entrepreneurial, political. Do we as a research community and a society have the creative capacity to develop projects that deliver innovative propositions, and are we able to develop creative capacity in others, enabling them to engage in creative processes which can deliver such innovative outcomes? This is a space in which creative practices such as design can contribute.

To date most sustainable design research has focused on developing more sustainable products; however, design research can also contribute to socially oriented research questions which go beyond the artefact and enter a wider interdisciplinary context. The complexity of sustainability research has required that academic institutions form interdisciplinary collaborations and integrative studies to tackle its multidimensional nature (Sherren, Klovdahl, Robin, Butler, & Dovers, 2009). However, as Sherren et. al. (2009) attest, this collaboration has focused on the three main academic traditions: natural science, social science and the humanities. If creative practices are to be included in this academic mix for the benefit of sustainability research, then fields such as design need to articulate and consolidate the design approach in an accessible manner – not just for design researchers but socially oriented researchers in general. I see a need for developing a design-led methodology that allows design

research to be more widely accessible and useful for the study of sustainability.

There is much debate within the field of design about the relationship between research and the activity of design. This is a conversation that goes to the heart of the nature of research and knowledge construction, and question what are legitimate research outcomes: does a research outcome have to reside within a written document or can it be a three dimensional artefact? Although it provokes important conversations for research in the creative practices, I have not entered into this debate here. For the purposes of this study I have chosen to follow those design theorists who argue that design practice is not in itself research (Findeli, Brouillet, Martin, Molneau, & Tarrago, 2008). The question for this study arises out of the premise that if design practice is not research then *how could design be constructed as research for sustainability?* Given the many comparisons made between the design approach and research, including Glanville's (1999) provocative statement that 'scientific research is a subset (a restricted form) of design' (p. 87), the task for this study is to re-construct the existing components of the design approach into a proposal for a design-led research methodology.

Area of Investigation

How can design be constructed as research for sustainability? is a big question which I have approached in a specific way, to come up with a specific response. First I choose to see design as constructing knowledge not just for artefacts but for socially relevant research. This places design within a larger umbrella of socially oriented research. I choose sustainability as a socially oriented research agenda shared across disciplines which design approaches can (and do) contribute. I then use components from design practice, design research and sustainable design theory to compile a proposition for a design-led methodology. Thus, this methodological endeavour is about compiling and consolidating a non-object oriented version of existing parts. That is, this study aims to develop a proposal for a design-led research approach, which focuses on knowledge construction rather than artefacts, and chooses sustainability as a research area that could benefit from such an approach.

The discussion surrounding design research, as Findeli et. al. (2008) notes, is still drawn back to Fraying's, and Archer's⁹, distinction between the different kinds of design research: *into*, *through* and *for*. This study focuses on the *through* context in developing a design-led approach to sustainability immersed in a designerly form of knowledge construction. By exploring the possibilities of research *through* design to develop a design-led methodology this study addresses the design discipline's need for a designerly approach to research and a socially oriented research need for creative approaches to dealing with the complex areas of investigation like sustainability. Due to institutional pressures, design as an academic discipline is trying to find its place in research; as a result, much work is being done to explore research methodologies for our field. While many within design (see for example Bayazit, 2004) focus on design research as a contribution to the knowledge of designing artefacts¹⁰; in contrast, I see design's place as contributing to the knowledge about propositions for our sociocultural future.

By focusing this study on design approaches to the complexity of everyday life – such as 'messiness' (Law, 2004) and 'wicked problems' (Rittel, 1972) – I have followed the systems approach to design, prevalent in European design theory and sustainable design discourse¹¹. This focus is, in part, due to the influence of Manzini's (1992) appeal for more complex approaches that can dealing with the irreducible complexity of everyday life and the growing necessity of the sustainability 'crisis', which fed my curiosity for imagining what such a methodology could possibly look like. This PhD thesis is formed out of the coupling of this compelling creative task with the opportunities sustainability provides, to find a place for design of greater significant value in a wider socially oriented research context. In proposing such a design-led methodology I aim to continue this discourse into complex, messy, approaches to 'understand reality without losing what we have discovered about its irreducible complexity' (Manzini, 1992, p. 12).

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9 Although some prefer to identify Archer as instigator of this design research trilogy, most theorists site Frayling's 1993 paper. These theorists and their theory will be further discussed in the Design Research section of the Background Research chapter.

10 Bayazit (2004), while reviewing 40 years of design research, goes as far as to state that 'design research is concerned with the physical embodiment of man-made things' (p.16) as one of its primary concerns.

11 Discussed further in the Sustainable Design section of the Background Research chapter.

The remoulding of design into *design as research* can take many different forms. This thesis is not attempting to propose *the* only design-led methodology, instead it intends to construct *one* possible design-led methodology among many other such methodological approaches that could, will and already do exist (eg. Critical Artefacts and MAPS¹²). Through this thesis I am not intending to evaluate existing design research or forecast future directions; instead, I am engaging in the creative process of constructing a proposal and in so doing am building knowledge on what could be.

Perceived Audience

Although the design-led methodology, developed through this thesis, is of particular relevance to design research, potentially it is also of use to others under the umbrella of socially oriented research. For this reason, I have attempted to make the communication of this work accessible to all such researchers; however, have only gone a small way in achieving this. More work needs to be done to make design approaches accessible to those outside the creative practices. Like Snow (1964) described in his 'Two Cultures' Rede lecture of 1959, it is my view that there also exists a conceptual divide between the creative practices and other more traditional research disciplines, for a number of reasons. One cause, is that often other disciplines are unable to perceive theory and method within creative approaches in a manner considered comparable to their disciplines. Another cause, as Murphy (2009) describes, is the non-language based context of creative practices like design. The design approach is contained within a practice and set of creative skills, which are not often taught to undergraduates from other disciplines like the sciences and social sciences. In addition, some outside the discipline of design find the design approach to writing unconventional and have issues with it being a legitimate academic style. This attitude can also act as a barrier to the accessibility of this thesis outside design and other creative practices. Even so, I have attempted to go some way towards bridging this divide; hence, I would still like to suggest that the perceived audience for my study could be any socially oriented researcher interested in creative approaches for their research practice and particularly creative practitioners like designers looking for more designerly approaches to research.

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12 Discussed in the Methodological Associations part of the Socially Oriented Research Context section in the Background Research chapter.

Thesis Structure

mullins and Kiley (2002) outline the ‘traditional’ thesis structure as ‘introduction, literature review, methodology, results, conclusion’ (p.377); highlighting that although it is ‘no longer universally accepted as appropriate’ (p.377) most theses, indicated through their study, do not depart much from this model. While this structure may be a familiar format for the research process in the sciences, the field of design, in my experience, does not generally refer to the design approach in this way. Instead, the structure which is more familiar to me is a process I have derived from my design education at the College of Fine Arts (CoFA) and developed through my practice of design since. Design projects at CoFA use a design process which follows the format of: brief (as instructions given for the assessment), research (initial phase of project), concept (one line phrase as ‘in a nutshell’ idea for the project), concept development (process of constructing a design outcome), and presentation (pin-up communicating outcome). I have developed this structure into a set of six headings: brief, background research¹³, concept, concept development, design outcome¹⁴, presentation. Although I find these set of process headings useful and effective, they are not a universal set of headings agreed on by all designers. Even though some design academics may question this particular set of headings they do depict a general process which others in the field find recognizable, and although the specific heading may differ between designers this basic process is generally held in common¹⁵. I use these set of six headings to define the designerly process and to construct this thesis structure. Departing from the ‘traditional’ thesis structure might be less conventional for other socially oriented research disciplines; however, from a quick survey of recent design theses the use of alternate structures is common in the discipline of design.

Choosing a structure for this thesis that could adequately depicts the design-led research conducted – where something ‘new’ is created – needs to communicate the design process (to construct, in this case, a design-led methodology). For this reason,
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13 I call this third heading ‘background research’ instead of ‘research’ to avoid the assumption that the act of research is only conducted in this step.

14 I include this ‘design outcome’ heading to mark the point when the design idea comes to fruition.

15 Further discussed, by comparison with other approaches, in the Methodological Associations part of the Socially Oriented Research Context section in the Background Research chapter.

I decided to apply the six design process headings, mentioned above, with three additions: a Preface and Introduction to start, and a Conclusion to end (See Figure 1).

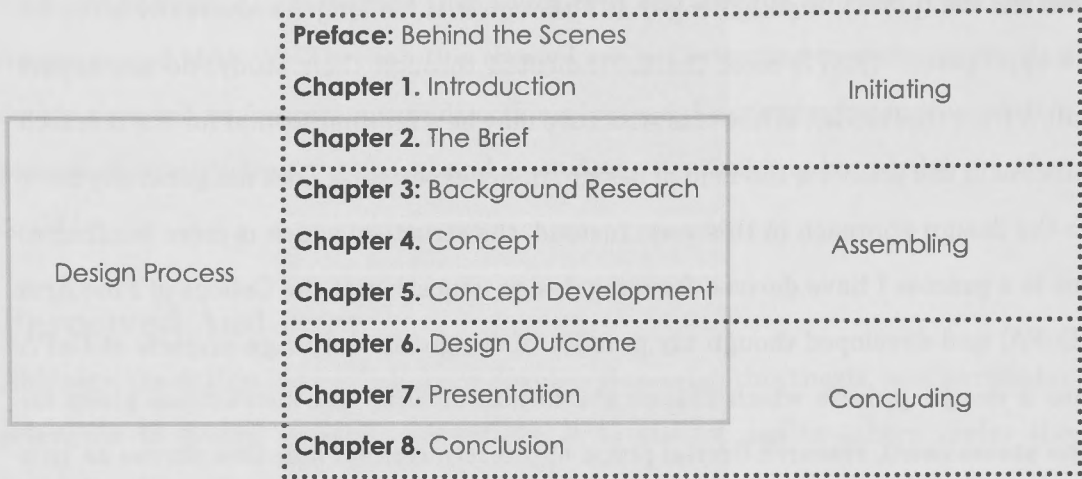


Figure 1: Thesis Structure

This structure can be broken up into three parts (see right column in Figure 1): Initiating, Assembling and Concluding. The *initiating* part sets out how the thesis is constructed; including the choices made for both the written communication of the thesis and the establishment of the project. While the Preface and the Introduction initiate the thesis, the Brief chapter initiates the project as a design process. The Brief establishes the scope of the project by outlining the criteria and explaining the epistemological context to be used.

The next *assembling* part establishes the components used and how they are put together. First, the Background Research chapter identifies the components to be used in the project. Then the Concept chapter distills a concept from these components. Finally, the Concept Development chapter starts to assemble the proposed methodology.

The *concluding* section finalizes the design process and then the thesis. First, the Design Outcome chapter describes the outcome of the construction. Secondly, the Presentation chapter shows the proposed design-led methodology. Then the Conclusion chapter closes the thesis by consolidating the contribution to knowledge.

Aims and Objectives of the Thesis

In response to the question of *how can design be constructed as research for sustainability?* this thesis follows the creative process of designing a methodology. Construction is at the core of this research. The outcome of which is a proposal for a new kind of design-led methodology.

The aims and objectives for the overall thesis are expressed below. The scope and criteria for the research are discussed in the following Brief chapter.

Aims

This study is defined by four aims (see Figure 2).

Aims	Exhibited in the Study
1. To imagine a place for design in a wider socially oriented research context	Establishes the context for the research
2. To use a design approach	Determines the thesis structure and the procedure for the research project
3. To develop a designerly form of non-object oriented research.	Defines the kind of methodology to be designed
4. To propose a design-led methodology appropriate for sustainability research	Stipulates the kind of research outcome to be produced

Figure 2: Aims of the Thesis

The first aim imagines a circumstance where design has a role of more significant value in the research community. This establishes a landscape for the study as a place for design within a wider socially oriented research setting. It is from this imagined setting that the intersection of design and research in the context of sustainability is derived in the Brief chapter, which defines the scope and criteria for the project. The second aim predicates how the study is conducted; as a design approach, which is expressed both through the project procedure and the structure of the thesis. The third aim prescribes the kind of construction to be designed through this thesis; as a design approach to construct knowledge for the purposes of socially oriented research rather than artefacts. This third aim defines an approach that forms a

duality between design and research; as simultaneously design-led research and research-led design. This duality forms a two way bridge between design and other research; enabling design approaches to better contribute to the generation of new understanding of issues, such as those related to sustainability, by applying design to socially oriented research. Finally the fourth aim outlines the kind of outcome the thesis should produce; as a proposal for a design-led methodology for sustainability research.

Objectives

This thesis, as stipulated in the aims and the structure sections above, uses a design approach. This means the tasks for this study are characterised by the design process and the objectives for the thesis are defined by these tasks. The objectives follow the process of designing a methodology, and are set out against the appropriate chapters in the thesis (see Figure 3).

The first objective, as for most theses, is to show what the thesis is about. The second objective is to identify the intersection between design and research in the context of sustainability, in order to establish the scope and criteria for the project. The third objective is to collect, select and analyse the appropriate components and contexts to be used in the study. The fourth objective is to synthesis these components and contexts into a concept. The fifth objective is to compile these components and contexts within the conceptual framework. The sixth objective is to describe the outcome of the construction and how it meets the project criteria developed throughout the study. The seventh objective is to demonstrate how the methodological outcome works and why it is significant. Finally the concluding objective is to consolidate the study's contribution to knowledge.

Objective	Chapter	Structure
1a. Show what this thesis is about	1: Introduction	
2a. Outline an intersection between design and research in the context of sustainability. 2b. Show how this intersection provides a scope for the project and establishes the project criteria.	2: The Brief	Initiating
3a. Identify the components and context for constructing a design-led methodology for sustainability research. <ul style="list-style-type: none"> • What is the context of design within knowledge construction and the traditions of research? • What are the components of design that can contribute to a design-led methodology for sustainability research? • What kind of research can design do? • What are the components and context of design research to be used • What are the components and context of sustainable design and sustainability research to be used 3b. Outline how these components and context add to the criteria for the project.	3: Background Research	Assembling
4a. Distil how these components and contexts can be conceptualised for the purposes of constructing a design-led methodology. 4b. Outline how this conceptual framework expands the criteria for the project.	4: Concept	
5a. Compile how the components can be put together within the conceptual framework to produce a design-led methodology for sustainability research. 5b. Compile the final set of criteria for the project.	5: Concept Development	
6a. Describe what kind of methodology is produced from this construction. 6b. Fulfil the criteria for the project and show how the outcome meets the criteria and the brief.	6: Design Outcome	
7a. Demonstrate how this methodology could work and why it is significant.	7: Presentation	Concluding
8a. Confirm what this proposal's contribution to knowledge is.	8: Conclusion	

Figure 3: Objectives of the Thesis

Thesis Overview

This thesis contributes to the knowledge of how to use the creative practice of design as an approach to socially oriented research, particularly in relation to the complex socio-environmental issues of sustainability. The thesis achieves this by constructing a proposal for one such design-led methodology that can generate socially oriented research outcomes relevant to sustainability. This methodology is constructed through a designerly approach which compiles components from design practice, design research and sustainable design theory. Design is identified as an approach to knowledge construction that can address ‘what next?’ kinds of research question like *what could/should/ought to be?* rather than *what is?*, *why it is?* or *what will be?*. In addition, the thesis identifies sustainability research as asking a designerly kind of question about *a kind of change for the better* and providing an opportunity to share the ability to design with the wider socially oriented research community. The components and context are distilled into the concept, *enabling design from within the system of the everyday*, to form the framework for constructing a design-led methodology for sustainability. This conceptual framework is then developed through a thinking-by-doing process, incorporating participants from the community of Tumut¹⁶, to develop the methodological outcome. The proposal of the design-led outcome defines and describes the methodology and guidelines are presented on how it can be used. The proposed design-led methodology, named *Bigamatics*, aims to contribute to the discourse in the field of design on research *through* design and in socially oriented research more generally on creative approaches to research. The implementation, application and testing of this methodology is left to future research.

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16 Tumut is a rural town in NSW, Australia. For a profile of Tumut see Appendix 2. The Tumut fieldwork will be explained further in the Concept Development chapter.

for designing a better future¹. Combinations of these three perspectives form a setting in which a design-led methodology can be devised. Combining design as a process with research diversity generates an opportunity for design research to contribute to the wider socially oriented research community. Merging sustainability, as change for the better, with research diversity forms a need for imaginative, creative and innovative approaches to develop what it is we want our future to become. Then together the amalgamation of sustainability, as change for the better, with design, as a process, and research diversity builds a role for design in constructing knowledge for change. This amalgamation forms the foundation for the development of a design-led methodology.

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1 Sustainability as defined in the Terminology section of the Introduction chapter.

The Project

The initiating impetus for this project, as explained in the introduction chapter, comes from Manzini's appeal for models that can engage with complexity.

The extraordinary "invention" of modern thought consists of simplifying reality to simple and even easily attained goals.... The links that have been neglected are reappearing as problems. The grand project of the simplification of reality is showing its limitations. The systemic complexity that was thrown out the window is entering now through the front door. To confront it, to find a type of behavior that can bring up to date our Western idea of "doing," we must first develop new models with which to comprehend reality. We need models that will let us understand reality without losing what we have discovered about its irreducible complexity. (Manzini, 1992, p. 12).

In response to Manzini's request the intention of this project is to construct a design-led methodology for sustainability research; where sustainability is chosen as an example of a socially oriented research application, of 'irreducible complexity', which the methodology can contribute to in a valuable and significant way. Hence, this project is fundamentally a design project to construct a methodology. As described above, the project is founded on the amalgamation of design and research in the context of sustainability which determines the kind of methodology to be constructed: one which can provide a designerly approach to constructing knowledge for change towards a more sustainable future. In order for an 'endemic' kind of design methodology to be constructed through this project I use components and context from design practice, design research and sustainable design theory. For the same reason, the approach taken for the project is also derived from design. In addition, given the desire for the design-led methodology to be used in a wider socially oriented research context, I also include some elements from outside the field of design.

Specifications

The specifications for such a project as this have existed in design theory at least as far back as Rittel's 1972 paper, *On the Planning Crisis: Systems Analysis of the First and Second Generations*, which is the initial paper on wicked problems. The requirements put forward by design theorists such as Rittel, Manzini, Findeli, as well as social research theorists such as John Law, as outlined in the Introduction chapter, provide this project with an agenda for what it will endeavour to accomplish. This section takes the context of the study from the previous Introductory chapter

and expands it into the specification for the project. However, the aim here is not to give an extensive theoretical explanation, as this is explored in the following Background Research chapter. Instead the intention is to pull these ideas together in such a way as to explain how the initial criteria for this project are established.

Design research is a young field (Findeli, et al., 2008) and the lack of ‘old’ traditions in research leaves the field open to exploration and innovation, making possible projects such as the one constructed here. There are many questions about design research still open for exploration. Such questions as asked by Findeli et al. (2008) give a framework in which the design research specifications for this project can be formed:

Strange as it may seem, the central question as to what could or should be the target of design research is still on the agenda. It can be broken down into the following, recurring set of questions:

What exactly are the objects [ie. subject-matters] of design considered as a scientific, academic discipline?

What are the phenomena of the world we are interested in observing and understanding, that are not already the “property” of other disciplines?

What do we intend to say about these phenomena that is not known yet and that other disciplines cannot know or at least that design claims to know better?

(Findeli, et al., 2008, p. 69)

In response to Findeli, et al.’s, core set of questions for design research, it is important to first reiterate that this project is not attempting to find the overall or universal design research methodology. Instead this project is attempting to construct one among many potential design methodologies. However, these set of questions forms an important framework for explaining the kind of methodology this study intends to construct. Responding to these three questions provides the purposes of this project:

1. The subject matter is a habitable system of everyday life.
2. The phenomena of interest in observing and understanding are imagining change for the better.
3. The intention is to know about ‘our dreams for the future’ what we as a community and a society might want to be and what might be possible and plausible actions.

In this way the project intends to remould design into the kind of research which generates socially oriented research outcome rather than a physical artefact. However, as may be suggested by the Findeli et al. questions, it is not the intention of this project to definitively prove that this approach is ‘not already the “property” of other disciplines’ or ‘claim to know better’ (Findeli, et al., 2008, p. 69). This project only intends to propose the potential of such an approach and leaves the acquirement of proof for future research.

Remoulding design into research is based on the assumption that design practice is not already a form of research, as established in the Introduction chapter. It is also contingent on the assumption that endemic design approaches can construct knowledge. This assumption is confirmed by design theorists such as Cross (1990, 1993, 1999, 2001) and Glanville (1999, 2006a, 2006b, 2008) who have explored designerly ways of knowing. In addition the project is established as choosing research-through-design as the type of research that design is to be remoulded into. Research-through-design exhibits the most potential for the purposes of this study’s endeavour to construct a design-led methodology for sustainability and which could be used by design or other socially oriented researchers. This potential comes from contemporary movements in design research to explore the possibilities of design-through-research (as expressed in Findeli, 1999; Findeli, et al., 2008; Jonas, 2007) and an opinion held within design research that ‘research through design may be the greatest contribution of the design research community to other research communities’ (Forlizzi, Stolterman, & Zimmerman, 2009, p. 2895). In addition, the study differentiates the construction of this design-led methodology from others by remoulding design into a methodology that delivers non-object oriented outcomes, engages with socially oriented research more widely, and contribute to the dematerialisation movement² within sustainable design research. Non-object oriented outcomes can be considered as akin to the socially oriented research outcomes from other disciplines where socially relevant knowledge construction is the purpose of the research rather than contributing to the direct production of artefacts.

The outcome of this study is a proposal for a design-led methodology for sustainability

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2 This dematerialisation movement is discussed and demonstrated in the works of Diani, 1988; Manzini, 1992; Moles, 1988

research. As a design research project this outcome, according to Findeli et al, should provide knowledge to the design community including researcher, practitioner and educator:

The researchers' community is interested in "fundamental" or "theoretical" knowledge, the practitioners' community in "applied" and "useful" knowledge, and the educators' community in "teachable" and "applicable" knowledge. (Findeli, et al., 2008, p. 74)

The outcome of this project, although primarily focused on the research community, should be not only 'theoretical' but also 'useful' and 'applicable'. That is, the main focus of this study is to propose a methodology for research. However, that research could potentially take on a practitioner form. Although, perhaps, a different kind of design practitioner than is conventionally understood. Hence, the methodological outcome can be 'applied' and 'useful'. In addition this methodology is intended to be shared and thus should have an education aspect such that it is 'teachable' and 'applicable'. For the purposes of this project I have opened up the act of design to all those who design, not just design professionals. However, I have concentrated on researchers with a social focus. Hence the project should contribute to the role of design within socially oriented research.

In addition Findeli et al. suggest that a design research project, such as this, should construct knowledge to improve both the act of designing and the consequences on our lives:

This means in particular that there is no point carrying on design research if it does not end up improving the act of designing and consequently the lives of those addressed by the act, ie. presumably all of us inhabitants of the world. (Findeli, et al., 2008, p. 74)

In the context of this project the knowledge constructed should contribute to improving the role of design in research. The project intends to develop a creative approach to socially oriented research. As discussed in the introduction, this requirement is based on a growing impetus from social research, according to Law (2004), for methodological approaches which are not definite, repeatable or stable and which 'engages in tide, flux and general unpredictability' (p.7). The project is contingent on the endemic qualities of design having the ability to provide this kind of creative approach to knowledge construction. However, developing a

design-led methodology from endemic forms of knowledge construction necessitates the selection of appropriate components and contexts from design practice and research (such as documented by Cross, 2001; Downton, 2004; Glanville, 1999) to fulfil Law's requirements. Thus in so doing, the methodology should improve the act of design in socially oriented research; for the purposes of constructing knowledge about hopes, dreams and aspirations; for possible and plausible sustainable futures. Consequently, the project should also help to improve the lives of those addressed by this act: 'all of us inhabitants of the world' (Findeli, et al., 2008, p. 74). Contributing to the construction of knowledge about possible sustainable futures will hopefully aid the development of sustainability as a common goal. To address wicked problems such as sustainability, Rittel (1972) recommends design (and planning) establish an approach that facilitates a process to maximises involvement, where the designer is 'midwife' rather than 'expert' (p.395). Rittel (1972) argues that the process is 'too risky' for one person, it requires 'accomplices' to 'share the risk' and be 'courage[ous]' enough to 'live with the uncertainty' (p.394). Similarly, as discussed in the introduction, environmental scientist Will Steffen express the need for 'bridging the disciplinary divides' in order to 'achieve a new level of complex understanding' (in Grafton, et al., 2005, p. xii). Hence the project should develop a methodology which can construct collaborative forms of complex understandings, where collaboration can be both cross disciplinary and include those 'addressed by the act' (Findeli, et al., 2008, p. 74).

Finally Findeli et al. identify that the main consequences of design should be providing a habitable world:

Consequently, the purpose of design research is directly tied to the purpose of design... which...is: to improve or maintain the "habitability" of the world, in all its dimensions (physical, psychical, spiritual). (Findeli, et al., 2008, p. 74)

The focus on 'habitability' as the design purpose is also shared by Manzini.

The designer's ultimate responsibility can only be to contribute to the production of a habitable world, a world in which human beings not merely survive but also express and expand their cultural and spiritual possibilities. (Manzini, 1992, p. 6)

In placing habitability as the fundamental purpose for design, both theorists take the primary focus off the artefact and choose a larger and more profound context for

design. Habitability establishes a specification for this study's over-arching aims. This context of making our world habitable is akin with the perspective of sustainability used in this project. Hence, for this project, if sustaining the habitability of our world is about 'not merely survival but also expressing and expanding our cultural and spiritual possibilities' (Manzini, 1992, p. 6) then, as Findeli (2001) defines, the development of approaches to sustainability is a responsibility of design:

design responsibility means that designers always should be conscious of the fact that, each time they engage themselves in a design project, they somehow recreate the world. (Findeli, 2001, p. 14)

Within this context sustainability is a core purpose of the design-led methodology to be constructed in this project. The design-led methodology should attempt to act as a catalyst for positive social change, as Manzini (2007) states, by aiding the imagining and building of sustainable futures:

an effort must be made to play a positive role in the social discourse on how to imagine and build a sustainable future. (Manzini, 2007, p. 233)

Playing such a role in social discourse requires the opening up of a collaborative design conversation about what kind of sustainable future we want which can support social behavioural change. A collaborative design approach is reliant on the creative capacity of the participants (as suggested by Bowen, 2007, 2008). Hence the study intends to construct an approach which builds creative capacity to propose sustainable futures.

Forlizzi, Stolterman and Zimmerman (2009) are critical of design research for often failing 'to document and produce theory that researchers and designers can apply in future research and practice' (p. 2890). As part of a move to address this failing the purpose of this study is to contribute to the documentation of approaches to design research for researchers. However, this project only intends to go as far as proposing a methodology; to the extent that an understanding is established of what it ought to be like, how it could work and why it should be of value. The intention of the proposal is for the methodology constructed through this project to be shared, further developed and tested in future research.

Criteria

From the above specifications four key criteria are outlined for this study (see Figure 4).

- 
1. Remould design into research
 - a. Research through design
 - b. Non-object oriented
 - c. Socially oriented research outcomes
 2. Develop a creative approach to socially oriented research
 - a. Not definite, repeatable or stable
 - b. Engages in tide, flux and general unpredictability
 3. Construct collaborative forms of complex understandings
 4. Build creative capacity to propose sustainable futures

Figure 4: Initial Criteria

The first criteria come from design research specifying that this project should remould design into a form of research which can be described as research-through-design to produce socially oriented research outcomes that do not focus on the artefact. The next criteria come from social research (ie. from Law, 2004), stipulating that this project should develop a creative approach that does not seek the definite, repeatable or stable; instead, is engaged with the tide, flux and general unpredictability of everyday life. The third criteria comes from design theory as well as other socially oriented research (ie. Will Steffen in Grafton, et al., 2005, p. xii) requiring that this project should also develop an approach to socially oriented research that is able to bridge disciplinary divides to achieve more complex understandings. The final criteria come from sustainability research, which suggests that the project should construct an approach for building creative capacity and developing social imagination in order to generate sustainable proposals for the future.

These four criteria initiate the process. Then, as each chapter expands on the construction of the design-led methodology these criteria will be revised, added to and expanded as the process develops. The final list of criteria culminates in the Design Outcome chapter. This iterative development of the criteria follows Rittel's (1972) argument that the process of understanding what needs to be done in a design project is akin to the process of constructing an outcome. Thus developing the criteria of the project marks the process of constructing an outcome.

Epistemological Context:

In this section I outline the epistemic foundation used to guide the construction of a design-led methodology. This epistemological context is derived from design. A design approach can be described as playful (Birsel, 2007), rhetorical, exploratory, emergent, opportunistic, abductive, reflective, ambiguous, risky and complex (Cross, 1999); as developing intuitive ability for comprehending complex systems through aesthetic skills (Findeli, 1994); as suspending disbelief; engaging in leaps of faith, and incorporating unforeseen serendipitous circumstances. It is my experience that the design approach is taught to design students not through explanation but through doing; that is, through projects where designers learn to design through practice. This means, most of the perspectives, approaches and skills I have acquired as a designer I did not know in language form. Hence, it has taken much of my PhD process, theoretical research and many conversations with creative practitioners to uncover an explanation of the design approach in order to deconstruct each of the epistemological elements described here.

This section applies Crotty's (1998) hierarchy of umbrella terms: epistemology over theoretical perspective over methodology over methods to set out the research approach chosen for this study. In this hierarchy, epistemology is the 'theory of knowledge embedded in the theoretical perspective' (p.3), the theoretical perspective is the 'philosophical stance informing the methodology' (p.3), the methodology is 'the strategy, plan of action, process, or design lying behind the choice and use of particular methods' (p.3), and methods are 'the techniques or procedures used to gather and analyse data related to some research question' (p.3).

Epistemology

This project, to develop a design-led methodology, is bound by its disciplinary design traditions; so, as is customary for most design, uses what Glanville calls a constructivist epistemology or constructionism. Since '*constructivism* is used, often interchangeably with constructionism' (Crotty, 1998, p. 217) here I will apply the term the theorists themselves use; that is, Glanville uses 'constructivism' and Crotty

uses ‘constructionism’³. In the rest of the thesis I will follow Glanville and just refer to constructivism.

As Glanville (2006a) writes, design can be considered a ‘quintessentially constructive activity’ (p.62). Definitions of constructivism vary considerably and often definitions in science and social science text books divert considerably from the sense used in design. Crotty’s definition, which combines the real world with human conception and interpretation, is most appropriate for the purposes of this project.

All knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context. (Crotty, 1998, p. 42)

Crotty (1998) highlights that this epistemology cannot be described ‘simply as objective’ or ‘simply as subjective’ (p.43) instead it is a combination of both: ‘objectivity and subjectivity need to be brought together and held together indissolubly’ (p.44). Even though ‘strong threads within structuralist, post-structuralist and postmodernist thought espouse subjectivist epistemologies’ Crotty emphasises that ‘constructionism is different’ (p.43). Crotty makes a distinction between creating and constructing meaning where the later works within the reality of the world and its objects to do so.

According to constructionism, we do not create meaning. We construct meaning. We have something to work with. What we have to work with is the world and objects in the world. (Crotty, 1998, p. 44)

If, in simple terms, constructivism is about constructing meaning in the world then the design approach is more interested in the construction than the meaning generated and hence as Glanville (2006a) states design generates ‘*knowledge for acting*’ rather than ‘*knowledge of what is*’ (p.66). It is this knowledge for action that puts design research methods in a good position to make a significant contribution when applied to sustainability research.

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3 The quotes I use from Crotty (1998) forms his general definition of Constructionism. Latter in the same chapter he considers a useful distinction to be made between constructionism and constructivism. However he makes the point that this distinction is not consistent in the literature and more often than not the two terms are used interchangeably.

Theoretical Perspective

This project works within the theoretical perspective of post-industrial design. Although not commonly used for the purposes of a theoretical perspective I am using post-industrial design as a collective term that best groups the relevant philosophical position of key design theory. Post-industrial perspectives emerged from the work of theorists such as Bell (1973) who initiated the idea, and include Moles (1988), Branzi (1988), Morelli (2003), and Manzini (1992) who have explored the post-industrial approach to design. Moles (1988) sees Bell's notion of a post-industrial society as 'a superindustrialized society, or one which has pushed to extremes the consequences of its industrialization' (p.25). Moles (1988) identifies an immaterial culture, emerging from post-industrial society, as part of the information revolution of 'communicational opulence' (p.25). However, Moles also identifies a contradiction between the immateriality of the information society and its material reliance 'on a spectacular hardware or material base' (p.26). Perceptions of insufficient reliability from the complex technology has created a 'maintenance mentality' (p.26) and 'insufficient confidence to participate in an immaterial culture' (p.27). From this context Moles (1988) marks a point of change for design: 'the design activity itself is changing' (p.28). In response to the circumstances described by Moles, the post-industrial design perspective includes a dematerialisation of design, a focus on complex systems, cybernetics and ecological models, establishing social and environmental limits. Reassessing the role, methods and application of design in a broader sense: as an interface between technology and society (Branzi, 1988), as an integrative liberal arts⁴ (Buchanan, 1992) and as facilitating behavioural change (Manzini & Jégou, 2003). These are the aspects of post-industrial design used in this study.

The prominent model from this post-industrial design perspective explored in this study is 'the ecology of the artificial'. This is a model used extensively in sustainable design research such as that conducted by Manzini. In 'Prometheus of the Everyday', Manzini (1992) describes the post-industrial environment as 'the "global village" extended across the planet, whose characteristics are conspicuously marked by the diffuse and profound impact of new technologies' (p.6). He describes the breakdown

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4 Buchanan (1992) describes what is commonly regarded as liberal arts includes: history, natural sciences, mathematics, philosophy and social sciences.

in limits as a post-industrial phenomena caused by the increased pliability of materials and effects of science and technology on everyday life working towards making anything possible. This material possibility has caused a proliferation of ‘worthless products’, ‘lacking any cultural significance’ to create a ‘disposable world’ (Manzini, 1992, p.7). At the same time Manzini (1992) identifies the discovery of new ‘environmental limitations and their implications’ (p.7). Manzini comprehends this post-industrial environment through dividing it in two: the natural environment as the *biosphere* and the semiotic environment as the *semiosphere*. Within this context he reflects on the role of design and reconceptualises the context of design through the notion of ‘the ecology of the artificial’, as will be further discussed in the next Background Research chapter⁵.

Methodology

Often the words *methodology* and *method* get mixed up (Evans & Gruba); consequently, to avoid this confusion, I will start this section by defining the term *methodology* before moving on to discuss the methodology used in this study. Although as a ‘dictionary definition’ methodology could be described as the study of method, within the context of Crotty’s (1998) hierarchy it is an umbrella term, sitting under theoretical perspective and dictating the approach for the method. In this context, methodology is the research stance, approach or strategy, the nature of which dictates the set of methods that can be used: ‘shapes our choice and use of particular methods and links them to the desired outcomes’ (Crotty,1998, p.7).

For this study the research strategy comes from design. That is, I have sourced the methodology from the design approach moulded by both a post-industrial perspective and constructivist epistemology. This means the methodology focuses on a construction process, a dematerialised form, a ‘conversational’ stance, immersed in designerly characteristics.⁶

Many of the characteristics of the design approach may be common to creative practice in general, but as a designer I will only speak for my field. The core characteristic

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5 See the Ecology of the Artificial part of the Sustainable Design section in the Background Research chapter

6 A further explanation will be given in the Background Research chapter under the Design Research section.

for this approach can be captured in the concept of the *conversation*. It was Ranulph Glanville who introduced me to the idea of the conversation as a core characteristic of design; as describing a process of feedback loops where two or more people converse with each other. Each utterance and meaning expressed by one is reconceptualised and re-communicated by the other until an understanding is reached. Sketching can also be thought of as a conversation between the designer and the page; each mark adding to the conversation until a final visual idea is formed. I explain Glanville's conversation concept, in more detail, in the Background Research chapter⁷. This conversational stance shapes the methods used in this study and the nature of the outcome, as part of an ongoing conversation.



Figure 5: Drawing Hands

M.C. Escher's 1948 Lithograph,
282 x 332 mm
(M.C. Escher Foundation, 2000, p.116)

There is an aspect of this study which is like Escher's image of the hand drawing the hand (see Figure 5); the design-led methodology being described is in some sense also used as the process to construct that design-led methodology. That is to say, I have approached this thesis as a design project to construct a methodology. I used design methods starting from the wide scope of the initial background research, the generation of a core concept using the designerly

skills of distillation, translation and transformation and developed the concept through a method of thinking-by-doing. The methodology for this project comes from design practice which is modified to construct a design-led methodology. Hence, The methodology I construct and present in the final chapters should be better than the approaches I used to construct it. Perhaps *better* simply means that it takes significantly less than three years to identify and figure out how it works. Hopefully *better* means that the design-led methodology is more effective than the one I used to construct it. In addition, if others choose to apply this methodology, each use and reuse should also improve the methodology. Hence the outcome of this methodological design project establishes a proposition that awaits others' exploration, elaboration and improvement, or possibly rejection. Either way my design-led methodology will contribute to the conversation within the discourse on design's place in research.

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7 See the Complexity part of the Sustainable Design section in the Background Research chapter.

The design research approach is often compared to Action Research; however, for the purpose of this thesis I choose to define the design approach as distinct from Action Research. In any creative practice based research project the idea of Action Research inevitably comes up. It seems that design research theses must in some way address this topic before being able to move past it. Bowen (2009) in his recent thesis does a good job at setting out the potential similarities and differences between design research and Action Research. As Bowen points out Action Research is an accepted form of rigorous research and design research can gain acceptance by association. However, I would not want the creative practices to have to ‘live in the shadow’ of Action Research. There may be similarities and differences but fundamentally it is a ‘convergent evolution’; in that, design research is developed from the traditions of design practice not from an origin in Action Research. Consequently, I include a brief comparison with Action Research in the following Background Research chapter⁸, which is then concluded in the Design Outcome chapter⁹. It is in the Design Outcome chapter where I reflect on the methodology I have developed by comparing it to other established research approaches, including Action Research. Investigations into the comparisons of design research and Action Research could make an interesting source of future study; however, will not be further investigated in this thesis.

Methods

Methods are the ‘concrete techniques or procedures’ (Crotty, 1998) used to gather and analyse the research. The methods used in this study are also sourced from design and are shaped by the design approach described by the methodology.

The conversational strategy, described above, shapes the methods in many aspects of this study. The conceptual framework was built up from conversations with colleagues; the methodology was designed through a series of conversation like feedback loops, and each visual piece of design from presentations to print outs was designed through a conversation like process with the design software through the computer screen. Within this conversation concept lies the nature of the other components common to the characteristics of design. The role of the designer’s personality is central to the design process just as is the case for a person in a conversation. Design also

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8 See the section on Socially Oriented Research in the Background Research chapter.

9 See the Research Context section in the Design Outcome chapter.

approaches the complexity of everyday life in a conversational way. This approach is not to understand and simplify the complexity before starting; instead, works through a series of feedback loops, like a conversation, to build understanding and contextualise the project within the complexity. A conversation like style also characterises how ideas are translated and transformed into design outcomes. Translation of information into design ideas often comes from the designer's internal dialogue in which information is collected and coalesces into patterns of understanding to form design ideas. Transformation often occurs from internal and external dialogues, both from the coalescing of ideas and the sketching of those ideas into possible outcomes. The design approach uses a wide variety of media to collect and communicate these ideas.

Each of the sections under the design process headings applies methods from design. For example, the Concept Development applies a thinking-by-doing component, in the form of fieldwork in Tumut, which is a key design method. These procedures have already be outlined in both this chapter and the introduction and will be further explored in the next chapter¹⁰ and each of the following chapters. In addition a number of co-design methods (ie. cultural probes, game formats and scenario building) used in this project have been outlined in the next Background Research chapter.

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10 See the Design Practice and Design Research sections in the Background Research chapter.

Procedure

The project procedure uses a design process as stipulated in the introduction to this thesis: brief, background research, concept, concept development, design outcome and presentation. Each of these six parts forms a chapter to demonstrate how the design-led methodology was constructed; initiated by this Brief chapter.

The Brief has established the scope of the project, explaining the specifications and articulating the initial criteria to be used. The purpose of this step has been to set up the direction for the next background research step to give further theoretical explanation and in so doing expand on the brief.

The Background Research establishes the context and components to be used in the project. It elaborates on the theoretical context initiated in this brief by outlining the aspects of design practice, design research and sustainable design theory to be used in the construction of a design-led methodology. The purpose of this step is to provide the theoretical explanation that is referred to in the following steps, and the components and context to be put together.

The Concept uses the components and context explained in the background research to establish a conceptual framework and a core idea for the kind of design-led methodology to be constructed. The purpose of this process is to distil the components and context into a concept that will drive the project. This concept gives further and more defined direction to the project. The developments in this step also further expand the criteria for the project. The concept forms the core creative innovation of the project and the foundation on which the methodology will be compiled in the following step.

The Concept Development uses a case study in the process of thinking-by-doing. This concept development follows an approach common to design projects, which features playing with ideas through sketching, mock-ups, explorations and harnessing serendipitous occurrences to actively think through the possibilities for the project. Given that the criteria place this project within a collaborative context and there is no physical object to be drawn up, the materials for this project exist within the thoughts, ideas and actions of a participatory setting. For this purpose a case study

provides this setting. The community of Tumut¹¹ is chosen as an example of a system of everyday life with which to explore ideas for the construction of a design-led methodology. The main purpose of this step is to play with the concept established in the previous step and explore the possibilities for articulating a methodology. From this process the final additions and expansions are made to the criteria ready for an outcome to be defined.

The Design Outcome compiles the final set of criteria constructed throughout the project. The finalisation of the criteria allows for the outcome to be defined. The main purpose of this step is to describe the outcome and demonstrate what the design-led methodology ought to be like and how the outcome answers each of the final criterion and the specification set out in this brief.

The Presentation illustrates how the methodological outcome could work and why it should be of value. The primary purpose of this step is to present a mock-up of a guide to the proposed design-led methodology as an example of what, how and why the methodology might work. This step concludes the design project. However, the finalisation of the thesis is performed by the following Conclusion chapter.

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11 A rural town in New South Wales, Australia. For a profile of Tumut see Appedix 2

Historical Context

It is important both for the understanding and explanation of my work to start by considering the historical context² of this study. The endeavours of this study are neither new nor superficial, they fit into a long history of knowledge construction, research struggles and academic development, which provide perspective for this research. Significantly, this endeavour to imagining a role of significant value for design, as a creative practice in research, is an idea that is not as unexpected as it may first seem. In effect, this notion could be considered as restoring a balance which existed for a time in the early enlightenment period (Sullivan, 2005, p. 5). Perhaps, as Jen Webb suggests³, we are coming full circle in an effort to establish research practices in the creative disciplines (from fine art to creative writing, music and design), as a restoration in academia.

Currently, creative practices can be seen as having a marginalised role in society and knowledge construction. However, there was a time when ‘artists and writers were well integrated into the social structures in which they worked and in no sense defining themselves as outcasts or as opponents of the social order’ (Wolff, 1981, p. 11). Williams (1983), for example, tells us that ‘in many relatively early societies, an artist of a certain kind – often in fact a poet – was officially recognised as part of the central social organisation itself’(p.36), such as the bard given an official place in the organisation of the Celtic tribes or kingdom. By late medieval society creative practitioners were largely organised into guilds (Williams, 1983, p. 53) as collectives of artisans. The arts and crafts had not yet been separated (Wolff, 1981, p. 27) and the guilds serviced social, religious and economic purposes (Williams, 1983, p. 53). Wolff (1981) identifies the notions of *cult of personality* and *creative genius* as emerging out of the Renaissance; whereby, artists become considered as autonomous and gifted individuals (p. 27). At the same time as the artist was released from the collective

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2 This explanation focuses on a European historical context. By the end of my PhD studies I realized the importance of considering the historical context (to the the delight of my historian father). As a designer most of my studies have been forward looking. Consequently, looking back through history are skills I am as yet to perfect. So here I will only briefly outline some historical contexts which I feel are important for giving perspective to my work and hope my efforts do not appear too innocent.

3 I attended a workshop at the University of Canberra run by Jen Webb on *Creative Practiced Research*. In this workshop Webb outlined the historical context for creative practices in knowledge construction, pre and post enlightenment, leading to further references that I have explored in this section.

structure of the guild and their official ties (Wolff, 1981, p. 27), the arts separated from craft and found a place in the academy (Zolberg, 1990, p. 10).

While Renaissance man investigated the universe with the instruments of the practical arts, the Baroque man foreshadowed here [referring to a detail of Raphael's 'The School of Athens', 1510] investigates libraries and books and, sunk in melancholy, leaves on the floor (or holds idly in his hand) the instruments [highlighted in the detail as book, pen and paper]. (Eco, 2004, p. 226)

In the above quote Eco describes a move from a practice of knowledge construction embedded in the practical arts to a new form of knowledge construction characterised by libraries, books, pens and paper. By the enlightenment a new form of knowledge construction was taking hold – the age of reason. Art and science did co-exist for a time 'sharing a common goal' of exploration and 'informed action' (Sullivan, 2005, p. 5) where 'scientists had been investigating the natural world and artists interpreting those results on a human scale' (Panek, 1999, p. 39). However, the rational logic formed in the age of reason devalued the creative practices and defined their mode of understanding as irrational. By the modernist era of industrial revolution, according to Eco (2004), the artists also worked to remove themselves from the empirical world and make themselves 'different' through the spirit of 'art for art sake' whereby 'art detached itself from morality and practical requirements' (p.330). This 'detachment' also acted to cement the split in creative practices into high and low art, craft and architecture. With modernism saw the rise to power of scientific knowledge and the marginalisation of creative practices. At the same time industrialisation required new professions. Design can be seen as created at this time, out of creative practices, to acculturate science and technology in pursuit of the modern project to turn cultural practices into mass production. Between the world wars the Bauhaus is an example of this modernist agenda for design, where the creative disciplines were brought back together – artists, architects and crafts people – into the academy to develop design practices for mass cultural production (see Naylor, 1969). The Bauhaus is held up by the design discipline as an extremely innovative and influential academic approach. However, the outcome of the modern project could be accused of preoccupying design with the artefact in isolation from social systems and commodifying cultural products. I would go as far as saying that today's commodification of cultural production masks a wider and more significant role for creative practices in social knowledge systems. Despite the historical trajectory that marginalised and isolated the creative practices

and the modern project which turned cultural products into commodities, perhaps we need to consider this lineage of creative practice as having always played a role in knowledge construction and dissemination.

There are now opportunities opening up for creative practices like design to reflect on their approach to knowledge construction and develop endemic research practices. This development has been encouraged through (1) the agenda of universities for every discipline to research and publish, (2) the growing intellectual interest in integration through cross, trans or interdisciplinary pursuits, and (3) the realisation of the complexity of contemporary issues like sustainability demanding multiple perspectives. These forces are working towards restoring a balance within academia between a multiplicity of perspectives and approaches.

Design is distinguished, as a creative practice, by having origins in old systems of knowledge that predate the enlightenment. To use the cultural references of 'low-tech' and 'high-tech' as an analogy: then, creative practices could be considered like a 'low-tech' form of knowledge construction compared to the more recent (what might be considered more 'high-tech') experimental forms of scientific research. The 'low-tech' analogy in this case refers to design as appropriating old forms of knowledge construction which instead of following more 'modern' scientific approaches use approaches that have existed for a long time. Following the modernist 'cult of the new', the 'low-tech' would be considered outdated and inferior. However, after the rise of postmodernism there is a cultural move against this 'cult of the new' to revalue the 'low-tech'. For example, in recent times there has been a move in design research to embrace 'low-tech' approaches, such as using paper print outs for interactive activities rather than multimedia applications (Jacobs, Mazé, Dahlberg, & Götesson, 2005). Hence, I am suggesting that design applying an old knowledge system, from creative practice, forms an alternate (but equally valuable) approach to science: as being 'un-scientific' (i.e. other than the scientific method) by not following 'traditional research'; as neither science, social science nor humanities. Design as a creative practice cannot be dismissed as irrational. Although perhaps there is a value in distinguishing the creative practices as 'un-rational' (i.e. other than a rational form of logic) which refer to an origin predating the 'age of reason' when, as Eco (2004) suggests, creative practice was the only available way of constructing knowledge 'man investigated the universe with the instruments of the practical arts' (p. 226).

These historical trajectories have also brought about entrenched positions and assumptions within the research community; including, what constitutes legitimate approaches to research and what is dismissed as archaic forms of enchantment. As a result, a ‘cultural divide’ (Snow, 1964, p. 16) now exists between creative practice and traditional research (ie. science, social science and to a lesser extent humanities). This perspective of academic positions, assumptions and differences are reflected in the following two quotes. The first is from Weber writing about a design approach to information systems:

The conundrum posed by design research for progress in a discipline emerges clearly when a paper describing such research must be evaluated for publication in a learned journal. What are the quality standards the reviewer must apply to decide upon its acceptability? Typically the paper contains no theory, no hypotheses, no experimental design, and no data analysis. Traditional evaluation criteria cannot be used. (Weber, 1987, p. 9)

Weber identifies the ‘cultural divide’ both in the difference of design and its alienation from traditional research conventions and institutionalised academic positions. That is, the incumbent academic position hinders the inclusion of design as an alternate approach because the design approach differs considerably from the ‘accepted’ approach. Weber highlights the practical limitations; where the approach does not follow an ‘accepted’ process it too easily falls out of the realm of ‘legitimate’ research. This leads to a situation often observed within design research where researchers feel they must use external approaches to legitimate their research and avoid being dismissed. The second quote reflecting these perspectives is from Neil Brown, writing about the legitimisation of design research and the reality of institutionalised research practice:

In his chillingly prophetic essay ‘The Postmodern Condition’ Lyotard forecasts the terms of legitimation within contemporary university discourse (1987: 46-47). Current university research, he says, is legitimated by its “performativity”. Performativity is a neologism referring to the narrative rules that underpin the commercialised production of evidence in the sciences. These rules form the basis of national reporting systems currently used in the ranking of universities and in legitimating academic discourse (45). Even if the discourse of science has yet to invade the arts and humanities the link between the authority of a discipline and its funding, under a competitive granting system, bring art and design into the same orbit of capital production as science. Under these terms the production of proof in design research is determined by the precision and efficiency of its published output. According to Lyotard, research domains that possess the most technically proficient ways of realising their outcomes attract the most funding. (Brown, 2000, p. 1)

Brown⁴ proposes that design needs to play the institutional game of providing research in a traditional format of ‘truth claims’ to maintain the universities ‘monopoly on being “right”’ in order to be seen as legitimate (p.1). This may be significantly important for acquiring grants in the contemporary academic climate where the power structures of the ‘divided cultures’ are still unbalanced in favour of science. However, working towards a balance between a multiplicity of perspectives and approaches to research requires design to ‘dare to be different’; as Cross (2001) states ‘we must avoid swamping our design research with different cultures imported either from the sciences or the arts’ (p.55). Hence, the task is to develop an endemic research approach and share with the wider research community an accessible articulation of this design approach.

This sentiment of accessibility is exemplified in Grafton et al.’s (2005) discussion of transdisciplinary approaches to understanding environmental issues. The authors argue that in order to ‘bridge the disciplinary divides’ it is essential to allow the reader access to the ‘concepts and language’ (p.xi) of each discipline⁵. The same is true of design: to make design practice accessible to those outside design and hence usable as a research paradigm requires unpacking the practice of design in such a way that can be understood by a broader audience.

To develop a design-led methodology is to re-value the creative practices approach to knowledge construction, as having a significant role in socially oriented research, and as an alternate approach to ‘traditional’ science, social science and humanities research. This may be an approach that lies outside of incumbent academic positions; however, it can be legitimated through ‘bridging the disciplinary divides’ and making it more accessible by opening up the design conversation to a wider research context.

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4 While doing my undergraduate I attended the *Art and Design Research* course convened by Brown (as the rest of my cohort did); so, I have had some time to consider this perspective.

5 Creative practices were not represented in the book. Although not all disciplines can be represented in such as compilation, as the introduction stated, I still see the absence of creative practice as highlighting the concerted effort still needed from creative practice based researchers to establish our approach and perspectives as of significant value. Subsequently, I was able to add a section on the design perspective in another Fenner School trans-disciplinary publication (Brown, Harris, & Russell, 2010).

Design Practice

The task of both developing an endemic design methodology and ‘bridging the disciplinary divides’ requires a reflection on the nature and characteristics of the design approach. The design act is not restricted to the design profession. It is an activity that everyone does to some extent. This is a point of commonality that can help open up the design conversation and to construct collaborative forms of complex understandings. Hence the design profession has something to offer through sharing their aptitude for design practice. In this section I explore some of the critical components and contexts of design practice; including, how design is defined and characterised through methods of thinking by doing, active integration of the designer’s identity, fluidity of meaning, a conversational structure, iterative playfulness, and praxis.

This section is based on my paper ‘Design with a Thousand Faces’ (Hocking, 2009a) published in the *International Journal of Interdisciplinary Social Sciences*.

What is Design?

The ambiguous nature of the word ‘design’ and its many possible meanings have been well noted by design theorists (such as Buchanan, 1992; Fletcher, 1994; Flusser, 1995). It is not my aim here to demystify design by offering a single clearly articulated definition. However, I will attempt to convey an understanding gathered from this array of meanings in order to clarify the discussion and avoid confusion. As introduced earlier⁶, the word *design* is most often used in four ways: as a field or discipline. (e.g. a school of Design at a university); as a profession (e.g. a Graphic or Industrial Design firm); as an activity (e.g. to design my backyard or website); and as an artefact (e.g. a piece of design as in Philip Stark’s Alessi juicer or Frank Gehry’s Bilbao Guggenheim). This last usage, of design as the artefact, can be misleading and I consider it to be a misconception and preoccupation of the field, as the next two quotes highlight. The first is from Fletcher, who considers that calling an object a design is misleading since design describes the process not the physical outcome:

The habit of calling a finished product a design is convenient but wrong. Design is what you do, not what you’ve done. (Fletcher, 1994, p. 412)

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6 See the definition of design in the Terminology section of the Introduction chapter

The second quote is from the Margolins, who highlight the misconception of design as the artefact being derived from the promotion of design:

Design is most often understood by the public as an artistic practice that produces dazzling lamps, furniture, and automobiles. This is how it is generally presented by the media and the museums. (Margolin & Margolin, 2002, p. 24)

Other assumptions held about design, as aesthetics or as problem solving, also lead to misunderstanding and confusion. However, the most significant obstacle in explaining design, especially to those outside the field, is the object; this requires re-orienting focus away from the object and towards the process.

While it remains popularly held that design is about the artefact, the field of design will remain typecast as servicing other fields with more beautiful, functional and pleasurable ‘stuff’. All of which design can and does do very well; however, that is not all it can do. At its worst design can be superficial, trivial and style-obsessed; alternatively, at its best, design can be sophisticated, culturally rich and innovative. The difference is in the rigour of the design process as expressed in the design studio notion of *well-considered*. The significance of perceiving design as a process, ‘what you do, not what you’ve done’ (Fletcher, 1994, p. 412), is to acknowledge the many faces of design that exist across disciplines. This perspective allows the field of design to establish a role in contributing to the activity of design in other disciplines. The importance of design, for all disciplines, is in enabling change.

The British Design Council published fifty definitions of design. The most direct came from a ten-year-old who said: “Design is important because if it were not designed it would not be made”. (Fletcher, 1994, p. 413)

As the above quote suggests, design makes things possible; it is about the future, the new or the different. A key characteristic of design lies in the questions it asks – what could/ should/ ought to be? Design’s value, I believe, lies in the distinctive nature of its *designerly* ways of doing, which effectively generate responses to these questions of *what next?*

How is Design Done?

I have explained design as a process which asks questions about the future and generates possibilities. Now I will outline the nature and characteristics of this

designerly process. The first aspect of design to note is that it exists regardless of content; it is primarily a process that produces a certain kind of outcome about possible futures. While de Vaus (2003) describes the social science process as generating information on ‘what is going on (descriptive research)’ and ‘why it is going on (explanatory research)’ (p. 1) to construct the content of its field; in contrast, the design discipline can be thought of as not having any content of its own. Some designers may protest at the suggestion that the design discipline has no content – designers would say they do know about things. On the other hand, I do not think this notion of design being without its own content necessarily ought to be wrong. There is no imperative or moral obligation, as far as I can see, for the design discipline to create content; because, it can still construct knowledge from external content. I believe it is valid and even useful for the practice of design to focus on something other than content and thereby do things in its own way. The design field often characterises itself as being interdisciplinary; a primary feature of this is a reliance on importing content from other fields. Where other research disciplines specialise in generating content about what is and why it is this way, design concentrates on putting it all together to formulate what could be. Design achieves this through a distinct way of thinking and doing. Design theorist Nigel Cross (1999), for example, describes design as being rhetorical, exploratory, emergent, opportunistic, abductive, reflective, ambiguous, risky and complex (p.25-39).

Below I have extracted from the design discourse a number of qualities of design thinking, some main concepts in the design process, and key skills that help characterise design’s distinctiveness, particularly from the science disciplines, and I attempt to explain how each works.

Thinking by Doing

In design, knowledge is enacted, existing within the context of doing. Design uses practical knowledge of how to do something, factual/propositional knowledge that something is the case, knowledge by acquaintance of something’s existence (Downton, 2004) and perhaps primarily uses tacit knowledge of knowledge through doing. Knowledge does not always reside in language but could be roughly thought of as being enacted through a kind of conversation, as I will explain in more detail shortly.

Architect Richard MacCormac has observed: I don't think you can design anything just by absorbing information and then hoping to synthesise it into a solution. What you need to know about the problem only becomes apparent as you're trying to solve it. (Cross, 1999, p. 29)

MacCormac argues that designers often have trouble breaking up 'thinking' and 'doing' processes. This seems to be in contrast with social research traditions where thinking and doing can be achieved separately. For example I observe other social researcher's ability to think up what they are going to research, write a plan for the ethics committee and then carry out the project. I see this ability as foreign to the designer whose thinking is activated through the context of doing the project. This synergism between thinking and doing has to do with the design activity being the bridge between knowledge and action; where designers enact thinking through a series of feedback loops, turning knowledge into action and vice-versa. Further, the integrative activity of thinking by doing is influenced by the identity of the designer; this personalisation creates a practice of design that is both individualised and diverse while still maintaining core commonalities across the field.

Identity as Central

The centrality of the designer's identity in the process determines the way in which they design. The personality of the designer is an integral part of the design practice. This is also reflected in the writing style commonly used in the field, which I have adopted for this thesis. Most design papers are written in an intimate way where the identity of the author is immersed within the artefact – that is, the written article. Identity is central to a designerly way of thinking.

Lester Beall: The way a man lives is essential to the work he produces, the two cannot be separated. (Fletcher, 1994, p. 418)

As Beall suggests, there is no way of separating the act of design from the identity of the designer. While in recent times the sciences may have transformed the discourse on the role of the researcher from 'independent observer' to 'intervention' (Midgley, 2000, p. 5), for the practice of design there was never any way of separating the person from their practice. In the design field, individual identity is considered vital in driving the process. It is about submerging oneself in the process but at the same time not pre-empting the outcome. Since the identity of the designer is embedded

in the design act, repetition of the process by a different designer yields variability. Hence the field of design produces a dynamic variability which has the potential to contribute to the richness and resilience of cultures: the system of everyday life⁷.

Fluidity of Meaning

'Dancing with Disorder' was the title of the 2007 European Academy of Design conference and was agreed by delegates to be a good analogy for the process of design. By maintaining a state of fluid meaning in our thinking designers can suspend disbelief and work through the confusion and uncertainty towards a new understanding. Like a dance we create a pattern out of the chaos. We do not tidy things up before we start thinking about them; we keep them messy and work through the messiness to a resolution. Happold highlights this idea by suggesting the practice of design inhabits a space of total uncertainty:

Given the complex nature of design thinking, therefore, it hardly seems surprising that the structural engineering designer, Ted Happold, should have suggested that: I really have, perhaps, one real talent; which is that I don't mind at all living in the area of total uncertainty. (Cross, 1999, p. 30)

For the practice of design there is an importance and usefulness in uncertainty, disorder and ambiguity: of leaving open that which cannot be articulated, space for the unknown and unknowable, room for reflection, realignments and re-connections, a place to play with ones own conceptions. Design's ability to work within such ambiguity could be seen as derived from its casual, conversation-like quality.

Conversational

The idea of design having a conversational nature comes primarily from Glanville (2006, 2008)⁸ who in turn gains inspiration from cybernetics, in particular Parks' conversation theory, as will be further explored later⁹. Design thinking, as thinking-by-doing, flows through a series of feedback loops like a conversation.

Engineer-architect Santiago Calatrava has said: To start with you see the thing in your mind and it doesn't exist on paper and then you start making simple sketches and organising things and then you start doing layer after layer... it is very much a dialogue. (Cross, 1999, p. 29)

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7 The *system of everyday life* will be discussed in more detail in the Concept chapter.

8 Further discussed in the Complexity part of the Sustainable Design section in this chapter.

9 See the part on Complexity, under The Sustainable Design section in this chapter.

As Calatrava suggests, the process of designing is like having a conversation with your construction. After thinking up the first idea, and putting it down in some way. This construction then seems to tell the designer what it is and what it thinks it should continue to be, and then the designer decides what they will say back in the next action. Like in a sketch where you make a mark on the page and look at that mark; it tells you something which you respond to by putting another mark on the page in relation to the first. You look at these marks which tell you something about their relationship to each other and the page, so you add another mark and so on. The final sketch may or may not turn out how you thought at the start depending on the decisions you made along the way in response to this conversational process. In this way the act of design becomes an enthralling process. The conversation is compelling, charismatic and seductive with the outcome often reflecting this. The designer does not so much finish the process as decide to stop, much like a conversation; however, in a larger sense the conversation keeps on going. What is produced keeps re-engaging in conversation not just with the designer but with the outside world, with anyone who looks at or engages with it. This conversational action also dictates the overall iterative process of design.

Iterative Steps

The practice of design can be described as iterative; comprising feedback loops of experimentation, diversification of ideas, checks and refinement. This iterative process could be seen as flowing through a series of phases loosely labelled as:

1. brief
2. background research
3. concept
4. concept development
5. design outcome
6. presentation

The iterative process comes within or between phases, cycling through key skills like:

1. collecting: information and ideas
2. selecting: which parts to keep and which to discard
3. assimilating: disparate parts into a coherent whole
4. translating: from one state to another
5. transforming: into a particular form

The diagram below (see Figure 6) shows a simple outline of the phases in the design process; depicting the breadth and messiness of exploration and the points of refinement until the design outcome is packaged into a presentation.

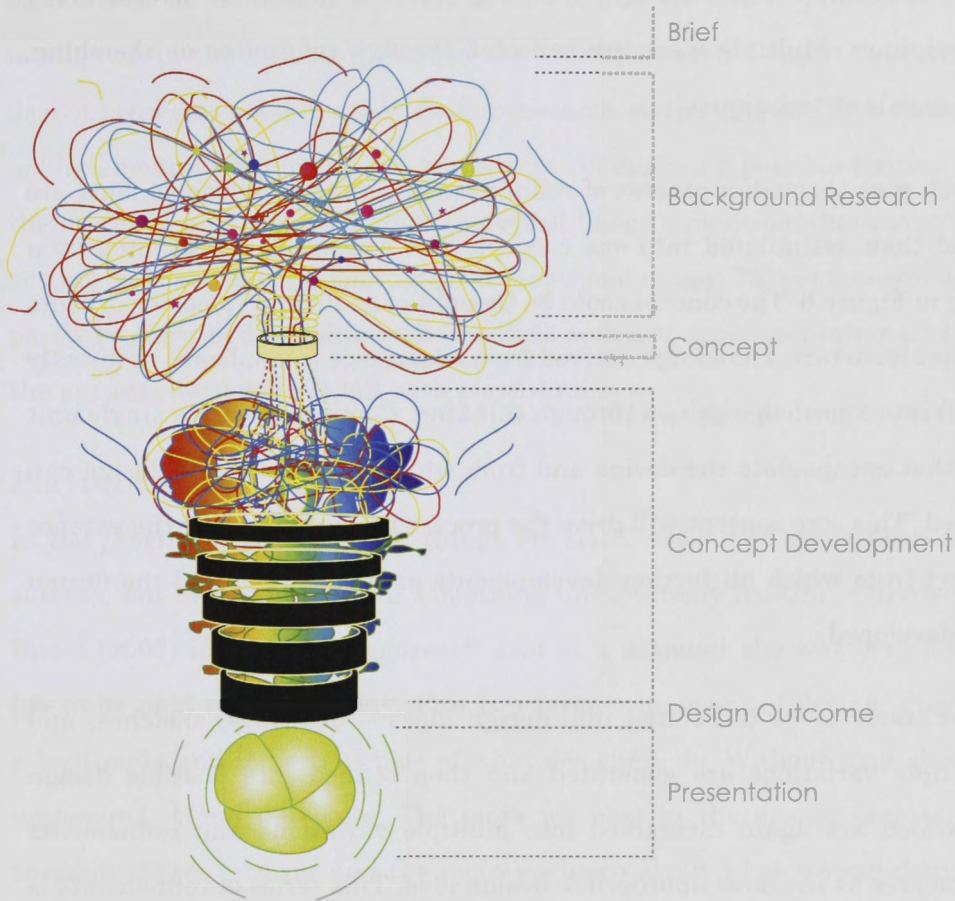


Figure 6: Phases in the Design Process

Design projects start with a brief; that is, an initial question, request or specification given to or developed by the designer. The designer is either given the brief from outside (such as from a client, individual, business or community) or from inside the field of design (such as an opportunity presented as a gap in the field or as an innovation developed by the designer). Developing a brief with a client or with just a general target audience in mind is a complex notion whose details I will not go into here.

From the brief many possibilities will be explored. The designer will go through a collection process. They often traverse a wide variety of other fields in perusing ideas, with information sourced from a diverse array of media, both visual and textual.

This phase is represented by the unwieldy mess of lines in the background research phase of Figure 6. A wide range of references, seemingly relevant or irrelevant, are searched for useful ideas and information. Visual, theoretical, technological, physical, contextual, and socio-environmental ideas are perused for the possible inspiration and insight they may bring. This may take the designer through a diverse array of other disciplines. Multiple ideas are collected through references or sketching, possible materials or techniques.

This research goes through a process of refinement where the key components are selected and then assimilated into one concept. The concept is represented by a narrow ring in Figure 6. The concept could be thought of as turning ‘a posteriori’ into ‘a priori’. That is, to turn knowledge derived from experience (read, heard or directly experienced) into knowledge gained through thinking. Coming up with a single unit of thought that encapsulate the design and from which all parts of the design can be considered. This core concept will drive the process forward, forming the essence of the project from which all further developments are considered and the design outcome is developed.

The concept starts to be translated into design ideas – drawings, sketches, and so on. Multiple variations are generated and then refined into possible design outcomes, which are again diversified into multiple variations and refinements until one emerges as the most appropriate design idea. This series of refinements is depicted in Figure 6 by the black bands in the concept development stage; moulding the design idea with the specifications for production or implementation until a design outcome is achieved. This phase combines knowledge ‘by acquaintance’ with ‘practical’ and ‘factual’ knowledge towards developing a design outcome. Including experimentation and play through a conversational ‘sketching’ process (Downton, 2004, pp. 62-63).

The final idea emerging is worked up into a well-considered, concise outcome: what it should look and feels like, how it ought to work, how the user could engage with it and so on. This is then translated into a clearly communicated presentation where the design outcome is expressed in a range of ways (verbal, written and visual) so it can be agreed on and sent for production. This is represented by the emergence of the final modular packaged sphere in Figure 6 .

Although these steps are generally representative of a process that occurs across the design field, each designer's process is individual and will differ. In addition the creative process of translating one phase into the next is unique to each designer (Downton, 2004). The above description of the design process has correlations with others used in the design field and in this regard the design process outlined here is aligned, in the following Socially Oriented Research Context section, with the design processes used in other design research methodologies. This design process is fundamentally about the creative activity of exploring possible futures. Although the process I have described has an overall linear dimension, the design process of getting from nothing to something is complex and messy. This ephemeral quality can partly be described by taking the scientific notion of experimentation and removing the purpose until you are left with playfulness.

Playfulness

In the practice of design many things are tried, not out of an expectation of their success, but to playfully see if something unexpectedly fruitful is uncovered. Ayse Birsel (2007) in a keynote address¹⁰ said as a designer she was very fortunate in life to be paid to play all day. Fun is a large component of design. Playfulness is a legitimate and important part of what designers do. Without play, design yields uninspired, bland outcomes. The more we play in the design process the more possibilities we uncover and the more we learn about what we are doing, how we need to do it and what works best. Putting an idea into practice in a playful manner explores its possibilities both conceptually and physically.

Praxis

In an extension of thinking-by-doing, the design process can be characterised by the act of turning theory into practice – praxis (Downton, 2004, p. 78).

Design is not merely manipulating forms and shapes, spaces and volumes, or playing with pen and paper, mouse and screen. Design is applied thought, a sensual activity as well as a cerebral exercise. (Fletcher, 1994, p. 416).

Fletcher's notion of 'applied thought' highlights the praxis characteristic of design. This quality allows design to achieve practical outcomes making it a service

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10 Presented at *Dancing with Disorder* a European Academy of Design conference in Izmir, April 2007.

oriented field with an attention to detail, a consideration of interrelationships, an understanding of the system of artefacts and sensitivity to communication that focuses on transforming ideas into action. The outcomes of design facilitate our everyday practices.

Poor design is making something worthless. Good design is making something intelligible and memorable. Great design is making something memorable and meaningful. Exceptional design is making something meaningful and worthwhile. (Dieter Rams in Fletcher, 1994, p. 416)

Rams highlights how, although poor design may be trivial, exceptional design has the potential to change our world. In this way we also design our future.

Engaging in design is a process beginning out of nothing and ending with the presentation of something that has not previously existed in the world (Glanville, 2006a). The process is about exploring possible futures and in doing so it works in a playful, iterative way in a space that is messy and uncertain. These are the abilities the design field has to share. As mentioned earlier the rigour of the design process, encapsulated by the notion of *well-considered*, relies on the process of thinking, doing and the skills employed which determine the difference between superficial and sophisticated design. Jonas (2001) in his paper 'A Scenario for Design' describes design's differences as 'what it is not' compared to other disciplines:

Design is not art because it does not aim at individual expression, but instead to serve various stakeholders, even though there are all of those intuitive, creative, and individual components. Design is not technology because it deals with fuzzy, discursive criteria rather than objective criteria, even though design shares many functional objectives. Design is not science because it does not offer new explanatory models of reality, but changes reality more or less purposefully, and yet the experimental process of research resembles the design process. Obviously, design is something very special. (Jonas, 2001, pp. 65-66).

While design is distinctly different from other disciplines, the activity of design traverses disciplines. That is, we all design hence we all need to be aware of how these qualities can help integrate theory into practice, to design our future and create change.

Design Research

Although what the label *design research* describes is still contestable, ‘there is no one method or approach called “design research”’ (Downton, 2004, p.2), two recent books, *Design Research: methods and perspectives* edited by Laurel (2003) and *Design Research* by Downton (2004), as well as many papers on the subject choose Frayling’s three key modes (into, for, through) to define design research. Downton (2004) asserts that ‘design is a way of inquiring, a way of producing knowing and knowledge; this means it is a way of researching’ (p.1); however, as stated in the introduction, this thesis is not asserting that design is already a form of research. Rather, I am suggesting (as Downton’s statement supports) that design has all the components to form design as research. The task of this thesis is to identify the parts and put them together into a proposition for an endemic form of design-led methodology.

I start this section by reviewing the foundations of the tri-model theory coming from both Frayling and Archer’s independent papers. This review is used to define design research in order to focus the thesis on research *through* design. Then I will outline some of the components from design research used in this study; that is, specific design methods and participatory approaches.

Parts of this section come from my paper ‘Design with a Thousand Faces’ (Hocking, 2009a)

Research in Design

There are many ways to define *research* (Archer, 1995; Frayling, 1993) and not all research can be considered as a contribution to knowledge in the sense that a PhD study needs to demonstrate¹¹. Although this study is not intending to focus on a PhD form of research in particular, I am interested in the form of research that can be considered as a contribution to knowledge and is, or could be, accepted as such within academia. As discussed in the historical context section above, the creative practices, such as design, became separated from traditional research such as the Sciences. Frayling (1993) points out that this separation became institutionalised when in

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11 This idea about many forms of research not all being contributions to knowledge in a PhD sense was highlighted by associate professor Craig MacDonald (from the Faculty of Information Science and Engineering at the University of Canberra) at a Creative Research Discussion, in 2009, which I convened.

1836 art and design were not included in universities (p.4). However, Frayling also argues that this exclusion from universities has limited meaning in itself since it is a historical accident rather than a purposeful action:

Yes, art and design have been taught separately from the mainstream, ever since 1837. But this is an institutional accident, not a conceptual statement. (Frayling, 1993, p. 4)

Many art and design colleges have now merged back into a university setting¹². Today, there is both pressure from the universities and interest from the creative disciplines such as design to find what research means in the context of their field – as a contribution to knowledge in the academic realm. Design theorists have been discussing, for some time now, this notion of what research means for the design discipline. Of note are the papers by Frayling (1993), Archer (1995), the special edition of *Design Issues* on design research in 1999, the proceedings of the Politecnico di Milano Conference in 2000 and the Book on design research by Downton (2004). Frayling concludes his paper with the statement ‘I can only add, that research for art, craft and design needs a great deal of further research’ (p.5). Frayling’s paper can be seen as inspiring a generation of design researchers (which I include myself) with a drive to develop an endemic research practice for design.

Three Modes of Design Research

There is some conjecture as to who came up with the three modes of design first¹³, Archer or Frayling. However, most texts reference Frayling¹⁴ and as such he usually gets attributed with the idea. Within contemporary usages of the three modes, both the words and the meanings move; hence, the significance in a review of both theorists is that Archer does have an interesting perspective¹⁵ which is usually left out and more importantly both give context to the use of the three modes to define design research.

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12 For example the College of Fine Arts, now part of the University of New South Wales and the School of Art at the Australian National University, where separate entities which were both merged into the universities some time ago.

13 See Rust’s transcription notes at the end of Archer, 1995

14 Perhaps because in the harsh realities of research it is usually the case that ‘he who publishes first wins

15 Published in the journal Co-design and dutifully transcribed by Chris Rust from poor quality photocopies so as not to lose this key aspect of knowledge for our field

Frayling (1993) and Archer(1995) distinguish three different kinds of research within the creative practices of art and design in an attempt to clarify what research is and what it could be. Frayling and Archer state these three kinds of research in slightly different ways. For Frayling the three categories are derived from Herbert Read's: teaching into, through and for art.

Research into art and design
Research through art and design
Research for art and design
(Frayling, 1993, p. 5)

For Archer the three kinds of research are only named slightly differently and can be considered as implying the same sort of categorisation.

It can be useful to distinguish between research about practice; research for the purposes of practice; and research through practice. (Archer, 1995, p. 11)

Although the categories can be seen as having the same intention to unpack the different forms of research presiding within art, craft and design, Frayling and Archer's explanations differ. For Frayling (1993) the 'into' is characterised by historical, aesthetic and theoretical research (p.5). For Archer, the 'about' can be seen as similar to Frayling's 'into'; however, Archer (1995) refers to this category as enquiring into aspects of design which might take the form of humanities research tradition existing in 'art or design history, for example' or social science research in 'studies about art or design in relation to people and society' (p.11). Frayling explains the category of 'for' as problematic, being largely information gathering as part of the process, like the background research step in the design process identified above. Whereas, Archer considers 'for the purposes of' (p. 12) as studying aspects of the practice, and like his 'about', sees this study as being equable with humanities and science research. The most significant of the three, for promoting ongoing investigation in design research, is 'research through design'. According to Frayling (1993) the category of 'through' includes studio-project based research, conducting for example: 'material research' developing new ways to use materials such as 'titanium sputtering or colourisation of metals project', 'development work' such as 'customising a piece of technology to do something not one had considered before', or 'action research' such as 'where a research diary shows in a step by step

way, of a practical experiment in the studio' (p.5). Archer (1995) puts the emphasis on 'through' as the category of most interest. He explains this category as involving research for practitioners (including agriculture, education, engineering, medicine and business) and defines it to be 'Action Research' (p.11). The ambiguity formed from the rift between definitions has left space for the design field to develop further notions about design research, how it is and could be conducted, within this trilogy.

This trilogy is an idea reiterated in many design theory papers (such as Bowen, 2009; Chow & Jonas, 2008; Findeli, et al., 2008). The category of primary interest to the creative fields today is the idea of *research through design*, which has also come to be known as practice-based or project-based research (Findelli, 1999). Design researchers have not necessarily employed either Frayling or Archer's definition of *through*, instead taking up the challenge in Frayling's (1993) closing words to research further: 'I can only add that research in art, craft and design needs a great deal of further research' (p.5). Consequently, design researchers have used the idea of research-through-design as inspiration for developing research practices within the design field. To do this, they have developed a number of design-led methods.

Design-led Methods

Much of the research within design schools had been characterised primarily by research into or about design. Such explorations into what designers do and the way they do it are of use in design education, and research for design such as developing new techniques or material explorations is useful for design professionals (Downton, 2004). It was often the case that designers entering academic research felt they should stop practising design and learn how to research from other disciplines¹⁶, a sentiment still expressed by some of my colleagues. Today more emphasis is placed on practice-based or project-based research. This, together with the influences initiated by Frayling's paper (1993), has seen a growing interest from the design research community in research-through-design, which sees a design approach as a valid way of researching.

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16 For example, surveys, narrative analysis or ethnographies from disciplines like marketing, cultural studies or social science in order to ask questions about or for design. It has been the case in the recent past that design research thought it should model itself off the dominant research disciplines and become more scientific (as is recounted by Cross, 2001); whereas, now many design researchers have been working on their own, designerly, methods.

Methods for such an approach are being developed from the creative process of design. Examples of such design-led research methods include:

1. Cultural Probes
2. Game Format
3. Scenario Building

Cultural probes, game format and scenario building are only a few of the available examples of design-led methods. However, these three are chosen to represent key design-led methods focused on in this study.

Cultural Probes

Cultural probes are creative stimuli (kits of maps, postcards, digital camera, mp3 recorders and other highly visual prompts asking the participant to respond in a creative way), aiming to disorientate participants into looking at their everyday practices from a different perspective when responding to the visual prompts. They have been discussed as research activities by authors including Gaver et. al. (2004; 1999), Ivey (2007) and Hielsher (2007). Gaver is seen as the instigator of the term *cultural probes*. In his project with Dunne and Pacenti (1999) they use cultural probes to engage elderly members of European communities in a Human Computer Interface (HCI) project. Cultural probes are ‘evocative tasks’ designed to collect from participants ‘fragmentary clues about their lives and thoughts’ with a focus on ‘empathy and engagement’ (Gaver, et al., 2004, p. 53). This design-led method is ‘valuable in inspiring design ideas’ and a ‘tendency to rationalize the probes’ should be avoided (Gaver, et al., 2004, p. 53).

Cultural Probes have now become popular design-led methods used for many other design research projects. Of note are two projects presented by Hielsher and Ivey at the *Dancing with Disorder* EAD conference (Hielscher, et al., 2007; Ivey, et al., 2007). Hielsher uses cultural probes to understand participant’s hair-care practices for a project to design more sustainable forms of hair-care. This method used ‘as creative disorder’ to generate ‘inspiration from the returns’ (Hielscher, et al., 2007, p. 3). Included in Hielsher’s probe packs were a variety of different activities (see Figure 7) for participants to engage with and respond to.

1. A newspaper header asking for a response to 'Hair care fashion – how people care for their hair all over the world' (p.12)
2. An illustration of a mote and bailey castle asking participants to 'visualise the position of private and public activities of hair care in the castle and keep illustration' (p.12)
3. A postcard with an drawing of a tent asking participants to 'imagine you are on a tent holiday! Write a card to a friend – describing your hair care experience!' (p.13)
4. Another asked participants to draw 'a new revolutionary product' (p.13)
5. Asking participants to write a list 'Please, write down your hair care rules' (p.14)
6. Asking participants for a fictional dramatisation 'your hairdryer, shampoo, scissors and razor are having a conversation – what would they say? Please fill in the conversation' (p.14).

Figure 7: Activities in the Hair-Care Cultural Probe Packs

adapted from Hielsher,2007

Hielsher et al. (2007) highlight that the disorder not only effects participants interacting with the probes but also for the designer's creation of the probes and engagement with the responses, because the 'activity cannot be predicted or controlled' (p.10). Hielsher uses the disorder created through participant's responses on 'routines, ideas and conventions' as a starting point for changing practices (Hielscher, et al., 2007, p. 10). In contrast Ivey (2007) uses cultural probes in a multi-stage structure for her collaborative project. In this project the initial phase consisted of a probe pack in the form of a diary sent out to participants. The packs asked participants to record information about the spaces where they worked most productively. The probe responses were used in designing a 'co-experience environment' for the next phase of the project: 'essentially a record of individual experience, the probe returns – a combination of image and text – were analysed for similarity and difference and collated to construct an overview' (Ivey, et al., 2007, p. 3). The co-experience environment consisted of a series of different spaces. Participants were brought together, then through instructions and the use of a game, participants chose which space they wanted to work in individually, collaboratively and as a whole group. The aim of the project was to design physical spaces for cross-disciplinary collaboration.

Game Formats

Game formats use game play to explore hopes, dreams and aspirations from a creative context with which participants are familiar. In the Interactive Institute project ‘Underdogs & Superheroes’, participants engaged in game play through the context of a superhero character (Mazé & Jacobs, 2003). The Underdogs & Superheroes project used this game play to explore people’s relationship with the city of Göteborg. Unlike the disordering characteristics of Gaver’s cultural probes, the Underdogs & Superheroes project used the idea of superhero comics to orient people within the game activities. That is, comics are used as a familiar narrative for game play. The project goes through a series of six games (see Jacobs, et al., 2005)¹⁷ to engage participants in the creative process of design.

We have found that games help engage users’ imaginations by representing reality without limiting expectations to what’s possible here and now; engaging experiential and personal perspectives (the ‘whole’ person); and opening the creative process to hands-on user participation through low/no-tech materials and a widely understood approach. (Mazé & Jacobs, 2003, p. 1)

This project used ‘low-tech’ forms of integrations such as downloadable Pdf documents that participants could print out, respond to and return. These sheets used the imagery of the comic book to engage participants in the play space. For example, Game 1 (see Figure 8) asked participants to create a superhero character of themselves: ‘setting the stage for subsequent games, players create their superhero identity and evolve a scenario of their hidden abilities and aspirations for personal, societal and urban transformation’ (Jacobs, et al., 2005, p. /game1.html).

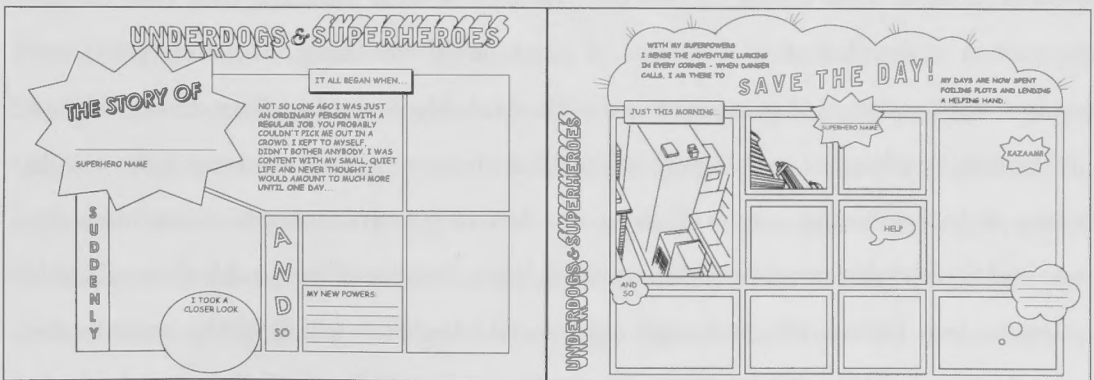


Figure 8: Game 1 of Underdogs and Superheroes

image from Jacobs, et al., 2005

17 This Underdogs & Superheroes project is well documented on the Interactive Institute’s website: <http://www.tii.se/reform/projects/pps/us/index.html>

This comic book play space aimed to engage participants in exploring ideas about their relationship to the town of Göteborg. For example, Game 3 sent participants coloured cards asking questions of the superhero's relationship to the city (see Figure 9).

1. Superman uses a phone booth to swap identities. Where do you go when you want to be somewhere else?
2. When you don't have to travel as fast as a speeding bullet and have some time to spare. What's a special route you might take through the city?
3. If you had any superpower, what would you use to change a place in Göteborg and why?
4. Superheroes and archenemies must meet... where is the border between good and evil in Goteborg?
5. Where is your secret hideout? Tell us about your secret place in Göteborg

Figure 9: Questions from Game 3 of Underdogs & Superheroes

adapted from Jacobs, et al., 2005

The responses to these cards were then pinned on a large map of the city to form a diagram of interaction. Although the project did not have clear design outcomes, it developed some very innovative methods using the game format.

Scenario Building

Scenario building is about creating shared visions and *design oriented scenarios* (DOS) use the skills of design to develop visualisations that allow people to imagine possible futures. This thesis focuses on the *DOS scenario building* that uses design approaches to develop shared visions of sustainable wellbeing (Manzini, 2001). An example application of this method is the 'Sustainable Everyday: Scenarios of Urban Life' project by Manzini and Jégou (2003). This project engaged students from a wide variety of international universities to develop storyboards of promising ideas for sustainable everyday practices. Manzini and Jégou (2003) outlined a set of sustainable principles (see Figure 10), and each storyboard identified which of the sustainable principles were addressed in the scenario. These principles outline an appropriate variety of sustainable objectives and as such I have chosen this set as the sustainable principles adopted for this project.

1. **Think before doing.** Weigh up the objectives. Before starting on a project think about its general implications
2. **Promote variety.** Protect and develop biological, socio-cultural and technical diversity. Plan to respect existing diversity (biological, but also cultural organisational and technological)
3. **Use what already exists.** Reduce the need for the new. Since we need to minimize intervention, before thinking up something new, enhance what is already there.
4. **Give Space to Nature.** Protect natural environments and promote 'symbiotic nature'. We must plan systems that respect remaining natural areas and integrate natural components innovatively into the urban fabric.
5. **Re-naturalise food.** Cultivate naturally. Develop evolutionary advanced, organic food production systems which reduce the artificial nature of our food system and make its product flow more transparent.
6. **Bring people and things together.** Reduce the demand for transport. Develop low intensity transport systems to reduce the impact of mobility and reinforce local social fabric.
7. **Share tools and equipment.** Reduce the demand for products. Develop systems and at the same time foster new forms of socialization.
8. **Empower people.** Increase participation. Develop enabling, socializing systems to foster personal capabilities and reinforce the social fabric.
9. **Develop networks.** Promote decentralized, flexible forms of organization. Develop systems capable of learning from experience, amplifying feed-back and creating choices which can be reorientated.
10. **Use the sun, wind and biomass.** Reduce dependence on oil. Develop alternative energy systems minimizing production of CO₂.
11. **Produce at zero waste.** Develop industrial ecosystems which tend to 'close the loop of materials' and cascade energy.

Figure 10: Sustainable Principles

adapted from Manzini & Jégou, 2003, pp. 56-57

Participatory Approaches

The design-led methods described above focus on bottom-up initiatives that explore the idea of open-source design through co-creation approaches to participation (Maase & Dorst, 2006). There are a number of terms used to describe these approaches which have overlapping definitions, as discussed below, including: *co-design*, *co-creation* and *participatory design*. Such design approaches have the potential not only for developing innovative methods for the field of design but also as components that could be assembled into a form of *design as research* that could be of value to socially oriented research in general. This value could come from giving a unique perspective to research questions about *what next?* Until recently, these design-

led methods remained largely isolated instances floating in an as yet unarticulated design-led methodology. However, there is a growing research effort, within design, to articulate a *design as research* approach, for which this project aims to contribute. Examples of recent design research methodologies acting to remedy this situation are discussed in the following section on the Socially Oriented Research Context.

As the paper by Maase and Dorst (2006) suggest and Bowen (2009) outlines in his thesis, there are subtle definitional differences between *co-design*, *co-creation* and *participatory design* (although, as is a common case in design theory, meanings are slippery and words are used in different ways in different contexts). All three lie within a framework that engages more than just a designer in the design process and thus could be seen as fitting into Rittel's (1972) idea to 'maximise involvement'¹⁸. The differentiation of co-creation from participatory design is pointed out by Maase and Dorst (2006) as highlighting a shift in the last decade towards making design a 'collaborative process' (p. 296). That is, where participatory design aimed to make design methods more 'responsive to human needs' and challenge the notion of design as an 'individual creative activity', co-creation goes further: 'the "user" is not just involved as a source of information, an input for the work of the designers, but the "users" ARE the designers' (Maase & Dorst, 2006, p. 296), and thus participants are directly involved in the creation of the design outcome. Bowen (2009) highlights a distinction between participatory design and co-design as the latter having wider possibilities than the former for the forms of participation 'collaborative, cooperative or concurrent (amongst other things)' (p.56) where participants could be 'other professionals (such as designers and engineers)' or 'users/stakeholder' (p.56). Bowen (2009) distinguishes co-design from co-creation, the former not being as specific as the later about immersing participants in directly creating the design outcomes. This distinction implies that in co-creation participants are involved in the whole design process to create an outcome where as in co-design participants may only be involved in certain parts of the design process to construct an outcome. Hence these three terms allude to distinctions in the amount and significance of involvement from participants in a design process and the types of collaboration involved.

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18 Discussed further in the following Sustainable Design section under the Complexity part.

In addition, User-Centred Design is also a part of this participatory tradition and is considered in this context through recent design research such as in Bowen (2009) and Coxon's (2007) theses. Coxon (2007) defines User-Centred Design as 'that which draws on product or service 'Users' for information' (p.136) hence may only consider potential users and user specifications rather than directly engaging participants in the process (Bowen, 2009). Consequently, I have not employed the term in this thesis.

For the rest of this thesis I will refer to *participatory design* methods as a descriptive term to suggest that the methods are constructed to include participants. *Co-creation* is used to describe an approach that uses collaboration to create/construct an outcome. The central term for this thesis is *co-design*, which is specific to the design process and used to define the type of participatory, cooperative and collaborative approach used in a design project. The following chapter develops a model to specify the kind of co-design this research project will use.

Other than the approaches described above, existing design research methodologies are not directly used as components in this study; however, do form part of the context. As such, reference to other design methodologies will be included in the following section about the socially oriented research context.

Sustainable Design

Some of the most innovative design research, as I see it, is being conducted in the area of sustainability. This area of research is providing complex problems, possibilities and new design opportunities. Sustainability and environmental concerns are issues which span the disciplines and which design research has been working on for some time. To identify the components and context to be used in this project from sustainable design research I examine how sustainability has been dealt with in the field of design; initially as the design field's engagement with environmental concerns; the move to ideas on addressing complex problems and systems approaches conceptualised through the notion of *ecology of the artificial*, and a more recent move to the design research work into sustainability.

Marked by the 2008 design conference *Changing the Change* (Cipolla & Peruccio, 2008) the field acknowledges the work still needed to re-contextualise design towards more sustainable practices. Manzini introduced the conference by raising concerns about the role the design field plays in manifesting the un-sustainable nature of our world.

...despite the good intentions of many, design still continues to be far more “part of the problem” than “part of the solution”; serving more to accelerate unsustainable processes rather than promoting new ways of being and doing to help individuals and communities live better, reduce their ecological footprint and regenerate the social fabric. (Manzini in Cipolla & Peruccio, 2008, p. iii)

Manzini identifies the role of design research as leading the way in changing the culture of design to encapsulate a larger context of the world we live in and the nature of design's role in it. The goal is, for there to come a time when the discipline can stop talking about *sustainable design* as if it is something different and just talk about *design*, where the context of good design is one immersed in all the contingencies of sustainability.

If indeed design wants to be “part of the solution” it must, perhaps first and foremost, develop a new research culture and new research practices: an open research, sensitive to present contexts, that leads to a better understanding of the great changes underway and of what should be done to re-orient them towards sustainability. (Manzini in Cipolla & Peruccio, 2008, p. iii)

This context needs to be considered as one through which we, as a field, can contribute to sustainable change rather than proliferating unsustainable processes. In this way, the discussion of *how design can play a role in sustainable change* can be continued.

Socio-environmental responsibility is a conversation initiated in the 1960's with warnings from Rachael Carson's *Silent Spring* (1962), the 70's with Victor Papanek's *Design for the Real World* (1971), the 80's with the Bruntland Report's *Our Common Future* (1987) and the appearance in the late 80's of the phrase *ecology of the artificial* in the design literature. The delegates at the *Changing the Change* conference noted with some frustration 'we are still *just* talking about it' four decades on, and we still have not seen the momentum needed to make significant changes in our everyday lives. In order to 'design now' for sustainable change we need to continue the conversation into a context for *how design can play a role*. It is in the discourse of *how* that, I believe, design research will most effectively be able to initiate a contribution of significant value *now*.

This section is based on my paper 'An Ecology for Design' (Hocking, 2009b) published in the international journal of *Design Principles and Practice* and the chapter section I wrote for the book *Tackling Wicked Problems : Through the Transdisciplinary Imagination* (Hocking in Brown, et al., 2010).

Ecology and the Sustainability Context

I will start this explanation of sustainable design theory with the notion of *ecology*: what it means, how and why it has been used and the transferal of this notion of ecology into the use of *sustainability*. This exploration is then used to evaluate the phrase *ecology of the artificial* for design in the following section. The function of this critique is to explain the movement towards a systems approach to design and to aid the process, in the following concept chapter, to consider more appropriate complex models for design.

Ecology has become a very influential word in our contemporary world as a field of study, a metaphor and a movement.

The idea of ecology is much older than the name. It's modern history begins in the eighteenth century, when it emerged as a more comprehensive way of looking at the earth's fabric of life. (Worster, 1994, p. x)

As a field of study, ecology formed a more holistic view of nature than simplistic instrumental and mechanistic perspectives; enabling us to see our natural world as a system of interacting, interconnecting and interdependent relationships. This prompted the modernist metaphor of *the machine* (the deterministic, linear, problem solving mechanism) to be replaced by the postmodern metaphor of *ecology* (the dynamic organic complex of multiple interconnecting systems). As a movement, ecology has established a keen sensitivity to our relationship with our environment and the effects of our actions.

It was not until the 1960s with the rise of the Age of Ecology that the wider public became aware of the science of ecology and its relevance to environmental matters. During that period the foundations were laid for a religious and philosophical revolution of the first magnitude. (Sessions, 1987, p. 105)

The word *ecology* elicits powerful intellectual, political and emotional connotations, and considered by a growing contingent of society as being of utmost importance to the contemporary world. The word has come to signify not only a context for understanding our natural world but also, intellectually, it implies a holistic mode of thinking in general. Politically, it highlights our environmental and social problems, suggests justice and equality and alludes to a pathway of recovery. Emotionally, it suggests a way of living in harmony with our world, of being responsible caring citizens. It is a word that allows most people to visualise the complex concept of dynamic interconnecting systems linked with our relationship to the environment and a need to change our practices in positive, non-destructive ways.

From these meanings of *ecology* emerge the notion of *sustainability*. Where ecology uncovered the issues we are facing, sustainability emerged as a response to these ecological issues. In an attempt to initiate a way of averting an environmental 'crisis' the Brundtland Commission's report 'Our Common Future' in 1987 defined sustainability in the statement:

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. (Brundtland Commission, 1987, p.43)

Since then, sustainability has become the response to many of the ecological issues mentioned above, and many more. For this reason and as discussed in the introduction

chapter, sustainability is often criticised for becoming an ambiguous concept:

Sustainability is a preoccupation that simultaneously engages powers of reason, belief and feeling, messing up any neat separation of descriptive and normative claims. An extraordinarily elastic concept, it is not surprising that ‘public discussion concerning the environment has become primarily a discourse of sustainability’¹⁹. (Davison, 2008, p. 191)

Although many theorists still consider sustainability through the terms laid out by the Brundtland Commission (1987, p.43), I see the ambiguity of sustainability more usefully defined as *a kind of change for the better*. This then becomes fundamentally a design question about what kind of future we want.²⁰

Ecology allowed us to realise that our modernist visions of the metropolis as machine would not sustain our wellbeing or even our lives into the future. The design field needed a different context from the modernist model of the machine in order to consider how design could play a role in sustainable change. This context was established by *the ecology of the artificial*.

The Ecology of the Artificial

The term *ecology*, used as a metaphor, was picked up by the discipline of design in the late 1980’s with theorists such as Branzi, Manzini, Pantzar and Krippendorff’s exploration of the *ecology of the artificial*. This ecological metaphor played an important part in the re-assessment of design’s role in line with social and environmental concerns. As evident in the Munich Design Charter of 1990, an ecological model was used to initiate a debate over the fundamental role design plays in developing our future. However, during the ensuing decade and a half, understanding of *ecology* and notions of *sustainability* have changed considerably. This section aims to re-visit the ecological metaphor to see if ecology is still a useful context for understanding how design can play a role in sustainable change.

This section will show how ecology has been used by the field of design. This exploration becomes an important part of finding a new metaphor in the following Concept

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19 Here Davison is quoting Torgerson’s (1995, p. 10) chapter, *The Uncertain Quest for Sustainability: Public discourse and the politics of environmentalism*.

20 For an expanded explanation of this definition of sustainability see the Introduction chapter under the Terminology section.

chapter where I propose a context which might be more effective in conceptualising how the design field can be of significant value in sustainable change.

How has Ecology been used?

Ecology, as a field of study, a movement and most significantly as a metaphor, has been used by the design discipline to re-assess its role and in so doing consider how design might contribute to an ecological kind of change for the better. Design has used ecology as a field of study to inform design practice about its environmental impact and ecological footprint. This has aided in shifting design practices towards more environmentally responsible considerations, signified in notions such as: doing more with less, recyclable, reusable, multiple uses, multiple users, life cycle conscious, reduce material and energy intensity and so on. The ecology movement has been used as a further step in setting up a precedent for the field to transform into an environmentally responsible practice through engaging in the move towards being ‘part of the solution’ rather than ‘part of the problem’ (Manzini in Cipolla & Peruccio, 2008, p. iii). Most notably the design discipline has used ecology as a metaphor to establish a context from which the field can re-assess its role in the world and reorient its practice in such a way as to be of significant value in contributing to sustainable change.

The most prominent use of ecology as a metaphor appears in the phrase *ecology of the artificial*. The origins of this phrase are relatively elusive. It started appearing in the design literature during the 1980’s. Ecology as a systems concept for design is influenced, to a large extent, by works such as Bateson’s *Steps to an Ecology of Mind* (1972) along with Baudrillard’s *The System of Objects* (1968) and to a lesser extent Simon’s *The Science of the Artificial* (1969). The significance of this phrase, however, is not so much in its origins. More importantly the phrase marks a shift away from a modernist context for design practice, of a deterministic, linear, problem solving machine, and towards a systems approach for design which uses ecology as an interpretive model for understanding our artificial realm.

Different design theorists have used *ecology of the artificial* in various ways. I have used Manzini’s perspective to establish a foundation for the systems approach in this study; however, below I will first outline alternate perspectives from three major

theorists – Branzi, Krippendorff and Pantzar – to give a wider context to the systems approach used in this project. Although each theorist differs, evident in all usages of the phrase is an attempt to conceptualise our designed world as a complex system by way of using the ecology metaphor.

One of the earliest uses of the phrase comes from Branzi (1988) in his book *Learning From Milan: design and the second modernity*, where he uses ‘an ecology of the artificial’ as a chapter title. For Branzi, an ecology of the artificial is about how humans relate to their artificial environment.

What is required of design today is the creation of a new ecology of the artificial universe. The form of industrial objects, the ergonomic way in which they function, the interface with electronic technology, and the identity of new materials are all no more than different aspects of the great theorem concerning the relationship of humanity with the artificial world that surrounds it. (Branzi, 1988, p. 55)

This conception of ecology is defined by the characterisation of eras such as modernism or postmodernism. Hence for Branzi, modernism was an ecology of the artificial where people related to their environment in terms of the machine and the production line as can be seen in the paintings of cubists and futurists²¹. In turn the electronic era of post-industrialism created a new ecology of the artificial. People have a new relationship with their artificial environment, no longer relating to it in terms of the production line or the machine of modernism, instead turning to replication and manipulation characteristic of postmodernism. Perhaps now, we have moved on to yet another ecology where we relate to our artificial world in terms of the information superhighway of the internet and the techno-organics of genetic engineering. However, as the quote above suggests, we are not purely victims of our era but (as designers) have our part to play in developing humanity’s relationship with the artificial environment through the artefacts we design.

Another early use of the phrase ecology of the artificial, represented by Krippendorff, focuses on the design context of producing objects. Krippendorff’s perspective marks

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21 Branzi talks about futurists as having ‘perceived a man who was interiorizing the machine and coming to resemble the mechanical world to an ever increasing extent’ (1988, p.57) and cubists as also having ‘adopted the fundamental logic of the assembly line, proposing a human being made up of an assembly of parts, a being who had lost his cultural and figurative unity but who was beginning to conform to the world of mass production, taking as his own the rules by which it operates’ (p.57).

a difference between a system limited to objects and the relationship of and between objects in themselves and a wider cultural system perspective that includes objects, applied by Branzini and other European theorists. Krippendorff's perspective on the ecology of the artificial represents design's preoccupation with the object, inertia to engage with a larger context or immersion in a complexity that cannot be unravelled. It could also be argued that Krippendorff uses an outdated notion of ecology which in itself uses mechanistic forms of understanding rather than the systems approach, now used in the ecological fields, which are better able to grapple with the complexity of natural systems. Krippendorff (1989) first uses the term 'ecology of the artificial' in the closing section of his paper, 'On the Essential Contexts of Artefacts or on the Proposition That "Design Is Making Sense (Of Things)"' and then re-uses the ideas explored in this paper to form the bases for the chapter 'Meaning in an Ecology of Artefacts' in his (2006) book *The Semantic Turn: a new foundation for design*. For Krippendorff 'ecology of the artificial' is the relationship among artefacts and between artefacts and their environment 'how artefacts relate to each other meaningfully, and what they do to each other consequent to how humans conceive of them.' (Krippendorff, 2006, p. 193). The concept of a 'species' within an 'ecosystem' is used as a metaphor for the system of artefacts. Hence, Krippendorff uses analogies of 'cooperation, competitive, symbiotic, or parasitic' (1989, p.34) to understand relationships between artefacts. For Krippendorff, people engage with these systems of artefacts with some understanding of the complex pattern involved.

Whenever people arrange their furniture at home, wire pieces of computer hardware together, or install something for the benefit of their community, they display some ecological understanding of how artefacts can work together. (2006, p.195).

For Krippendorff, the process of further developing our understanding of how these 'artefacts can work together' will help us design for these systems. Accordingly Krippendorff argues there is a need for designers to design artefacts for this complex system of relationships that will 'survive such ecological interactions' (2006, p.198). Thus, Krippendorff argues, designers need to have an understanding of such an ecology of the artificial, and by developing simplified narratives of these complex systems, in objective terms, will aid designers in more astutely designing successful artefacts for the system. In this case it appears success is gauged largely in capitalist

terms of the market with ideas of environmental responsibility and notions of sustainability not entering into Krippendorff's use of the metaphor. In this work *ecology* is used in an intellectual sense, as a mode of thinking more holistically about the interconnecting relationships of artefacts specifically and, to a large extent, in isolation from natural or social systems.

A similar term 'the ecology of goods' is also used in a wider socially oriented research context by Pantzar, who broadens the context of the product to include social and cultural systems. Pantzar's ideas on this term can be found in various papers and lectures, the most prominent of which is his (1997) paper, 'Domestication of Everyday Life Technology: Dynamic Views on the Social Histories of Artefacts'. For Pantzar, *ecology* is used to mean a network of systems. Pantzar (1997), in critiquing 'standard consumer research of academic marketing studies, economics, or sociology' as lacking 'general theories and perspectives historically integrating technology, needs, and human beings' (p.52), attempts to develop a perspective that integrates technology and humanity. Through looking at 'how technology is domesticated' Pantzar (1997) proposes to shift the perspective 'from single commodities and needs to systems of commodities, to the evolving networks – ie. ecology of goods.' (p.55)

It is not only that technology provides ways of satisfying human needs, but also that it creates novel needs and constraints for human behaviour through its diffusion. (Pantzar, 1997, p.55)

Hence, there is an interrelating network of systems connecting the artificial and social; whereby, humans act to adapt the artificial environment of 'goods' and in turn those 'goods' act to adapt human systems. An 'ecology of goods' looks at the relationship between humans and their artefacts in terms of 'social relations between the producer and consumer, and on the mechanisms for communication between them' (Pantzar, 1997, p.64). It includes energy and information flows, feedback mechanisms, social and material cycles, repetition and extinction. Pantzar (1997) suggests the need for analysing the 'ecology of goods' (of socio-technical relationships) not for uncovering the description, but for discerning the patterns within the networks to discover those 'circuits' that are more likely to be reproduced so as to determine their effects on the system (p.65). Pantzar primarily focuses on the interaction of artefacts, technology and social systems in everyday life to explore

the notions of commodities and consumption patterns. He uses many concepts from the scientific study of ecology in developing a mode of thinking about commodities. Although he does not reference environmental responsibility directly, in exploring ideas on consumption patterns Pantzar is indirectly adding to the sustainability discourse concerning changing the culture of consumption.

In contrast, Manzini uses the phrase ‘ecology of the artificial’ to further broaden the context of design to encompass the complex gamete of social, cultural and environmental systems. Manzini’s use of the ecology of the artificial features most notably in his (1992) paper, ‘Prometheus of the Everyday: the ecology of the artificial and the designer’s responsibility’ and his (1994) paper, ‘Physis and Design: Interaction between nature and Culture’. Although, Manzini first mentions this concept in his (1986) book, *The Material of Invention: Materials and Design*. For Manzini (1992, 1994) ‘the ecology of the artificial’ is an attempt to rectify the problems coursed by the ‘machine paradigm’ that oversimplified our understanding of our world. Applying ecology as a new model allows us to comprehend the complexity of reality and to reassess our ‘western culture of doing’ within it.

We need models that will let us understand reality without losing what we have discovered about its irreducible complexity.... The working hypothesis that I propose is to apply to the artificial environment the interpretive models that ecology has developed for the natural environment. (Manzini, 1992, p.12)

In highlighting the problems now evident in the limited ability of the environment to sustain the ‘western culture of doing’, Manzini calls upon designers to reassess their role in line with the goal of maintaining a habitable world. That is, to design for a habitable world, the act of ‘doing’ needs to be reoriented towards ‘new environmental qualities’ which Manzini (1992) conceptualises as a ‘new ecology of the artificial environment’ (p.12). His intention here is to adapt the ecological model to fit ‘reality better than other models already proposed’ (Manzini, 1992, p. 13). In this adaption process Manzini (1992) is aware that ‘purposiveness’ needed to be added to the ‘non-purposive’ biological model of ecology in order to account for ‘the purposive character of cultural change and the organization of artificial society’ (p.12). The idea of purposiveness as a key difference between biological and social systems is supported by Ulrich (1983) in his chapter entitled: Toward a “Purposeful Systems” Paradigm of Planning.

If the only systems concept we have is a mechanistic one, we tend to treat everything as if it were a machine. Similarly, if biology furnishes the root metaphor in terms of which we conceive of systems, we tend to regard social systems as if they were biological organisms. (Ulrich, 1983, p. 317)

He goes on to argue that using a biological metaphor misses the motivation and purposiveness inherent in social systems.

Fundamental to Manzini's 'ecology of the artificial' is an understanding of the biological and cultural limits of the system, a conceptualisation of the environment as 'biosphere' and 'semiosphere'²² and an autonomous perspective of artefacts within this system. Artefacts can be seen as taking on a life of their own after leaving the intentionality of the designer; once produced, artefacts 'enter into a system of actions and interactions, between themselves and the environment, till they assume... meanings and uses that can be very far from those thought of by the designer'²³ (1994, p.127). These systems are both cultural and physical and the environment is both 'biosphere' and 'semiosphere'. In this use of ecology as a metaphor Manzini utilises the full extent of the word's meaning: as a mode of thinking more holistically about the interactions in and between systems both artificial, natural and social; the implications of environmental responsibility; a sensitivity to our relationship with our world; and a need to change our activities towards more positive, non-destructive practices.

A key to understanding the use of ecology as a metaphor in design is to note the different influences from the ecology movement of the English speaking theorists to the French speaking theorists, as described by Whiteside (2002) in her book *Divided Natures: French Contributions to Political Ecology*. Whiteside (2002) argues that English speaking ecologism can be characterised by 'centred' views – either anthropocentric or non-anthropocentric – in contrast with the French ecologism which is characterised by 'non-centred' views.

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22 'Semiosphere' is the realm of signs and symbols – semiotics – expressed as part of our physical environment. This is the visual language of artefacts, including examples such as advertising and signage making up the graphical skins of communication that cover our urban landscapes, which Manzini labels 'semiotic pollution'.

23 Manzini's concept of artefacts taking on their 'own life' after leaving the intentionality of the designer is also echoed in Baudrillard's (1968) concept of 'technemes' as discussed in the following section.

Nature protection would have to be conceived not as a matter of setting aside wilderness but as a new way of weaving together human design and biophysical processes. (Whiteside, 2002, p. 22)

This non-centred ecologism is most apparent in Manzini's use of the ecology metaphor where he integrates the social into the natural environment, evident in his description of the physical environment as both 'biosphere' and 'semiosphere'. However, common to both sides of ecologism are 'demands for holistic thinking and environmental justice and for caution in the application of technology' (Whiteside, 2002, p.11)

The common thread across the different uses of *ecology of the artificial*, running through design theory, is its use to understand the role that objects of design have in our everyday lives. By uncovering this narrative, of 'props in the play of life', the design field was able to reassess its role in the system of the everyday. The outcome re-oriented design away from the artefact as the central purpose of design to the role of facilitating our everyday practices. This gave rise to the concept of design orientated Product-Service-Systems, which I will not go into here, other than pointing to works such as Nicola Morelli's (2002, 2003, 2006). The idea of design being about more than just the object is supported more recently by theorists like Lopes (2005) 'contrary to all appearances, design is not about making objects' (p.ii) and Tonkinwise (2010) 'if we designed our way into unsustainability, it was because that designing was always about designing this or that *thing*... what we need, therefore, is designing with a wider remit, a more systemic designing' (p.27). This step in a non-object-orientated notion of design assisted the field in considering how design might play a role in sustainable change.

Why was Ecology Employed?

The significance of the phrase *ecology of the artificial* is played out in the Munich Design Charter as initiating a context from which design could re-assess its role and reorient its practice. On the 15th of October, 1990, seventy-four design writers and theorists signed the charter with an aim 'to bring new movement into discussions on the fundamental role to be played by design in the future of Europe' (Doordan, 1991, p. 74). It heralded the need for design to adopt a 'new mode of thinking and designing, and ... a new ethical basis for planning' (Doordan, 1991, p.75)

The role of design is exposed to new social and industrial problems, is faced with the challenge of putting forward new, profound qualities, of creating a more advanced ecological balance between human beings and the artificial environment we inhabit. (Doordan, 1991, p.75)

The charter uses 'ecology of the artificial' to 'start the ball rolling, to prompt further discussions and to trigger off a real debate on European Design, other equally plausible ideas and models can and must also be added to it' (Doordan, 1991, p. 74). Through this charter the promotion of a systems approach to design was initiated. It was an approach that would re-assess the role of the designer in fashioning the future of the artificial world, in line with an ethical responsibility for the physical and political limits of the system, and a new perspective on 'quality of life' and wellbeing.

As a cultural and visual field of practice design has an inherent sensibility for the power of symbolism; hence, *ecology* was used to the full extent of its potential, significance, legitimacy and value. Engaging with this metaphor also pushed design into a wider socio-environmental discourse spanning the popular to the academic realm. The ecology metaphor showed that design is not just about 'making things look pretty'; instead, design is a critical component of the world we live in and plays a vital role in determining the future. The use of the phrase *ecology of the artificial* initiated a systems approach to design as a valuable first step in finding a context for how design can play a role in the complex issue of sustainable change.

Complexity

Given that addressing complexity is a critical part of sustainability, understanding how design addresses complex challenges aids the development, of a design-led research approach for sustainability, in this study. Over the last few decades there has been an effort, in design research, to further cultivate approaches to complexity. As expressed above, the Munich Design Charter (Doordan, 1991) and theorists such as Manzini (1992) express a need for 'models that will let us understand reality without losing what we have discovered about its irreducible complexity' (p.12). Endemic qualities of design practice articulate an aptitude for approaches to complexity; subsequently, the significance of Rittel's (1972) influential paper on wicked problems lies in its explanation of how design addresses complexity. Much contemporary design discourse, such as that conducted by Cross, Glanville and

Findeli, still concurs with Rittel's explanation and expand on design's approach to complexity. This design approach can be characterised as the ability to work within the messiness of a complex system without having to 'clean up' first. This section examines how a number of different theorists understand design's approach to complexity and how they recommend this be developed to address complex issues like sustainability and the complexity of everyday life. These theoretical perspectives form important components and context in the development of this study.

As outlined above, Manzini (1992) uses the 'ecology of the artificial' as an initial model for understanding the 'irreducible complexity' of reality (p.12). For Manzini the current dominant approaches to knowledge construction oversimplifies reality and he sees this tendency to simplify as contributing to contemporary problems including the 'environmental crisis'. However, this 'modern' approach to knowledge, that Manzini refers to, has not always been the dominant form. In line with the historical context of knowledge construction discussed earlier, in the enlightenment a swap occurred from the old cultural and creative approaches to modern scientific approaches which Manzini describes as simplified knowledge construction 'this very radical simplification of models for comprehending existence is what first science and then technology have reached in their results' (p.12). Within this context Manzini (1992) suggests: 'to find a type of behaviour that can bring up to date our Western idea of "doing", we must first develop new models with which to comprehend reality' (p. 12). The Munich Design Charter (Doordan, 1991) concurs, outlining the complexity of the design context as a 'balance between technological and humanistic aspects of culture... aimed to make the industrialized world both human and habitable' (p.74). The Charter describes a growing awareness that 'the system we live in has physical limits' (p.75) adding to the complexity of the design context. As discussed above, the Charter also uses the notion of 'ecology of the artificial' to initiate a discussion on more complex models for design to contribute to the future of Europe in more profound ways, to avoid 'environmental disaster and political limits' (p.75). The agenda set out by Manzini (1992) and the Munich Design Charter (Doordan, 1991) calls for design to engage with new models for comprehending the complexity of reality where the model of 'ecology of the artificial' was meant to be a starting point for developing further complex models. This agenda sets the criteria for new developments in design

approaches to knowledge construction²⁴. However, the need for engaging more fully with complexity has been evident in design for some time and was raised by Rittel²⁵, twenty years earlier, when he wrote about the now infamous ‘wicked problems’²⁶ (see Rittel, 1972; Rittel & Webber, 1973).

Wicked Problems

Like Manzini, Rittel’s (1972) paper criticises the modern scientific approach. This paper can be seen as arguing that design should not try to be scientific because the design process is a valuable approach to the complexity of everyday life (Buchanan, 1992). Here Rittel outlines wicked problems as the complex nature of design and planning work. Rittel makes a distinction between complexity of ‘planning problems’ and the comparative simplicity of ‘problems of the scientist’ (p.392). He defines the former as ‘wicked problems’ and the latter as ‘tame problems’ (p.392) – or perhaps, if the problem is not tame then the approach works to tame the problem. I do not want to labour Rittel’s criticisms of the rational logic of science; his argument has historical significance, where the dominance of the scientific approach prompted movements in design to become more scientific (see Cross, 2001). The point Rittel is making through this criticism supports the notion, discussed earlier²⁷, that there is a need to re-establish a balance of different approaches. Rittel warns against the dominance of a scientific approach – science cannot do everything – and the expert model that he sees as encouraged by rational logic; rather, he is in favour of designerly approaches and co-operative models. The significance of what Rittel (1972) calls ‘wicked problems’ is an explanation of how design approaches complexity (see Figure 11 below).

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- 24 Not just design, but many other disciplines are also trying to address complexity; however, my focus here is on what design has to offer.
- 25 Rittel is a mathematician, designer, and former teacher at the Hochschule für Gestaltung in Ulm, and in the 70’s was a professor of the Science of Design at University of California, Berkeley (Buchanan, 1992).
- 26 Rittel first wrote about wicked problems in 1972 for a design and planning audience. However, social scientists are generally more familiar with the second paper Rittel wrote with Webber in 1973, exploring the same work for a policy context.
- 27 See the Historical Context section of this Background Research chapter.

1. **The problem cannot be pre-defined:** the process cannot start with a definition of the problem. Can only understand the problem through the process of solving it.
2. **No way to understand the problem separately from solving it:** to understand the subject is to construct the outcome and vice versa. Each solution describes the problem and each description of the problem formulates the solution.
3. **No stopping rules:** there is no perfect solution 'you can always try to do better', the solution can be seen as ongoing or stop at good enough.
4. **No true or false:** the outcome is subjective. The solution can only be 'good or bad and this to varying degrees and maybe in different ways for different people'.
5. **No limit to possible operations:** Permissible operations are only limited by principle and fantasy. There are no set rules of what can and cannot be done 'everything goes' and the operations to be used can be made up as you go along.
6. **No one explanation for the problem:** the direction taken is depends on the initial question. The explanation that is chosen determines (or justifies) the outcome that is produced.
7. **No clear distinction between symptoms and problems:** every problem is a symptom of another problem so be careful of the initial question. The problem is part of a network of problems making it simultaneously a symptom and a problem 'every wicked problem can be thought of as a symptom of another problem'. This means each problem should be approached with a high degree of uncertainty and may need to be reinterpreted, that is the stated problem may need to be changed.
8. **No test for the problem:** There is no time limit to the consequences of the outcome so no ultimate test. There is no test to insure the development of a good solution. There are too many variables to be able to predict the consequences of an outcome.
9. **No repeat trials:** there is only one attempt at solving a problem because each attempt changes the problem 'you can't undo what you have done in the first trial'.
10. **No universal solutions:** each problem is unique and it cannot be assumed that the strategy from a similar problem will work in the next context. The process needs to be conducted in its entirety for each problem encountered.
11. **No right to be wrong:** the problem solver is responsible for the consequences of the outcome. Hence, there is a high level of responsibility to get it right

Figure 11: Rittel's List of How Design Approaches Complexity

adapted from Rittel, 1972, pp. 392-393

Rittel sees the design approach as dynamic, working with uncertainty and ambiguity both in terms of the problem, process and solutions. This perspective is supported by contemporary design theorists; although, the words may have changed with design theorists often avoiding the use of *problem* and *solution* as explanations of design approaches, for many of the reasons Rittel (1972) identifies (see points 1, 3, 6, 10 in Figure 11). What Rittel calls problems and solutions are complex issues of everyday life where problems are undefinable and ultimate solutions are unattainable. For this reason, contemporary theorists use less definitive terms like *outcome* rather than *problem*.

Design *problems* are uncertain and ambiguous because they arise from an interconnected entanglement of problems. Design problems are complex because, as Rittel describes, they are undefinable (see points 1, 6 and 7 in Figure 11). The design approach does not try to simplify the problem into an initial definition; instead, the design approach understands the problem through the process of solving it. This description of design has similarities with Glanville's use of the 'Black Box' analogy which I will describe in the next section. The design approach uses abductive reasoning (Cross, 1990) to construct questions about what could, should or ought to be. Abductive reasoning is also referred to as 'productive or appositional reasoning' (Cross, 1990, p. 131) and describes the 'logic of discovery' for creating new hypotheses (Honderich, 1995).

Rittel, like Cross, highlights the dynamic nature of the design process (see point 2 in Figure 11) and outlines how the design approach works within uncertainty (see point 5) utilising ambiguity within the process, of suspending disbelief and not pre-empting the outcome. This dynamic and abductive process is conducted in a playful and 'exploratory' (Cross, 1990) manner. The design approach, rather than try to pre-empt the outcome instead sets up a playful approach. The dynamic quality of this approach comes from the ability to incorporate unforeseen, serendipitous circumstances. Cross (1999) describes this design approach as 'opportunistic' (p.29) which is also reflected in Rittel's (1972) sentiment of making-up the operations as you go along. Rittel (1972) suggests there are too many variables to be able to predict the outcome. Hence, as Glanville (2007) explains in the 'Black Box' analogy, the design process applies dynamic, open and ambiguous approaches to work within this

uncertainty. In addition, Glanville (2008) describes the design process as following a conversation like structure. This structural approach engages with complexity not by understanding it but through a series of feedback loops that build towards an agreed outcome. Both of these analogies from Glanville will be explained further below. This conversational structure comes from the application of design skills such as intuition. According to Findeli (1994) 'intuition' is a skill derived from aesthetics which enable design to engage with complex systems:

In the strictest sense, the systemic apprehension of complex reality arises from intuition.... Intuition is no more a given than is analytical reasoning and, as with the latter, it is necessary to train it. I believe that an aesthetic education is most apt to develop intuition in a rigorous, progressive manner, provided the nature of the education is well defined. (Findeli, 1994, p.63)

Findeli defines intuition as the ability to comprehend complex patterns 'as the capacity to instantly grasp the structure of the relations that lend coherence to an organism or system, to seize its form (in the Aristotelian sense)' (p.63). Findeli forms the relationship between intuition and aesthetics from Goethe's epistemology of contemplative judgment 'this concept is central to the epistemology of Goethe, who called "anschauende Urteilskraft" (contemplative judgment), thus affirming its close relation to aesthetics' (p.63). Furthermore, the risk and uncertainty is also increased due to, as Rittel describes (see point 9 and 10 in Figure 11), the design process being non repeatable. Once the process starts it cannot be restarted from the beginning as change has already occurred; instead, there are iterations that occur throughout the process. Similarly, each application of the process is different as the problem changes for each context. This dynamic, uncertain and ambiguous process allows design to engage with the messiness of everyday life without having to clean up first.

The outcome also exists within uncertainty since there is no way to determine the point at which the best outcome has been obtained or be certain of the effects it will have when implemented. Rittel (1972) defines the solution (see point 3 in Figure 11) as having 'no stopping rules', or as Glanville describes, the outcome is obtained at 'good enough'. The solution can be seen as ongoing or stop when time, money or motivation run out. Therefore, the design approach does not seek to generate the perfect solution since the uncertainty surrounding the outcome means there is always room to do better. Rittel (1972) defines the qualities of these outcomes as

neither true nor false, instead, they can only be subjectively assessed subjectively as positive or negative. The final form and its use in the system of the everyday can only be determined after implementation. For Baudrillard (1968) the design outcome can only communicate the technical specifications: what he calls a 'techneme'. It is not until after implementation that the final form will be reached as the complexity of everyday life moulds the outcome into use. As discussed in the previous section, Manzini (1994) also talks about artefacts as taking on a life of their own after leaving the intentionality of the designer; once produced, artefacts 'enter into a system of actions and interactions, between themselves and the environment, till they assume... meanings and uses that can be very far from those thought of by the designer' (p.127). Rittel (1972) says there are too many variables to be able to predict the consequences of an outcome. The absence of any form of certainty is why Cross (1999) calls design 'risky'(p.30). Rittel (1972) highlights the far reaching implications of the outcomes for everyday life and there by the importance of responsible design (in point 11) which has become particularly important for contemporary design and strongly advocated by sustainable design theorists. This means design has a responsibility to develop approaches to complexity better able to generate good outcomes and as such has been part of a contemporary design research agenda.

The Black Box and Conversation Theory

Glanville (2007) expands the explanation of how design deals with complexity by using the 'black box' as a tool for describing how designers 'can build descriptions of the world that, ultimately, are based not in presumed knowledge but ignorance' (p.189). He describes the black box as 'a powerful device... for... acting with/from the unknown/unknowable' (p.189). This design approach could be described as putting reality into a black box and having a conversation with it. However, to understand this designerly approach to complexity I need to first explain Glanville's (2007) use of the *black box* analogy and secondly Glanville's (2008) use of the *conversation* analogy.

Glanville being both a design and cybernetics theorist establishes his interpretation of the *black box* analogy from second order cybernetics and applies it to design. Glanville's (2007) black box is not the 'Flight Memory Unit' used in plane crashes (which as Glanville points out is usually bright orange) or the black bodies in thermodynamics (p.190). Glanville takes his black box analogy from Ashby as a

thought experiment where the investigator has a black box that cannot be opened. The *black box* is an unknown. The investigator interacts with the black box and the resulting interaction is described by the investigator, although ‘we do not know what happens in the box’ (Glanville, 2007, p. 189). The interaction can be crudely described as the investigator input into the black box which goes through an unknown change and then results in an output from the black box for the investigator to interpret. The significant aspect of the black box analogy is that we do not need to open the box to understand the interaction. The black box, therefore, is useful for understanding things that are not ‘wholly accessible’(Ashby in Glanville, 2007, p. 194). Glanville highlights that this is also how we understand the complex systems in everyday life. He gives the example of the conversation where one person does not need to know the contents of another person’s mind to understand the interaction.

Glanville (2008) also establishes his *conversation* analogy from second order cybernetics and applies it to design. Glanville develops this analogy from Gordon Pask’s Conversation Theory which looks at ‘conversation as mechanism’ (p.65) or process. Glanville (2008) outlines the basic procedural characteristics of a conversation in 9 steps (see Figure 12 below).

Through the use of this *conversation* (and *black box*) analogy Glanville (2008) demonstrates the ‘clear-cut analogy between cybernetics and design...[which lies] in the circular organisation of both’ (p.67). Glanville argues that ‘conversation is necessarily circular’ (p.67) and design is not only taught in a conversational manner²⁸, the act of designing also has a conversational process, and hence ‘the act of designing is itself also based in a circular form’ (p.67). Glanville gives the example of design’s conversational process as: ‘the designer proceeds by holding a conversation with himself, using paper and pencil’ (p.68). I have also referred to these conversational characteristics of the design process in the previous Design Practice section of this chapter.

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28 Glanville is referring here to studio teaching, which is the traditional form of design education.

1. Requires at least two participants. Participants do not have to be distinct people; they could be multiple parts of the one body or even other objects. Like the example above of the investigator having a conversation with the black box.
2. Consists of a series of exchanges to share understanding and meaning. Where mutual understanding is negotiated.
3. Has one or a series of topics that are agreed on tacitly.
4. Exists on several levels. A meta-level which guides the overall conversation direction, the exchange level and the context level.
5. The levels of a conversation can shift. For example the when talking about the direction of the conversation the meta-level has shifted to the exchange level.
6. All meanings and understandings are individual to the participant. Meaning is not transferred, instead, is made separately by the individual participants who understand in their own way.
7. A conversation ends when there is some sort of agreement, like agreeing to disagree.
8. The agreement is a negotiated assessment of the commonality between each participants view of the understanding generated. In a conversational agreement there has not been a 'shared' understanding in the sense that the meaning has been transferred. Instead each participant constructs a defensible analogy of the understandings being exchanged through the conversation.
9. The conversation process explained above does not have to occur in order. Such as in everyday conversations between people, each of these characteristics may be suspended and then reoccur over several cyclic iterations.

Figure 12: Glanville's Procedural Characteristics of a Conversation

adapted from Glanville, 2008 p. 65

Combining these two analogies, of the *black box* and the *conversation*, gives an explanation of how design approaches complexity in everyday life. As I described at the start, design can be thought of as putting the complexity of everyday life in a black box and then proceeding to have a conversation with the black box. In this way everyday life is not simplified; instead, the interaction becomes a conversational process between the two participants: the designer and the black box. The designer does not need to know what is in the black box and therefore does not need to have an intimate understanding of the complexity. Design only needs to understand the interaction of the conversation and by doing this can come to a conversational

agreement – an outcome in the form of a design proposal. Glanville’s black box and conversation analogies form key components in the conceptual framework for this project, as will be further explored in the next Concept chapter.

Systems Approach

Once establishing design’s approach to complexity, as explored above, Rittel (1972) goes on to recommend a systems approach to design that would make the approach to the complexity of wicked problems more effective (see Figure 13).

1. **No Specialists:** Expertise is ‘not concentrated in a single head’ but spread across many people. Those that know best are the ones most affected by the problem. There is an even distribution of expertise and ignorance among all participants. The only expert is the expert in guiding the process.
2. **Maximise Involvement:** Actively involve those people affected by the problem as participants in the process ‘Nobody wants to be “planned at”’.
3. **Ought-to-be statements:** Each step requires a judgement. Since the process requires deontic assumptions to be made (reflecting political, general moral or ethical attitudes), it is important to involve other participants and to have a transparent process so the judgments can be assessed.
4. **Equity of judgment:** Everyone has the authority to express a judgment about the outcome and there is a need to understand each other’s judgment without having to agree. ‘We must successfully exchange information about the foundations of our judgement’ and this requires procedures to do so.
5. **Non-scientific:** the nature of this approach means ‘there is no detached, scientific, objective attitude in planning’ because it always requires deontic premises.
6. **Mid-wife rather than Expert:** The role of the designer in this approach is one of facilitator of the process rather than expert in solving the problem.
7. **Try something:** the facilitator of this process is required to cast doubt while being optimistic, be responsible while knowingly not rational, obligated to be rational while rationality is impossible, that is ‘make careful, seasoned respectlessness’.
8. **Moderate optimism:** despite the complex nature of the problem to find a solution requires a critical process towards an achievable outcome.
9. **Conspiracy model:** This process is ‘too risky’ for one person, it requires ‘accomplices’ to ‘share the risk’ and be ‘courage[ous]’ enough to ‘live with the uncertainty’.
10. **An argumentative process:** This process cannot be carried out in isolation. It is a dialogue where there is a continues cycle of questions and issues leading to a diverse array of positions which are critiqued and discussed until a decision is made from which to proceed until another question arises.

Figure 13: Rittel’s Recommended Approach to Complexity

adapted from Rittel, 1972

The complexity of sustainability requires processes which can engage with uncertainty and ambiguity in a dynamic way that can support social behavioural change. To address wicked problems, such as sustainability, Rittel (1972) recommends design (and planning) establish an approach that facilitates a process where the designer is ‘midwife’ rather than ‘expert’ (see point 6 in Figure 13). Rittel appoints to the role of expert all those people affected by the problem (see point 1 in Figure 13). The designer’s role as facilitator aims: to maximise involvement (see point 2), make sure the process is self critical and possible (see point 8 in Figure 13), follow a process of finding what ought-to-be, making these assumptions transparent (see point 3 in Figure 13), and finally encouraging an equitable dialogue on participants’ judgment of the outcome (in point 4 in Figure 13). Rittel (1972) argues that the process is ‘too risky’ for one person, it requires ‘accomplices’ to ‘share the risk’ and be ‘courage[ous]’ enough to ‘live with the uncertainty’ (p.394). Since the process requires ‘deontic’ assumptions (ie. assumptions based on premises that are generated through ought-to-be statements which reflect political, general moral or ethical attitudes) to be made, it is important to involve other participants and to have a transparent process so the judgments can be assessed. Like Glanville’s (2008) conversational structure to design, Rittel (1972) recommends a dialogue process, where there is a continuous cycle of questions and issues leading to a diverse array of positions, which are critiqued and discussed until a decision is made to proceed until another question arises (p.394).

In outlining why design is an effective approach to these complex issues and suggesting a collaborative model for improving its effectiveness, Rittel (1972) highlights the un-scientific nature of this approach (in point 5 in Figure 13). Through this 1972 paper Rittel shows the importance of finding approaches to the complexity of wicked problems which may lie outside the sciences, as I have argued in this chapter. This exploration into the design approach to complexity has become an important discourse in design theory generally and particularly when looking at complex issues like sustainability. Many of Rittel’s ideas are echoed in design’s theoretical framework and explanations for approaches to complexity such as the ecology of the artificial, which develops this discussion, as documented by Manzini (1992) and the Munich Design Charter (Doordan, 1991), on more complex models and establishes a

systems approach to design, as recommended by Rittel. This initiates an approach which contributes to our future in more profound ways to avoid ‘environmental disaster and political limits’ (p.75); forming a systems approach to design which has continued through design research. This approach in design research has focused on bottom-up initiatives that explore the idea of open-source design through co-creation approaches to participation (Maase & Dorst, 2006). Methods for such an approach have been developed from the creative process of design and are considered as design-led research methods, as outlined earlier²⁹. Such design approaches have the potential to provider a unique perspective to the complexity of sustainability research.

Enabling Design

Many design theorists, like the signatories to the Munich Design Charter (Doordan, 1991), recognise the link between the need to develop design’s approach to complexity and the ability to address the issues of sustainability. Findeli defines sustainability as the responsibility of design because each design affects our complex system of life.

design responsibility means that designers always should be conscious of the fact that, each time they engage themselves in a design project, they somehow recreate the world. (Findeli, 2001, p. 14)

The concept of *enabling design* is a key component of sustainable design theory because it combines both sustainability and complexity by placing responsible design, as described by Findeli, within a collaborative and community context and thus engages with the collaborative systems approach described above. To explore this notion of enabling design I use Manzini’s perspective to first establish the context for, and idea of, *enabling*. Then I use Thakara’s perspective to expand on the idea of enabling design and finally Val Brown provides a framework for engaging in a collective form of enablement within a social learning context.

Manzini establishes the idea of designing ‘enabling solutions’ to counteract the current production-consumption patterns which he considers disempowering and causing unsustainable social behaviour. This contemporary pattern of consumption turns people into users, where every social activity is enacted through products and services.

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29 See Design-led Methods in the Design Research section of this Background Research chapter.

In this way, healthcare requires doctors, hospitals, and medicine, and children's education requires schools, gyms, televisions and electronic gadgetry. Moreover, the upkeep of material goods is replaced by disposable products and the need for public space is replaced by visits to private sector shopping malls or theme parks. Our capacity to entertain ourselves and to socialize is now swept away by an onslaught of pre-packaged entertainment media, from TV and video to the internet. (Manzini, Walker, & Wylant, 2008, p. 10)

According to Manzini (2004) this pervasiveness of consumerism 'generates increasing demands for services and throw-away products that are, as a whole, socially, economically and environmentally unsustainable' (p.4). The disempowering nature of this consumerism is due to, what Manzini considers, a misguided idea that comfort and efficiency comes from products and services doing everything for us 'systems conceived to reduce the capability and will of the user to actively participate in the solution of his or her problems'(2002, p. 147), however, in the process our passivity is debilitating:

In the name of a mistaken idea of comfort and efficiency, the only quality encouraged was that of reduced personal effort and, in short, "disinvolvement" and ignorance with regard to the way things function and how to look after them. But also with regard to the everyday life events and how to solve the problems that they may generate. (Manzini, 2004, p.4)

For Manzini the dominant idea in the last century has been to provide solutions which rely exclusively on 'the formal economy where, to meet a demand..., there are other entities (private enterprise or public networks) that produce and deliver the services and products necessary' which in turn actively reduces 'the informal economies of self-production and non-monetary exchange' (2004, p.1).

If current solutions disable people then Manzini finds the counter-concept of enabling solutions in the proverb 'give a man a fish, feed him for a day; teach a man to fish, feed him for a lifetime'. This more sustainable model, Manzini proposes, can be achieved through activating 'a social learning process', identifying 'promising forms of radical social innovation' and encouraging 'creative communities' (Manzini, 2005, pp.5-6). One simple analogy Manzini uses to describe enabling solutions is the do-it-yourself (DIY) kit. Instead of a product or service being designed to fulfil a need, a kit is designed to enable an individual or a community to apply the solution. For example, teaching someone to cook instead of giving them packaged food.

Thackara (2006) takes the concept of enabling one step further towards the concept of *open-source* (made popular through the internet, eg. Wikipedia). Thackara suggests ‘people are too often described and thought of by designers as users or consumers when we really need to think of them as actors’ (p.221). This suggests that people and communities should be actively and collectively involved in the design and maintenance of their everyday lives. Thackara (2006) gives the example of the Dutch dike social-system where ‘a sense of civic duty and solidarity motivated the Dutch citizen to take care of the dikes collectively’ (p.221). The concept of *open-source* design has been further discussed on the PhD Design list highlighting the plethora of contemporary collaborative design activities including design theories into co-design and co-creation, as discussed earlier.

Similarly, like these collaborative explorations of design, Val Brown (2008) explores collective forms of knowledge construction (see Figure 14). Brown provides a useful framework for design to work within a collaborative and community setting by identifying five western knowledge cultures: individual, local, specialist, strategic and holistic. She suggests for social change there is a need to synthesise these into a nested knowledge system, which she calls ‘collective knowledge’: where each knowledge culture is networked together. Brown’s framework can help to understanding how to engage collectively and enable a system of design.



Figure 14: The Knowledge Cultures as a Nested System

adapted from Brown, 2008, p.37

The idea of enabling design forms a core part of this project and is explored further in the next Concept chapter. This idea of enabling design is built from the components and contexts outlined by the theorists above which works to immerse design within a larger social context.

Socially Oriented Research Context

For design often the object becomes the obstacle. The above reflection on the design context places design within a larger social setting. Hence, as set out in the Introduction chapter, design research is fundamentally a part of socially oriented research. The intention of this study is to release design from the obstacles of the object by considering design within a wider context, where the outcome of a design-led research approach is knowledge construction rather than artefact production. As discussed earlier³⁰, design is not in itself research (Findeli, et al., 2008) so design needs to be re-moulded into *design as research*. The components and context, however, do exist within design practice, design research and sustainable design theory, as has been explored through the previous three sections of this chapter. From these components and context such a remoulding of design can be performed; such that, a design-led methodology can have a distinctly designerly form of knowledge construction that can address particular aspects within socially oriented research in particular ways.

Design could be described as existing in a post rebellious state in relation to a wider research context. The history of this rebellion is well documented by Cross (1993, 2001) and Glanville (1999), which starts with a sense of inferiority and thus a need to become more scientific:

When design research began, say in the 1960s, the eventual success of science was assumed. Already, at the notorious 1956 Oxford Conference, architectural education in the UK (and its sphere of influence) accepted architecture was a second-class subject: i.e., not properly scientific. Science (in actuality, technology) was seen as so successful that everything should be scientific: the philosopher's stone! Architects (a significant subdivision of designers) were determined to become scientific. The syllabus was changed and design science was invented. (Glanville, 1999)

Theorists such as Rittel (1972) rallied against this move towards being more scientific, suggesting instead that there was more value in following a 'designerly' way, discussed earlier³¹. Now there is still a perceived need to borrow research approaches from other disciplines (Cross, 2001); however, there is also a growing interest in exploring 'designerly' forms of research. As Rittel and Webber (1973) suggested

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30 See the Context of the Study section of the Introduction chapter.

31 See the Complexity section in this Background Research chapter.

three decades ago, endemic design approaches are not just of value in design but also of value in a wider socially oriented research context. Unfortunately, Rittel's *wicked problem* theories are claimed by other disciplines who have adopted these ideas, such as the social sciences, without remembering their disciplinary origins in both design and planning. This expansion, of *wicked problems*, into a wider socially oriented research context was largely a 'dead end' for design to share approaches more widely. However, contemporary trends for engaging with complexity such as sustainability, as messy social issues largely about our hopes and dreams for the future, are providing opportunities for design to again engage in wider socially oriented research conversations and share approaches.

Design as research can be employed for questions about what should, could or ought to be (Cross, 2001) through the abductive logic of discovery (Cross, 1990) to generate new knowledge on what Michael Wood (2008) describes as 'fictional possibilities'. As Downton (2004) accounts 'Designers make propositions about the way some thing or things could be' (p. 91). These creative qualities, as discussed in the Design Practice section above, include: thinking by doing, identity as central, a fluidity of meaning, conversational, iterative steps and playfulness. Perhaps this designerly way can be of value to other socially oriented researchers' search for imagination and creativity in research practice, as Gibson-Graham (2005) suggests is important in her paper on post-development strategies:

...venturing into a creative field in which the possibilities of reconfiguration and experimentation are linked to contingency and unpredictability. This is, we believe, the stuff of a postdevelopment discourse – a mode of thinking and practice that is generative, experimental, uncertain, hopeful, and yet fully grounded in an understanding of the material and discursive violences and promises of the long history of development interventions. (Gibson-Graham J., 2005, p. 4)

Law (2004) also calls for these in provoking a debate on method assemblage that includes 'enactment, multiplicity, fluidity, allegory, resonance and enchantment' (p.154). The communicative qualities, in both the process and the outcome of design, have many correlations with research (Glanville, 1999), in terms of discourse, dissemination of information and the furtherment of knowledge. However, design is much less structured, taking on the nebulous quality of conversation – it is informal, messy, imaginative, ambiguous and interpretive. This quality has the potential to

deliver, for the socially oriented researcher, an assemblage of methods able, perhaps, to fulfil Law's (2004) list of attributes. Additionally, perhaps the characteristics of thinking and doing in design might be well suited to the socially oriented research agenda for sustainability where the development of possible futures is needed and cross-disciplinary pathways are essential (Grafton, et al., 2005).

A design methodology could engage a more holistic understanding about possible futures by engaging a wide variety of participants³² in the design process, as examples of the design-led methods referred to above³³ have done. Hence, perhaps design may be of value to other socially oriented researchers looking for insights into more dynamic methods with practical outcomes that actively assimilate knowledge into practice. The iterative nature of design allows for each phase in the process to design the next phase. This means participants can influence both the design of the research process as well as the knowledge generated. This allows the methods to be location specific and avoid over-generalisations that may arise from more universal and deterministic methods. The creative and playful nature of such a design methodology allows for both finding opportunity in ambiguity and making research fun for participants and researchers. The playful aspect of design could be invaluable for socially oriented researchers wanting to reinvigorate their practices with fun, both for engaging participants and for re-energising researchers. Playfulness also aids in the combination of theory and practice. Working within a fluidity of meaning is a useful talent in a world which we have come to understand as more and more complex (especially when people are involved). Perhaps this is also useful for socially oriented research when dealing with high levels of uncertainty, like issues relating to sustainability.

The concepts related to rigour central to design as a methodology are different from those concepts that embody scientific *rigour* such as validity, reliability and objectivity, as Law points out 'social (and still more natural) science "method talk" connotes... a particular version of rigour' (Law, 2004, p. 9). This meaning of rigour, as Law defines it, includes best practice with a sense of 'hygiene' and a technically

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32 These participants could be specialists, community members, from industry, or a mixture of different stakeholders.

33 See the Design-led Methods part of the Design Research section in this Background Research chapter.

robust account of reality as: ‘a set of possibly discoverable processes’ (2004, p. 9). In contrast, for design, rigour is captured in the notion of *well-considered*, as discussed in the previous Design Practice section. This notion embodies excellence in the design practice, as Ram suggests (in Fletcher, 1994, p.416), in differentiating poor, good, great and exceptional design. The difference between worthless, as opposed to meaningful and worthwhile design is also embedded in best practice. However, this practice does not rely on validity, reliability and objectivity as most other social research practitioners know them. Instead, rigour comes from a thorough, innovative, imaginative and intuitive engagement with the design process. Where science seeks to validate a result through repetition in contrast, for design, the centrality of identity means repetition provides diversity. This relationship between the person and their practice is potentially of value to socially oriented research disciplines engaging with the notion of intervention and the role of the researcher in their research. Additionally, the individualisation of the practice may also address Law’s (2004) interest in developing a diversity of methods that are not generalist but variable and location specific. Individuality also encourages personal interpretation and subjectivity in situations of dynamic fluidity and uncertainty. If socially oriented research desires to ‘broaden method, to subvert it, but also to remake it’ (Law, 2004, p. 9) then forming design as research is an opportunity to challenge the commonly held socially oriented research notions of what legitimate research might be. Design-led methods are not ‘hygienic’: they are messy and they hope to discover all those nebulous subjects from emotion to aspiration, hopes, dreams and experiences.

Pains and pleasures, hopes and horrors, intuitions and apprehensions, losses and redemptions, mundanities and visions, angels and demons, things that slip and slide, or appear and disappear, change shape or don’t have much form at all, unpredictabilities, these are just a few of the phenomena that are hardly caught by social science methods (Law, 2004, p. 2).

This gamut of experiential subjectivity which, as Law suggests, is outside the scope of most social sciences, is central for design. Such an arena calls for a practice, like design, able to deal with the uncertainty coming from a fluidity of meaning, where the centrality of identity allows the researcher to use their intuition and imagination. It is a practice not fixed, though it requires well defined iterative action able to deal with movable territory in an innovative way.

In addition, sharing such a design-led approach could broaden the approaches currently used in the fields of participatory research, which will be discussed further below³⁴. These types of socially oriented research aim to practice the kind of research where communities develop their own solutions to problems, but which could be aided by further considering the role and potential of creative and playful approaches for the generation of ideas and actions. Wyborn and Cleland (2010) are examples of young social researchers from my own School who started to explore the use of creative and playful approaches in their 2007 honours research projects. Wyborn made use of ‘rich picturing’ (Checkland, 1981) for her honours project where she explored perceptions of Climate Change from different users of Kosciuszko National Park (KNP) in alpine Australia. Participants were asked to draw a series of pictures representing their perceptions of KNP now (ie. 2007), in 2020 and in 2070. Wyborn found these drawings aided the subsequent interviews in three key ways: (1) they focused participants on the key topic, (2) they established a rapport between the participant and interviewer and (3) they made participants reflect on the consequences of their current activities on biophysical change in KNP (Wyborn & Cleland, 2010). Wyborn used these drawings as ‘visual quotes’ in her honours thesis ‘to illustrate the findings of this research’ (Wyborn & Cleland, 2010, p. 164). Cleland made use of a ‘board game’ in her honours project where she explored the perceptions and opinions of resource-poor fishermen, from Bolinao in northern Philippines, to popular management initiatives involved in creating marine protected areas. Participants were engaged in the ReefGame which Cleland developed. The ReefGame was a board game which included a ‘simple computer model which calculated the players’ catches, income and remaining fish stocks’ (Wyborn & Cleland, 2010, p. 165). This computer model was based on social and ecological surveys from the region. Cleland used the board game format to help alleviate potential problems of participant fatigue, negative research experiences and difficulties participants might have in expressing their opinions directly to researchers. Cleland suggests that this game seemed to be successful in making a positive change from standard workshop procedures ‘indeed, more than one participant commented that they were relieved and pleased not to be faced with the usual butcher’s paper – focus group scenarios’ (Wyborn & Cleland, 2010, p. 166). Cleland found that this approach worked as a

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34 See the following Social Research part of this section.

catalyst for discussion about ‘the connection between marine protected areas, illegal fishing and falling fish stocks’, to reveal potential gaps in the fishers knowledge, acted as a learning experience for some fishers who ‘recognised the impact of their own actions on the reef’, and identified areas for further research (Wyborn & Cleland, 2010, p. 167). Through these approaches Wyborn and Cleland proposed that they can ‘claim to have illuminated a different aspect of people’s understanding of their interactions with a landscape than what would have been possible with standard social research methods’ and in doing so ‘created a research process that facilitated two way learning’ (Wyborn & Cleland, 2010, p. 168). However, in my perspective, these creative applications can also be seen as limited to conversation starters and subjugated in favour of the validity found in data collection. Wyborn in particular struggled to assimilate the rich picturing into her thesis, opting in the end for ‘visual quotes’. Both projects were remarkable examples of creative approaches to social research; however, can also be seen as not using the full potential of such creative approaches; for example, towards generating co-creation outcomes. Consequently this highlights both a growing interest, especially among the next generation of social researchers, in more creative approaches to research and a need for disciplines such as design to articulate design-led approach in a way that can aid such social researchers.

Methodological Associations

Developing a design-led methodology to sit within a wider socially oriented research context not only opens up possibilities for sharing design approaches with other disciplines but also places this methodology in association with a variety of other methodologies within this context. Although, as already stated, it is left to future research to further explore this association, for the purposes of articulating a design methodology it is helpful to make use of comparisons with existing socially oriented research methodologies. For this purpose I have included an overview of a few relevant methodologies from social research and design research which will be used in the Design Outcome chapter to aid in defining the design-led methodology’s research context. The following descriptions only highlight the key characteristics of these different approaches and are not intended to be an in-depth analysis of these methodologies.

Social Research

I have chosen the following three methodologies as examples of social research approaches which engage with social action to produce knowledge for change: Participatory Research, Action Research and Deliberative Democracy. Each methodology involves participants in an approach which aims to put knowledge into action. For this reason, these social research methodologies can be seen as existing within a similar socially oriented research context as the design-led methodology developed through this thesis.

Participatory Research

The area of Participatory Research covers a wide range of approaches and applications (Cornwall & Jewkes, 1995). Participatory methodologies include, among others, Participatory Rural Appraisal, Community-Based Participatory Research and Participatory Action Research (see Figure 15).

Participatory Rural Appraisal or Participatory Research and Action (PRA) or Participatory Learning and Action (PLA) – an approach which originated from rural research in developing countries ‘as a reaction against extractive and unethical development research and practice’ (Pain & Francis, 2003, p. 47). PRA has been widely used for participation in development including ‘the empowerment of poor people through their own analysis and action, and new insight gained by professionals into their realities and priorities’ (Kumar, 2002, p. 15). PRA has extended to include not only rural appraisal applications but urban, adult education, policy influencing and advocacy and organisational development (Kumar, 2002, p. 29)

Community-Based Participatory Research (CBPR) – an approach used by a variety of disciplines including public health where it ‘focuses on social, structural, and physical environmental inequities through active involvement of community members, organizational representatives, and researchers in all aspects of the research process’ (Israel, Schulz, Parker, & Becker, 1998, p. 173). All these ‘partners’ in the research process ‘contribute their expertise to enhance understanding of a given phenomenon and to integrate the knowledge gained with action to benefit the community involved’ (Israel, et al., 1998, p. 173).

Participatory Action Research (PAR) – a form of Action Research ‘which emphasizes the participation of research subjects’ (Pain & Francis, 2003, p. 47). PAR focuses on ‘how people generate their own realities and how they reflect upon them so as to bring about changes in their situation’ (Kumar, 2002, p. 31). This approach uses ‘meetings, group discussions, various forms of folk, oral, written, and visual arts’ (Kumar, 2002, p. 31).

Figure 15: Participatory Research Methodologies

According to Pain and Francis (2003) the defining characteristic of Participatory Research is ‘the degree of engagement of participants within and beyond the research

encounter' (p.46). Participatory approaches originated as 'a process by which communities can work towards change' (Pain & Francis, 2003, p. 46) which was then adapted into research methodologies. Within this area of research 'participation' is defined as being used in different ways and to different extents (Creighton, 2005; Kumar, 2002). Creighton (2005, p. 9) defines participation as a continuum of:

1. Inform the public
2. Listen to the public
3. Engage in problem solving
4. Develop agreements

However, as Creighton (2005) and Kumar (2002) identify, some approaches will only engage participants in some of these steps (eg. inform and listen) whereas others believe participation means including 'people's involvement in the entire decision-making process' (Kumar, 2002). Hence, similar to the participatory design, co-design, co-creation, distinctions discussed earlier³⁵, the different approaches in Participatory Research have commonalities 'e.g., scope provided for local people in depicting and analysing their realities and focus on use of visual and symbol' however the scope of participator involvement 'varies quite significantly' (Kumar, 2002, p. 30). Unlike co-design and co-creation, for the most part 'participation' in Participatory Research is mainly associated with locals from a community, stakeholders or 'non-experts'(Park, 2001, p. 81) rather than collaboration between other disciplines which is usually placed under the label of trans-, inter-, cross-, disciplinary approaches.

Action Research

Action Research is a practice based approach to research 'essentially about a group of people who work together to improve their work processes' (Carson et. al., 2001). This form of research is a systematic approach which Carson et. al. (2001) identify as having a six step structure: (1) 'deciding what the problem is', (2) 'planning to do something about it', (3) 'learning more about' the problem, (4) 'putting the plan into action', (5) 'observe and monitor the results', (6) 'reflecting on what happens' (p.162). Each of these six steps in turn cycles through a series of: (1) 'action', (2) 'observation', (3) 'reflection' and (4) 'plan' (Carson et. al., 2001, p. 162).

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³⁵ See the Design-led Methods part of the Design Research section in this Background Research chapter.

Action research is based on location specific studies that focus on ‘the need to understand *how* things are happening, rather than merely on *what* is happening’ (Stringer, 2007, p. 19), and to understand the ways that the people involved ‘perceive, interpret, and respond to events related to the issue investigated’ (Stringer, 2007, p. 19). Stringer (2007) describes Action Research as phenomenological, interpretive and hermeneutic. That is, ‘it provides the means by which stakeholders... explore their experience, gain greater clarity and understanding of events and activities, and use those extended understandings to construct effective solutions to the problem(s) on which the study was focused’ (Stringer, 2007, p. 20).

The role of the researcher in Action Research is ‘not that of the expert who *does* research but that of a resource person... a facilitator or consultant who acts as a catalyst to assist stakeholders’ (Stringer, 2007, p. 24) enacted in a number of different ways (see Figure 16).

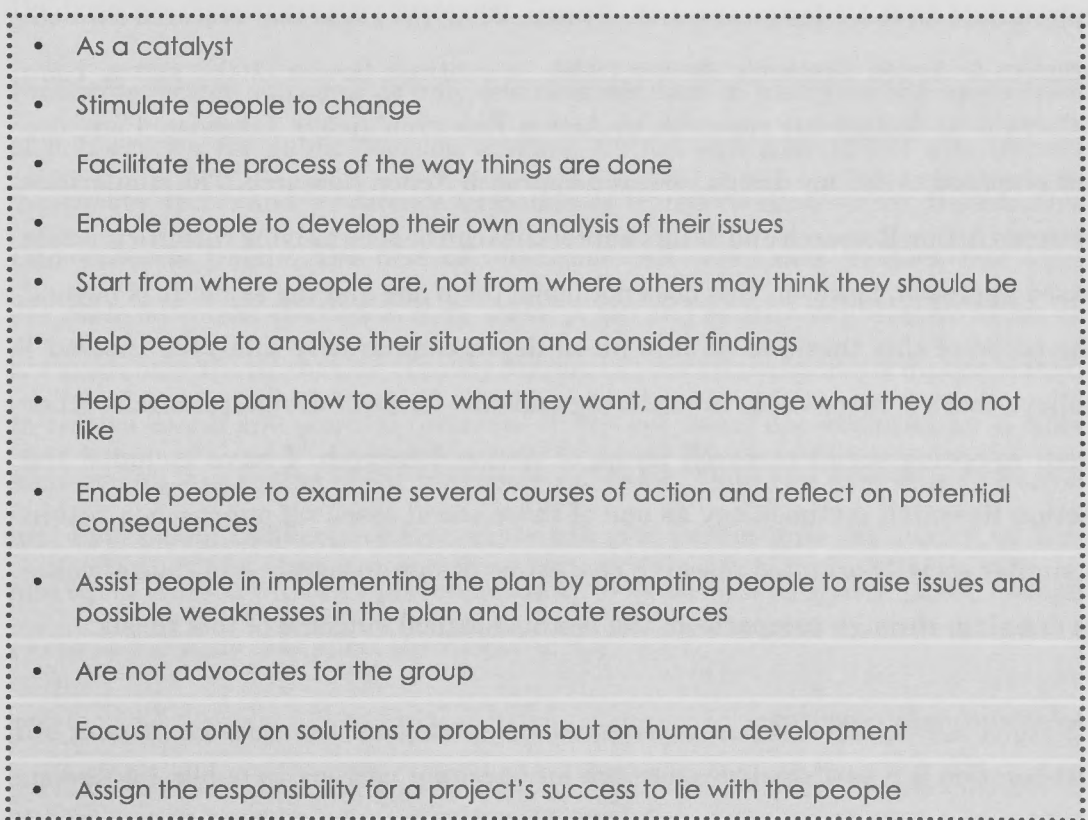
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- As a catalyst
 - Stimulate people to change
 - Facilitate the process of the way things are done
 - Enable people to develop their own analysis of their issues
 - Start from where people are, not from where others may think they should be
 - Help people to analyse their situation and consider findings
 - Help people plan how to keep what they want, and change what they do not like
 - Enable people to examine several courses of action and reflect on potential consequences
 - Assist people in implementing the plan by prompting people to raise issues and possible weaknesses in the plan and locate resources
 - Are not advocates for the group
 - Focus not only on solutions to problems but on human development
 - Assign the responsibility for a project's success to lie with the people

Figure 16: The Role of the Researcher in Action Research

adapted from Stringer, 2007, p. 25

The intention of an Action Research project is to try and include all those involved with the issue to participate in the process of investigation (Stringer, 2007). Consequently,

such a project needs to identify all groups affected, maximise the involvement of relevant individuals, ensure cooperation between groups, include all relevant issues (social, economic, cultural, political) and make sure each group benefits from the activities (Stringer, 2007).

As Bowen (2009) outlines in his thesis, Action Research has many ‘embodiments’ beyond the simplified overview given above. Swann (2002) outlines a comparison where he connects Action Research to design research by making the link from Schön’s (1983) work (often used as a seminal work in design theory) on ‘the reflective practitioner’. This link is made through Schön’s key concepts of reflection in action and reflection on action. Thus, proposes ‘how designers might translate their practices into a form useful for design research by adhering to Action Research methodology’ (Bowen, 2009, p. 40). Although other design theorists propose directly linking design research and Action Research (Action Research as an appropriate form for design research, Swann, 2002; the claim that research through practice *is* Action Research, Archer, 1995), in contrast Bowen (2009) states ‘I am reluctant to declare my research *as* Action Research’ (p.37). Likewise, I am also not prepared to call my design research approach Action Research. The similarities between Action Research and design approaches can be seen as lying within a practice based approach; however, this does not make them one and the same. It is beyond the scope of this thesis to go into an in depth comparative analysis. Instead I believe there is more value in exploring endemic forms of design research rather than co-opting social research forms of Action Research. I have included the Action Research methodology as one of three social research approaches within a similar socially oriented research context as design research, and thus of value in defining, through comparison, the methodological outcome of this thesis.

Deliberative Democracy

Deliberation is a participatory approach for engaging ‘citizens’ in public discussion, decision making and self-government (Gastil & Levine, 2005).

Advocates of deliberation presume that it is worthwhile for diverse groups of citizens – not just experts and professional politicians – to discuss public issues. Civic discussions, moreover, should have an impact on something important – usually law or public policy but sometimes mass behaviour, public knowledge and attitudes, or cultural practices. (Gastil & Keith, 2005)

Deliberation is characterised by ‘who initiates deliberation’ and ‘who will participate in the deliberation’ and hence is made up of ‘organisers’ and ‘participants’ (Button & Ryfe, 2005). Organisers, who initiate the process, may be from civic associations, nongovernmental associations or governmental organizations (Button & Ryfe, 2005). Participants may be self-selected (eg. neighbourhood associations, on-line dialogues, community forums), randomly selected (eg. deliberative polls, planning cells or citizens juries) or stakeholder selected (eg. national issues forums, study circles, deliberative meetings) (Button & Ryfe, 2005).

For example, consider forums initiated by voluntary civic groups that rely on a self-selection scheme. Such groups may put up flyers at a local library, announce initiatives to church groups, or go door to door in their community. The resulting forums are strongly shaped by this underlying structure. (Button & Ryfe, 2005, p. 24)

Hence each type of deliberative structure characterises the approach and form of Deliberative Democracy practiced.

Producing ‘better outcomes’ is only one consideration in justifying the application of deliberation for public decision making, Button and Ryfe (2005) also include ‘legitimacy’ (p.27) and ‘preference formation or transformation’ (p.28). Deliberative Democracy is fragile: ‘the best of intentions can sometimes produce less than desirable outcomes’ (Button & Ryfe, 2005, p. 22) and as such deliberative forms do not guarantee ‘the production of policy consensus’, the minimisation of disagreement, to resolve ‘moral and political divisions’ or achieve ‘equal opportunities for a more inclusive understanding of the common good’ (p.29). However, according to Button and Ryfe (2005) Deliberative Democracy can give participants the chance as ‘free and equal citizens with an equal opportunity to participate in shared public life and to shape decisions that affect their lives’ (p.30).

The three approaches outlined above, are examples of social research that engages participants in constructing knowledge for action to effect change. Hence they can be compared to the design research methodologies, discussed below, because design can similarly be described as managing choice towards change and design research often involves participants (participatory design, co-design, co-creation) in the process of constructing knowledge for action; often to develop new products and even more favourably to facilitate social innovation. Further comparisons between these social

research methodologies and the design methodology constructed through this thesis will be discussed in the Design Outcome chapter³⁶.

Design Research

I have chosen two recent methodologies developed in the field of design research and one identified as a ‘classic design approach’ to contextualise the methodology to be constructed through this study. Bowen’s Critical Design Methodology and Jonas’ Team’s MAPS methodological tool kit are recent methodologies within the area of research-through-design developed during my PhD, while the Chicago approach represents a classic approach to design research. The design process, outlined in the Design Practice section, which I have adapted for this thesis (a Australian design education approach from the College of Fine Arts, CoFA) is shown to sit within the same design context used in all these methodologies; as part of a generic form of design familiar to most designers and hence can be seen as an appropriate form to use.

Critical Artefact Methodology

Bowen’s (2009) Critical Artefact Methodology is developed from the ‘Critical Design’ work of Dunne and Raby (2001). This methodology engages participants in a process that uses provocative artefacts ‘the designer devises a critical artefact that is in some ways “impossible”’ (Bowen, 2009, p. 180), to design ‘innovative new products ideas’ (Bowen, 2009, p. 183). These critical artefacts stimulate critique and allow participants to imagine new possibilities by suggesting ‘an alternative possibility outside stakeholders’ and designer’s current understanding’ (Bowen, 2009, p. 181). This ‘reading’ provokes participants to ‘reflect on alternative possibilities for needs, wants/desires, practices and products’ (Bowen, 2009, p. 181). This reflection helps participants ‘to recognise the limitations of and expand their understanding of possibilities in this respect’ (Bowen, 2009, p. 181). This methodology suggests a design process enacted over a series of four workshops. In the first workshop participants bring their own artefacts which both participants and designers engage with during the workshop. In the second, the designers bring a critical artefact to be critiqued through the workshop. During the third, product ideas

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36 See the Research Context section in the Design Outcome chapter.

are developed through a revised artefact ‘progression from “provocative” towards more “prototypical” artefacts relevant to stakeholders’ needs’ (Bowen, 2009, p. 187). Bowen suggests the third step could be extended through additional workshops to further refine the ideas. In the fourth, the innovative product ideas generated through the workshops are presented by the designer. As a recent thesis outcome, this methodological approach is still in its preliminary stages and most probably will be refined and developed further in the future.

In comparison to the steps of the design process I have used in this thesis (ie. brief, research, concept, concept development, design outcome, presentation), Bowen’s steps have some interesting correlations. The personal artefacts brought by participants in workshop 1, are similar to the *background research* step. The critical artefacts in workshop 2, although unique to the Critical Artefact Methodology, provide a similar purpose as the *concept* step. That is, the provocative artefacts help to stimulate new conceptualisations of possible products. The revised artefacts in workshop 3 directly relate to the *concept development* step. In comparison, where Bowen’s product ideas are developed from ‘provocative’ to ‘prototypical’, for my use of the concept development, design ideas are developed from ‘concept’ to ‘design outcome’. Bowen’s final Workshop 4 presents the new product ideas and hence is essentially the same as the *presentation* step. Therefore, although Bowen’s workshops are performed in very specific ways which make the two processes significantly different, there are some analogous correlations that can be formed.

Matching Analysis Projection Synthesis (MAPS)

MAPS is a methodological ‘Toolbox’. This methodology is being developed into a website (<http://www.designprocess.de>) to support design and research-through-design projects; described on the website as an ‘online community tool for systematic planning of design research and innovation projects’. This website can be used in three ways:

Wizard guides you step by step to plan a project. With a questionnaire, it assists you to understand the nature of your project and recommends the most suitable process and methods.

Planner supports you to set up, document and communicate a project explicitly.

Reference is a database of over 200 methods, templates and links and a living knowledge bank for you and your institute.

(Jonas & Chow, 2010)

The MAPS methodology combines a ‘3-step macro phase’ and a ‘4-step micro process’ to form a ‘12-step hypercycle’ (Jonas, Chow, Bredies, & Vent, 2010). The 3-step macro phases comes from Jonas (2007): analysis, projection and synthesis (APS). These 3 macro phases are ‘arranged not in a linear but in a circular sequence, allowing any possible punctuation of the process’ (Jonas, et al., 2010, p. 5). Although the only desirable combinations are defined as APS or PAS because ‘synthesis’ is identified as most effective when placed last. The 4-step micro process is a ‘Kolb type’ process from the basic learning cycle: research, analysis, synthesis, realization (referring to the work of Kolb, 1984). Combined into the 12-step hypercycle means each macro phase, A, P or S, cycles through the ‘Kolb type’ 4-step micro process. The methodology identifies 200 methods which can be selected ‘according to the situation as specified in the questionnaire, or underlying 12-step structure, or free’ (Jonas, et al., 2010, p. 13).

As Jonas’s team (2010) outlines in their paper, there are a number of other design methodologies, exemplars include: the Institute of Design (ID) Chicago Approach, Methodology for Product Service Systems (MePSS), Z-Punkt Corporate Foresight (CF) toolbox and IDEO method cards. MePSS is specific to Product Service Systems projects and Z-Punkt is specific to CF processes. IDEO method cards are considered to be limited to ‘a playful tool for inspiration’ (Jonas, et al., 2010, p. 13). In comparison the Chicago approach is considered the most ‘classic’ of all these approaches; hence, I have described it in more detail below. In contrast Jonas’s team sees their MAPS methodology as the most robust and general, although still under development.

The ‘Kolb type’ process can be seen as a common element not only among design approaches, as Jonas and his team highlight, but also with social research approaches like the four step iterative process in Action Research described above.

Institute of Design (ID) Chicago Approach

The Institute of Design is part of the Illinois Institute of Technology and teaches the ‘Chicago Approach’ in their graduate program. The ID Chicago Approach is a four step process, or what the Institute of Design website calls ‘four broad activity areas’, which include ‘understanding the context for design, framing the problems to be solved, exploring many alternative solutions, and finally developing a vision for the future’ (see <http://www.id.iit.edu/130/>). Within each ‘activity area’ is a set of methods and processes that can be performed during these steps (see Figure 17).

Activity Areas	Methods and Processes
Understanding Contexts	Activity Life Cycle Analysis Design Information Framework (DIF) Era Analysis FUMP POEMS Value Webs
Framing Problems	Activity Life Cycle Analysis Activity Structuring Design Information Framework (DIF) Insight Matrix Position Mapping Value Webs
Exploring Alternatives	Behavioral prototyping Concept Matrix Insights to Innovations Modular Scenario Structure Scenario Planning
Envisioning Solutions	Business Concept Illustration Modular Scenario Structure Planning Roadmap

Figure 17: ID Chicago Approach

adapted from the ID website <http://www.id.iit.edu/130/>

The activity areas in the Chicago Approach can be directly compared to the design process defined by the Australian design education approach used at CoFA (brief, research, concept, concept development, presentation); although, the former is used in a methodological structure for design research and the latter defines a process for design practice. Both describe steps to understand the context of the design brief, explore the ‘landscape’ of elements involved, develop ideas and communicate possible new outcomes. However, the distinguishing quality of the CoFA approach centres on the concept step as an essential part of defining a creative approach. In this thesis I have adapted the CoFA approach, as discussed earlier³⁷, to utilise the creative

37 See the Thesis Structure section in the Introduction chapter and the How is Design Done part of the Design Practice section in this Background Research chapter.

qualities of this concept step (and as the one I am most familiar with). Compared to the CoFA design process, the Chicago approach goes further by assigning methods to each step in the process. This forms an approach which Jonas' team (2010) calls 'the classic' design methodology. In comparison to the MAPS methodology, according to Jonas' team (2010), this classic approach also uses the 'Kolb type' four step process; however, in contrast does not internalise this process within 'macro phases', and stipulates a set of methods for each step rather than offering more open guidelines.

All these existing design methodologies focus on approaches specifically for the disciplines of design research and still to a large extent for the development of artefacts. Sections of design research are starting to move past a focus on the product and towards an engagement with social innovation, as Chow and Jonas (2008) suggest 'design research is an academic issue and increasingly an essential success factor for industrial, organizational and social innovation' (p.1); however, these trends are still limited. This thesis aims to contribute to these contemporary efforts to develop design approaches to research, especially in the area of research-through-design, as the Critical Design Methodology and MAPS do. However significantly, the methodology constructed through this thesis aims to add to these design research trends by moving design-led methodologies beyond the object and in so doing work towards sharing these approaches with other socially oriented research. Further comparisons between these approaches and the methodology developed through this thesis will be discussed in the Design Outcome chapter³⁸.

I continue to work on building bridges between design and other socially oriented research disciplines. Although this context is only dealt with in a limited way for the purposes of proposing a design-led methodology in this thesis, once the methodology is defined by the thesis further research work can be done to contextualise the methodology and promote cross disciplinary conversations on design approaches to socially oriented research.

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38 See the Research Context section in the Design Outcome chapter.

Addressing the Brief

To explore how design can be reconstructed as research for sustainability this study places design within the wider socially oriented research context and chooses sustainability as an example of a complex socially oriented research issue which design can contribute. The brief has further narrowed the scope of the study through the amalgamation of design as a process, research as requiring diversity and sustainability as change for the better, which intersects at the role of design in constructing knowledge for change. This composition forms the foundation on which the background research has built. The use of design theory has further defined the components and context of design and research in the context of sustainability to be used in the project as well as the historical and socially oriented research context in which this perspective of design sits. Through placing the specifications made in the Brief within their theoretical context this chapter has defined and legitimated the initial criteria. Were the brief outlined four initial criteria, this chapter further developed these criteria by expanding on the four and adding a fifth (see Figure 18 below) in the process of developing the project towards the next step to distill a concept in the following chapter.

The first criterion, *remoulding of design into research* (see point 1 of Figure 18), is given historical precedence by linking design to cultural production as an approach to knowledge construction that predates the enlightenment. This criterion is defined by design-through-research as a contemporary focus of design research to find more endemic approaches. This approach is elaborated on by defining the aspects of design-as-research which form a designerly approach to socially oriented research: address questions of what next, which uses abductive logic and a conversational structure to develop outcomes about what could/should/ought to be. This chapter has explored a non-object oriented approach to design where design is considered within a larger social context as a process of developing fictional possibilities in the form of proposals for the future. Hence, this first criterion is expanded by adding a further three stipulations of: a conversational structure, what next questions and abductive logic.

1. Remould design into research	<ul style="list-style-type: none"> • Research through design • Conversational structure • Address what next questions • Use abductive logic • Non-object oriented • Socially oriented research outcomes
2. Develop a creative approach to socially oriented research	<ul style="list-style-type: none"> • Design-led approach • Not definite, repeatable or stable • Engages in tide, flux and general unpredictability
3. Construct collaborative forms of complex understandings	<ul style="list-style-type: none"> • No experts • Use co-design and co-creation approaches • Use participatory design methods • Maximise involvement • Empowering
4. Build creative capacity to propose sustainable futures	<ul style="list-style-type: none"> • By enabling design • Use disordering techniques
5. Use a systems approach to design	<ul style="list-style-type: none"> • That addresses complexity and sustainability • Engages with the uncertainty involved in developing sustainable outcomes • Is imbedded in the messiness of the system of everyday life

Figure 18: Updated Criteria

The second criterion, to *develop a creative approach to socially oriented research* (see point 2 of Figure 18), is expanded to include the *design approach*. The many qualities of design outlined in the Design Practice section become the components to fulfil the criteria for a creative approach: a thinking-by-doing approach, centrality of identity, engagement with fluidity of meaning, conversational characteristics, a process of iterative steps, playfulness and the merging of theory and action into practice. These characteristics start to outline possibilities for constructing a creative approach that, as Law (2004) calls for, is not definite, repeatable or stable and engages in tide, flux and general unpredictability.

The third criterion, to *construct collaborative forms of complex understandings* (see point 3 of Figure 18), is also further developed. The necessity for collaborative approaches to design represent a need to more effectively engage with complexity by maximising involvement and is explored further by perspectives on enabling design: to re-empower people, to create open-source community centred approaches and to create integrated forms of knowledge construction. Aiding this collaborative approach are design-led methods, outlined in the Design Research section, considered as co-creation or co-design approach to engaging participants within design projects. This background research adds three extra conditions for the first criteria. First, no experts and maximise involvement are added from Rittel's (1972) theory. Second, the uses of co-design and co-creation approaches and participatory design methods are added to this criterion from contemporary movements in emergent design research. Thirdly, the notion of empowering people is also added from Manzini's theory on enabling design.

The fourth criterion, to *build creative capacity to propose sustainable futures* (see point 4 of Figure 18), is also expanded. The idea of building creative capacity in relation to sustainability was explored in the Sustainable Design section, particularly within the explanation of enabling design. Not only does the notion of enabling design set out collaborative approaches (as described above) but also suggests the building of creative capacity in order to achieve this. The distinction is that although people are commonly asked to participate in design projects, this is often done without the development of their creative capacity. For example, clients are often asked to choose from a number of possible outcomes. This is participation via choosing – ‘which one do you prefer this one or that one?’. However, to enable participants to design, rather than just choose from a set of outcomes, engages people directly with the design process and thus requires the development of their creative capacity. The design-led methods explored in the Design Research section of this chapter outline activities which attempt to facilitate creativity. In conjunction with the design practice and formulation of design-as-research, the co-creation and co-design approaches described in this chapter can be used in the project to fulfil the creative capacity building needed to generate proposals for sustainable futures as stipulated in the brief. The background research adds two provisions for this criterion. First, enabling

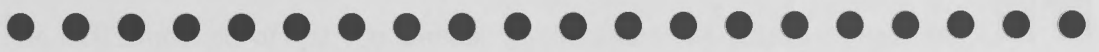
design is added from theories developed through sustainable design research. Then disordering techniques are added from emergent design research methods and theory on cultural probes.

Finally a fifth criterion is added to the list, to *use a systems approach to design* (see point 5 of Figure 18). This should be a systems approach which addresses complexity and sustainability; engaging with the uncertainty involved in developing sustainable outcomes from a position which is embedded in the messiness of everyday life. The initial four criteria, outlined in the Brief, only hint at complexity and sustainability. However, the background research identifies these as key criteria in the use of a systems approach. As discussed in the Sustainable Design section of this chapter, a design agenda sets out to develop more complex models for design of which the *ecology of the artificial* is a starting point. This necessity is identified as derived from an 'environmental crisis' which needs to be addressed through sustainability. The idea of complexity encapsulates both the uncertainty involved in developing sustainable outcomes, messiness of the network of systems that make up everyday life and the socio-cultural approaches to be applied. This also applies a focus for the study on everyday life – the system of everyday life.

These background research developments (see Figure 18 above) form the new set of criteria to progress the project into the next phase; that is, to generate a concept in the following chapter.

Chapter 4

Concept



The generation of a concept is the phase in the design process that, according to Downton (2004), ‘could be said to remain mysterious’ (p.29). The translation and transformation of the background research into a concept is a process where ‘the material must be inter- and cross-related to produce the understanding... required’ (Downton, 2004, p. 29). However, the concept is essential because it forms the ‘essence’ of the project. Downton (2004) describes this phase as being particular to the designer, which ‘appears to be a core component of difference in design styles and outcomes’ (p.29). Hence, this is the point at which the innovation of the project emerges from the ‘serendipity and the creation of unexpected but challenging, juxtapositions’ (Downton, 2004, p. 29); personalised by the designer into a ‘seed’ from which the rest of the project can grow. In this chapter, I attempt to demystify this process by explaining how the concept, derived from all the background research, is distilled into a single statement – enabling design from within the system of the everyday.

To outline how the concept is generated I first interpret the background research by compiling the theory into ten components. This is the starting point for a journey to distil a concept. The next section explains the abstract aspects of this process by exploring an analogy of the designer as tourist. This analogy section is a sojourn into a ‘slow’ form of research (Manzini, 2000) where the ‘creative leaps’ create serendipitous, unexpected and challenging juxtapositions (Downton, 2004, p. 29). Although this section slows the development of the chapter’s argument, the analogy is useful in explaining the creative context from which the conceptual framework is built. The next section takes these elements and uses conceptual sketch-models to construct a framework. The final section will translate the conceptual framework into a single core concept for this study. This concept then forms the point from which the next Concept Development chapter starts to assemble the design-led methodology.

Theoretical Components

A design-led methodology needs to ‘dare to be different’ to meet the goals of achieving an endemic approach to the complexity of sustainability research. That is, the design-led methodology should not try to be ‘conventional’ research; instead, it should follow the creative practice of design however diametric that may be within a contemporary research context. This is necessary for both adding to the diversity and restoring the balance in approaches to knowledge construction. Creative approaches like design provide different forms and means of engaging with complexity. The design approach is particularly apt at engaging with uncertainty, ambiguity and the unknown as well as with interconnected networks of systems – including natural, social and cultural – which form our system of everyday life. In the previous chapter I outlined the nature and characteristics of such a design approach. The purpose of this section is to draw together these parts and compile them into the theoretical components (see Figure 19) to be used in the formation of a concept for this design-led methodology.

For this study, sustainability has been defined as a social goal for the future, a kind of change for the better. Given this definition research on sustainability requires the construction of knowledge on the unknown. Current sustainability research has highlighted a need to fundamentally change our way of life. Hence, there is a role for highly creative, innovative and collaborative approaches to construct knowledge on the kind of change we might want. This study has chosen sustainability as a complex issue that deals with uncertainty and the unknown associated with imagining a better future. An aspect of this issue includes making changes to our everyday life by considering a complex network of systems. Developing these changes to everyday life also requires a combined effort from a network of knowledge cultures: from ‘individual’, ‘local community’, ‘specialised’ to ‘organisational’, ‘holistic’ and ‘collective’ knowledge (Brown, 2008, p. 37). This role to address the complexity of sustainability provides an impetus for the reinstatement of creative approaches to knowledge construction¹. Design is a kind of creative and innovative process that is able to deal with the complexity of considering what kind of change for the better, like sustainability requires. Design is a process of proposing possible futures; as a

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1 To restore a balance in approaches to research that has not existed since the early Enlightenment – when creative practice and scientific practice exist in unison for a time. As discussed in the Historical Context section of the Background Research chapter.

1. Dare to be different:	<ul style="list-style-type: none"> • Creative practices as forms of knowledge construction • Restoring a balance in knowledge construction • Providing additional variety to existing socially oriented research paradigms
2. Design defined as:	<ul style="list-style-type: none"> • a practice, • a way of thinking and doing • facilitates our culture in everyday life
3. Design characteristics:	<ul style="list-style-type: none"> • the thinking-by-doing approach, • centrality of the identity, • engagement with fluidity of meaning, • conversational, • a process of iterative steps, • playfulness • the merging of theory and action into practice
4. Design process:	<ul style="list-style-type: none"> • Brief • Background Research • Concept • Concept Development • Design Outcome • Presentation
5. Design as research:	<ul style="list-style-type: none"> • Addresses questions of what next, what could/should/ought to be • Uses abductive logic • Generates fictional possibilities • Outcomes are proposals for the future
6. Design-led methods:	<ul style="list-style-type: none"> • cultural probes, • game format • scenario building
7. Sustainability:	<ul style="list-style-type: none"> • as the idea of change • social goal • for creating a better future
8. The design approach to complexity:	<ul style="list-style-type: none"> • Need for more complex models of design • Black box analogy • Conversation like interaction
9. A systems approach to design:	<ul style="list-style-type: none"> • Developing the notion of ecology of the artificial • Interconnected systems that form the system of everyday life • Design's role in everyday life
10. The notion of enabling design:	<ul style="list-style-type: none"> • to maximize involvement • engage participants directly in the design process • by building their creative capacity • facilitate co-creation and co-design • in an open-source manner.

Figure 19: Components from the Background Research

change to what exists, to develop what is next. Design although a profession and a discipline is also an activity that everyone does, to some extent. Whenever anyone enters into a question of what could, should or ought to be, then they are designing. Hence, to develop sustainable systems of everyday life requires enabling design to be a collaborative activity.

This compiled theory identifies ten key components from the background research (see Figure 19 above). The key theory identifies the need for an endemic design methodology (see point 1. in Figure 19) that defines design as a process (see point 2. in Figure 19) with particular attributes (see points 3. & 4. in Figure 19) that can be applied to a research approach (see point 5. in Figure 19) such as is used in design-led methods (see point 6. in Figure 19). The compiled theory also defines sustainability as change for the future (see point 7. in Figure 19), which engages design in complexity (see point 8. in Figure 19). The key theory identifies a systems approach to design (see point 9. in Figure 19) and finally develops a notion of enabling design (see point 10. in Figure 19). These ten components are used in the exploration of the designer as tourist analogy in the next section and more prominently to form a conceptual framework which is then distilled in a core concept in the following sections.

An Allegory for Design Research

The designer as tourist in the un-natural world is an allegory of the design researcher used to consider the nature of the design-led research approach in this study. This section acts like a 'billabong' off the main flow of the chapter's argument towards a concept. It is a self contained section which takes time to explore the direction being developed through this study. The analogy of designer as tourist is used to convey the abstract process of distilling a concept and the 'creative leap' to translate the theory into a core design idea. Then, in relation to the progression of this chapter's argument, the purpose of this section is to establish the creative context, perspectives and terminology for the construction of a conceptual framework in the following section. Through the main body of this section I examine the design researcher through exploring the notion of how design research is like being a tourist. I characterise the theoretical plane as the Un-Natural World and tell a narrative of the tourists journey within it. I first look at the nature of discourse as the formation of patterns, then describe the Un-Natural World, outline the different kinds of Designer as tourists and the wellbeing they seek. I look at the tourist journey as the process of design research, and returning home as solidifying research into the artefact. The analogy concludes with a recommendation for not just an ecology of the natural or an ecology of the artificial but also the ecology of the theoretical; suggesting that, the design researcher, who spends most of their time travelling through the Un-Natural World, is in a good position to be the guide, to build an outline of the ecology of the theoretical in order to unite the disciplines in a discourse aimed at preventing 'disaster'. I leave it till the final part of the section to explore this conceptualisation of design research in relation to the development of this study as a whole and the implications for the following conceptual framework section.

The following parts of this section are adapted from my paper (Hocking, 2007) delivered at the 'Dancing with Disorder' European Academy of Design (EAD) Conference.²

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2 This analogy came from the title of my conference paper, 'An Un-Natural World: Designer-as-Tourist' which was given to me by my Craig Bremner, my design advisor and supervisor at UC. My task in writing this conference paper was to try and imagine what the title meant. This became a very fruitful process which formed the conceptual foundation for my project.

An Un-Natural World: The Designer as Tourist

Design research is about dancing with disorder, a formation of patterns out of a dynamic array of possibilities. As Glanville (1999) suggests in his paper 'Researching Design and Designing Research', patterns are a human construction (p.85). To construct patterns of understanding is to create an artificial order out of the natural world, transforming the world out of the natural to form an Un-Natural World. This concept of the Un-Natural World has no physicality, it is the pattern created out of the process of knowing and knowledge: Quine's (1951) web of belief or Deleuze and Guattari's (1987) rhizomatic network.

This analogy considers how, in this virtual landscape of the Un-Natural World, the designer is a tourist. We book our tickets to somewhere, guidebook in hand, adding new destinations along the way, and return with something: souvenirs, tales, increased understanding of the diversity of our world and an ability to reassess the scaffolding of our own constructed world. This analogy explores the Designer-as-Tourist, a tourist aided by poly-lingual abilities and a constructivist world view that can enable an ease of travel through many different nations and cultures. The Designer-as-Tourist, travelling and exploring abroad, can integrate ideas from a vast variety of sources to form an interconnected understanding. This integrative approach has the potential to more effectively deal with the complex issues we face and aid in the design of a more sustainable future.

Not all designers have enough time as tourists, to travel widely or explore fully, in order to gain an enriched interconnected understanding. Some are only able to get away for a short time, reliant on their guide and guide book for a swift and enriching trip. When the Designer-as-Tourist travels to another context, sometimes we seek solace in the similarities until we become adventurous enough to immerse ourselves in the differences. Those that are dependent on their guide book or tourist guide do not see past what is interpreted for them, and miss those enriching experiences to be found off the tourist trails. Others are able to take the time to explore and discover their own routes for a unique perspective on the Un-Natural World. The Designer-as-Tourist who is able to immerse themselves in the journey is in a good position to re-write the guide book, enabling others an insight into unique perspectives of the Un-Natural World. The design researcher is the fulltime Designer-as-Tourist.

The researcher travels, explores, notices, converses, assimilates, discerns and on returning home recounts their travel stories for the design world. It is the design researcher who has the time to find new routes through the Un-Natural World and is in a good position to take on the role of tourist guide.

Being a tourist is about getting away, exploring the new, different and universal, in search of wellbeing. The Designer-as-Tourist is also motivated by wellbeing; a wellbeing that can be translated into designs for a habitable world. In the contemporary world the notions of wellbeing and sustaining habitability are of critical importance with the potential of looming disasters from climate change and social crises becoming ever more present. This drives the need for the designer to travel widely through the Un-Natural World in order to find new ways of designing to avert possible disasters.

The following parts of this section examine how design research resembles tourism and explores its potential to fulfil the needs of the contemporary world.

Patterns

We exist in a natural world made up of a chaotic interplay between physical objects, spaces, actions and relationships. We simplify our natural world into some kind of order so we may understand it. We construct patterns of understanding so that we are able to act in the world: 'pattern gives us objects and recognizable behaviours, allowing us to predict, and risk living by our predictions' (Glanville, 1999, p. 86). These patterns form the basis for our ideas, thoughts, knowledge, understanding and theory:

Humans look for patterns.... Pattern finding, the making of one concept from many distinct perceptions, is an intensely human activity. Theories are patterns given widespread credence and accepted as accounting for a part of our experience. (Glanville, 1999, p. 85)

Concepts are formed out of the patterns we determine from our senses. Each pattern outlines a perspective and there are many different perspectives of this existence; many different contexts to make sense of our reality that enable us to act, react, create, disassemble and refashion in a rhythmic motion that sustains us in existence. No one perspective explains the whole of reality, though 'the more eyes, different eyes, we

can use to observe one thing, the more complete will our “concept” of this thing, our “objectivity” be³ (Nietzsche, 1887). These patterns, although abbreviations, enable us to perceive the natural world so that we may act within it.

Glanville (1999) states that ‘research is an undertaking through which we strive to increase our knowledge (of the world)’ (p.81). Research exists within a framework of an interconnecting network of patterns. Ian Stewart (2001) talks about this framework as a theoretical landscape in his popular science book *Nature’s Numbers*. Stewart describes specifically the universe created by the mathematician’s imagination: ‘the collective minds of mathematicians have created their own universe’ (p.xii). However, this theoretical landscape can be thought of as being created not only by the collective minds of mathematicians but of all thinkers. Fifty years previously mathematician and philosopher Willard Van Orman Quine (1951) described this framework as a web of belief:

The totality of our so-called knowledge or beliefs, from the most casual matters of geography and history to the profoundest laws of atomic physics or even of pure mathematics and logic, is a man-made fabric which impinges on experience only along the edges. (Quine 1951 §6)

The web of belief suggests our beliefs are connected in such a way that changes to one belief will have repercussions across the web. In more recent times philosophers Deleuze and Guattari (1987) describe the interconnected nature of the framework as a rhizome, a tuber such as an iris, ginger, potato or couchgrass: ‘A rhizome as subterranean stem is absolutely different from roots and radicals. Bulbs and tubers are rhizomes’ (§1). Nodes connect in a non-hierarchical structure growing, not in a linear fashion but from the middle out in many different directions at once:

Let us summarize the principal characteristics of a rhizome: unlike trees or their roots, the rhizome connects any point to any other point, and its traits are not necessarily linked to traits of the same nature....The rhizome is reducible neither to the one nor the multiple.... It is composed not of units but of dimensions, or rather directions in motion. It has neither beginning nor end, but always a middle (milieu) from which it grows and which it overflows. (Deleuze & Guattari 1987 §1)

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3 Nietzsche uses ‘eyes’ in this extract to mean perspective seeing.

A rhizome spreads under the ground and surfaces as isolated instances which appear to sprout independently above ground. Although these instances appear independent above the surface, they are intrinsically part of a multiplicity of other instances that form an interconnected network under ground – something anyone who has ever tried to remove couchgrass from their garden would have an innate understanding of. More recently still Bremner (2005) argued that this framework is a world in its own right:

Now you are in that [real] world, visiting me spasmodically, you tell me my world actually provides some respite from what you believe to be the excessive reality of your world. When you tell me this, I now think of you as the Tourist. (Bremner, 2005, p.121).

When Bremner talks about ‘my world’ he is talking from the view point of the design academic and the world he is referring to is the world of research; the Un-Natural World. Bremner is talking to the design practitioner and thus suggests that when the design practitioner enters the Un-Natural World they are ‘the Tourist’. It is from this analogy that this section will build its allegory.

The Un-Natural World

The framework of the Un-Natural World is built from perspectives that form patterns of understanding. These patterns interconnect and overlap, coming from a variety of origins in time and space. Some coagulate into conceptual entities that evolve and diversify, others converge in a memetic⁴ fashion and others are firmly embedded within this theoretical landscape. These conceptual entities interact, forming relationships with some and become isolated from others. It is a diverse, dynamic place with many different languages, cultures and views. This place is spherical in its intentions to comprehend the natural world; though, it is not made from nature but from the artefact. It is the Un-Natural World. A world of ideas, concepts, thought, knowledge, understanding and theory. Its languages span from poetry to mathematics, with regions of science, humanities and visual arts. Its world views include objectivism, relativism and constructivism with cultural methods which abound.

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4 ‘Memetic’ comes from the word ‘meme’ coined by Richard Dawkins (1976) in his book *The Selfish Gene* to suggest that human concepts evolve in a similar way as genes; popular concepts thrive and diversify where as unpopular ones die out. The term ‘memetic’ is used by Langrish (2004) in ‘Darwinian Design: The Memetic Evolution of Design Ideas’.

To consider theory, concept and thought as making up an Un-Natural world then (like our own world) its components would include landscapes, countries, cultures and languages. We could consider disciplines as *nations* within the Un-Natural World, with associated nations in the same *region* connected by some kind of commonality like similar world views; for example, science is a region which includes disciplines such as mathematics, biology and chemistry, all having a similar world view of objectivism. Other regions may contain multiple world views and instead have a commonality of language or approach that connect the nations within that region; for example, the Humanities where disciplines such as History, Philosophy or Literature may take up any one of many philosophical paradigms; phenomenology, feminism, postmodernism and so on, instead being connected by a similar theoretical tradition. Within the Un-Natural World, *language* would describe the different forms of communication within the disciplines such as mathematics, visual symbols, prose or poetry; with each nation having their own *dialect*, the jargon specific to that discipline. Following this analogy the *landscape* of each nation would be made up of the theories, thoughts and processes that give each discipline form. Together the theoretical landscapes, languages, dialects, customs and world views form an Un-Natural World of which design research is a part.

Within this Un-Natural World design research would be a small nation located in a central location surrounded by various other nations. Many of design's thoughts and theories are influenced or derived from a variety of other disciplines and in this way it could be described as sharing a border with many of them. Characteristic of small centralised nations (like Holland or Belgium) is their ability to communicate with the different countries around them; often being poly-lingual. Buchanan (1992) talks about the ability of design as a new 'liberal arts'. Buchanan defines liberal arts as 'a discipline of thinking that may be shared to some degree by all men and women in their daily lives and is, in turn, mastered by a few people who practice the discipline with distinctive insight and sometimes advance it to new areas of innovative application' (p.8). This approach allows design research to not only communicate with the other disciplines but also has the ability to integrate; allowing designers to travel through other disciplines picking up ideas and integrating them into the fabric of the design nation. This mobility is also aided by design's epistemology. The most common

world view in the design nation is constructivism and allows the Designer-as-Tourist to more easily travel through a multitude of nations being able to understand the cultures derived from both the relativist and objectivist world views. The analogy of Designer-as-Tourist is based on this mobile ability of the designer to travel widely in the Un-Natural World as a tourist.

The Tourist

When we think of being a tourist we think of getting away, of taking time away from the incessant deadlines of our everyday activities, of taking our time and investing in wellbeing. It is about going somewhere else and exploring the similarities and differences that exist there; about finding new perspectives and universal understandings. For this analogy tourism is about the journey; a notion of discovery achieved by immersing oneself in both the process and the destinations. If the journey is a fundamental part of tourism then some tourists are more successful at it than others.

This analogy applies a number of popular perceptions of tourists; judgments formed by people who have travelled themselves or live in a tourist precinct, who form observations of the tourists around them. These include judgments on who is good or bad at being a tourist and common concepts of what makes an ‘ugly’ tourist. The optimum type of tourist is one that is good at being a tourist. If tourism is about the journey then the Good-Tourist is one who engages in the process of travel and immerses themselves in the destination. The Bad-Tourist, in contrast, is one that is less willing to engage in the process of travel and is disinclined to immerse themselves in the destination; preferring to stay inside the luxury resort than venturing into the local district; hence, they could be considered as those who are bad (or ineffective) at being a tourist. The Ugly-Tourist is a popular term often used by travellers and locals to describe the culturally insensitive tourists who are unwilling or unable to immerse themselves in the nuances of the destination: ‘any person who shows ignorance, arrogance, and disrespect for another culture while travelling or living abroad’ (Lee, 2003). They are characterised as being loud and obnoxious — many travellers fear turning into the Ugly-Tourist. In this allegory these analogies are applied to the Designer-as-Tourist.

The Designer

The designer includes the practitioner, academic, researcher and student (industrial, graphical, architectural, and so on). The designer enters into the Un-Natural World when researching. Although, as Glanville (1999) and Downton (2004) suggest, design as an activity can be seen as a kind of research such that the Designer-as-Tourist accesses the Un-Natural World as part of the design process; when researching, conceptualising and developing their designs, in order to access information and ideas that they then translate into new designs. One could see these visits as journeys through exotic destinations as a tourist, so here I will explore the notion of the Designer-as-Tourist in the Un-Natural World.

The designer, like the tourist, is seeking wellbeing. According to Manzini and Jégou (2003) 'the idea of well-being is a social construct: it takes shape over time according to various factors' (p.39). Wellbeing is dependent on what is valued as facilitating and maintaining a positive state of being in the view of a particular time and place. In this context the aim of the designer is to maintain a habitable world 'a world in which human beings not merely survive but also express and expand their cultural and spiritual possibilities' (Manzini, 1992, p. 220) and thus creates wellbeing for its inhabitants. Entering the Un-Natural World is a time for designers to journey through the conceptual, accessing different disciplines in order to compile new plans for designing an inhabitable world.

Designers include this touristic quality of research within their design process in as many different ways as there are different types of tourists. Some design professionals research only briefly (like a weekend away) others such as design researchers spend most of their time travelling and there are many variations in between. Like the Good, Bad and Ugly Tourist, some design uses research effectively, others are ineffective, and others still enter into research without considering the cultural implications.

When in the Un-Natural World the Designer-as-Tourist is able to travel abroad through many different disciplines. Equipped with a constructivist view the designer believes in both the objectivist's actual reality and the relativist's subjective or socially constructed reality to form a notion that combines the views into the simultaneously objective and subjective; that is to say, there may be real things out there to be discovered and understood but we also socially construct our understanding of them.

With this view, the Designer-as-Tourist is able to easily cross intellectual borders, accessing a vast variety of perspectives from many different disciplines (from objectivist disciplines in the Sciences to Relativist disciplines in the humanities) and is able to construct an integrated approach to their travel plans. In this way the effective design researcher has great potential in helping to integrate the Un-Natural World and designing a guide book to the interconnected network of theory that makes up this world.

The Designer-as-Tourist

Entering into the Un-Natural World the Designer-as-Tourist embarks on an exciting journey of discovery through the diverse array of perspectives that make up this world. For the Designer-as-Tourist it is a time to 'take time' (Manzini, 2000, p. 13) to invest in the generation of wellbeing. To explore, to look and notice the new, different and similar, making notions more tangible about what is already good, what could be better, new ways of doing things, new contexts and understandings to improve quality of life and an increased sense of wellbeing.

The Designer-as-Tourist can take many different forms, from the Good, the Bad and the Ugly. Often the label of tourist is used to suggest being part of a superficial mass movement for those content with the packaged experience; however, these are the worst characteristics of tourism, described by Rapport and Overing (2000) as:

A packaged form of experience in which passivity prevails and contact with the alien and the real is avoided or prevented. Here is a manufactured, emasculated travel, made safe by commercialism. Indifferent to local social reality, 'suntanned destroyers of culture' scavenge the earth intent on new pleasures, content to practise conspicuous consumption. (p. 353)

This stereotype of superficiality is a notion very similar to the stereotype in the design world of 'the style obsessed designer' (Frayling, 1993, p. 3). Rapport and Overing's description, popularly defined as the Ugly Tourist, in this case acts as a warning against a similar Ugly Designer-as-Tourist. Consider a Designer-as-Tourist perhaps situated in a research and development (R&D) position, supported by a concept of commodification that focuses on the maximisation of consumption, with disregard for 'local social reality' (Rapport & Overing, 2000, p. 353) and culture, seeing the world as a resource to be consumed. I cannot see any wellbeing generated from the Ugly

Designer-as-Tourist, neither for the Designer-as-Tourist who speeds through their trip following the tourist trails, ticking off sights to be seen, nor for the host culture being consumed, both left exhausted from the experience.⁵ The Ugly Designer-as-Tourist can be seen as seeking a 'product-based wellbeing' (Manzini, 2002, p. 141). It is a notion of wellbeing that commodifies and consumes; a sense that the more products consumed the more wellbeing gained, a wellbeing 'of materialising complex services' and 'democratising access to them, producing them in increasing quantities at decreasing prices', of 'individually possessing, showing off and consuming the products' with the freedom 'of choosing between different options and a personalised set of products' (Manzini, 2002, p. 141). In this idea of wellbeing: 'life choices tend to be considered as choices among marketable goods and that, as a consequence, freedom of choosing as coincident with the freedom of buying' (Manzini, 2002, p. 141). This consuming tourist exploits the local resources for their own means without regard for the integrity of local cultures, creating a self-centred sense of wellbeing from having.

It could be considered that what differentiates the Good from the Ugly Designer-as-Tourist is time, inclination, and support. The Good Designer-as-Tourist is what Manzini (2000) terms the 'off-line designer' (p.13) a design researcher who exists within a pocket in the momentum of productivity that is 'characterised by a different, slower timing'(p.14). This Designer-as-Tourist has the inclination to explore widely, not just within the safety of similarity but is adventurous enough to immerse themselves in the differences in order to find new ways and means. Observing, with the use of experience, emotion, empathy and ethnography, 'characterised by their intent to provide a deep understanding of people through shared experience' (Hanington, 2000, p. 66); engaging with the Un-Natural World using multiple, flexible and creative approaches. Following this description, the Good Designer-as-Tourist would have an explorative, inquisitive and creative mind willing to immerse themselves in alien languages and cultures to find out something essential and universal. They would actively strive to make connections between the entities that

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5 The 'Ugly Designer-as-Tourist': by no means is this characterisation suggesting that all commercial enterprises conduct such design research, however, I have noticed some instances where practices seem unwilling to invest time, money or support for their designers to pursue research because they do not see the value. Some practices, while trying to save time, end up wasting it by actively avoiding research.

exist within this Un-Natural World in order to find a sense of integrated wholeness. This intent to construct connections could be said to come from an inclination to explore, not sameness, but the complex notion of similarity in difference. The third prerequisite for the Good Designer-as-Tourist is support, the leisure money to go away, the time to have away or 'off-line' and a belief in the benefits. The Designer-as-Tourist is endowed with the ability to see the sparkle of light off the ripples on the water and the gargoyles on the top of the General Post Office⁶. They are able to see things that the locals, busily going about their everyday, miss. This gives the benefits of insight and the 'time off-line' aides in a refreshment and renewal that adds to wellbeing. The Good Designer-as-Tourist gains a 'context-based-wellbeing' (Manzini, 2002, p. 145). This is a wellbeing that does not focus on consumption but on the context of life: 'qualities of culture and spirit' (Manzini & Jégou, 2003, p. 47), 'common assets'⁷(p.48) and 'contemplative time'⁸ (p.49). It is a wellbeing that comes from a greater sense of belonging, from the time to make connections and form unified resources. The Designer-as-Tourist seeking context, immerses themselves in the local culture, makes connections and discerns the universal and the local.

In contrast, a Bad Designer-as-Tourist is one that would rather be at home, who at best looks for a home away from home. They are not interested in the new or the different and simply look for the same experience they have in their everyday. Staying at large hotels or resorts serviced by people from their own culture gives them an experience they expect and are used to. The Bad Designer-as-Tourist seeks an 'access-based wellbeing' (Manzini, 2002, p. 142). These Designer-as-Tourists are moving away from the consumption of products towards the consumption of experiences where the consideration of an immersion in local culture does not enter

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6 Sydney's General Post Office in Martin Place has gargoyles on it, which after living in Sydney for many years I only noticed after returning from a trip overseas. Still in tourist mode I looked at the city I grew up in with tourist eyes, I was amazed what I found.

7 'Common assets': in previous papers Manzini uses the term 'Common Goods' to refer to the same concept. Manzini and Jégou define this concept to mean 'tangible and intangible systems which help create a context and its particular quality, and which by their very nature belong to everybody' they give examples of 'physical assets such as air and water, through social ones such as neighbourhood community or the civic sense of its citizens, to more complex ones such as landscape or urban public space or a sense of security' (2003, p.48).

8 'Contemplative time': Manzini and Jégou define this concept to mean: 'time for 'doing nothing'... or alternatively time in which 'something is done' but, by choice, slowly. Above all, this expression denotes intervals in time when the flow of targeted or purposeful action is voluntarily broken.' (2003, p.49)..

into their plans. These Designer-as-Tourists seek a wellbeing constructed out of an ease and frequency of service. They experience not a sense of place but a sense of experience, the quality of which is judged against the similarity to what they are used to:

Quality of life tends to be related to the quantity and quality of services and experiences which it is possible to have access to (and, consequently, a new idea of freedom intended as freedom of access). (Manzini, 2002, p. 141)

Staying within their own language, traditions, culture and world view this kind of tourist is lulled into a sense of security and pampered by the excess of services available without ever leaving their hotel room or experiencing the new and different. This Designer-as-Tourist is drawn to sameness⁹ and their journey is driven by ‘superficial, “photogenic” styling’¹⁰ (Jones, 1990, p. 17).

There are other distinctions that could be made between different Designer-as-Tourists: length of time, distance from home and purpose of travel. The purposes of different Designer-as-Tourists could be derived from Frayling’s (1993) and Archer’s (1995) three distinctions; in this case ‘for’, ‘of’ and ‘as’¹¹. For this analogy these distinctions could be considered as: Tourism *for* being, those travelling to the beach for a tan; Tourism *of* being, those travelling to Europe to be part of a family reunion; and Tourism *as* being, those travelling the world as an exploration of self and others. The first is primarily practical, the second is primarily reflective and the third is an immersion in process. Each of the three purposes for travel has an interest in wellbeing and could be Good, Bad or Ugly. All three purposes for travel are part of the explorative activity of the Designer-as-Tourist (i.e. research) and can be seen as part of the design process ‘a (restricted) design act’ (Glanville, 1999, p. 81).

There are also characteristic similarities that connect the different forms of Designer-as-Tourists. For all Designer-as-Tourists the act of being a tourist is intimately

- 9 Designers drawn to sameness: this concept comes from notions expressed in Jones’ article ‘The Dress of Thought’ and highlighted in the quote from Trimarchi ‘we already have everything that’s beautiful in the world and it’s all the same’ (Jones, 1990, p.17).
- 10 Superficial, ‘photogenic’ styling: is from Jones (1990) article, ‘The Dress of Thought’, where he paraphrases an interview with Manzini.
- 11 I have used ‘as’ instead of ‘through’. Both Frayling (1993) and Archer (1995) talks about ‘research through design’ (as discussed in the Background Research chapter), however, Frayling also mentions ‘the concept of design as research’ which opens up the possibilities of re-molding design into a form of research, which I introduced earlier.

connected to the personal identity of the designer and touring is an integral part of being a designer; of engaging in the design process. Unlike in other disciplines where the researcher is a benign observer¹², for the Designer-as-Tourist the identity of the designer is always evident in the paths we choose and the plans we make. The Designer-as-Tourist constructs their own travel plans. Where other disciplines may have set procedures, the Designer-as-Tourist is free to explore and find their own route. The Designer-as-Tourist utilises intuitive processes to find their way, sampling cultures, using different languages and traditions, finding multiple routes set out by other cultures and ones created from their own. The Designer-as-Tourist's journey is not driven so much by purpose but by process; such that, even though we may start with a question the process of the journey ultimately determines the purpose for the travel.

The Journey

The first thing a Designer-as-Tourist needs to travel into the Un-Natural World is a ticket, in the form of a question. As the journey progresses more queries emerge and act as tickets to new routes through the Un-Natural World. Set with the question the voyage begins. Contemporary modes of travel such as the internet, like the jet aircraft, have opened up the Un-Natural World to the Designer-as-Tourist (and all researchers) making touring a more viable endeavour. Old fashioned modes, like the ocean cruiser or the automobile, are still popular to the Designer-as-Tourist and may include artefacts such as libraries of books and journals, museums of objects or galleries of paintings. The modern versions of transport, by far the most popular, have increased the speed and ease of travel; the internet of digital journal and e-newsletters, rapidly opening up the Un-Natural World for the Designer-as-Tourist. We hop on the internet, set with our question, type in our ticket of key search words, and are transported to our destination, another discipline, another perspective. The Un-Natural World spreads out before us, searching through the options of venues to explore. The Designer-as-Tourist may, for example, choose the route to the French feminist philosopher Luce Irigaray, exploring different papers finally arriving at one

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12 There has been a concerted effort in many disciplines to move away from the paradigm of researcher as 'benign observer'. Many researchers are far more than observer and actively seek to enact change in partnership with others such as in Action Research and participatory approaches to research. As discussed in the Background Research chapter.

entitled *To Speak is Never Neutral*, and there the journey begins. On reflecting upon this piece by Irigaray, the Designer-as-Tourist may become aware of the role their identity plays in their journey.

Concepts within Irigaray's (2002) work¹³ highlight the notion that the Designer-as-Tourist is not 'neutral', they say I, you, we, 'I feel thus... I see such and such a thing... I want or I can do a thing, I affirm that' (p.2). The tourist's identity in the natural world (who they are in the realm of the everyday) and Un-Natural World (their identity when theorising or conceptualising) are one in the same and allows for their personal identity to characterise their journey. The rhythm with which the Designer-as-Tourist moves through the Un-Natural World is derived from their identity and it is this personalised rhythm that helps determine their momentum and direction through the landscape. This sense of personal identity allows the Designer-as-Tourist to converse openly within the discourse, bringing a thoroughly human quality and unique perspective to the process. These conversations, between the Designer-as-Tourist and the discourse of the Un-Natural World, are an iterative process cycling through observation, interpretation, action and back again:

Of continuous modification and unification, the inclusion of more and more in a coherent whole; occasional re-start, extension, and revolution; the increase in range and of simplification ("Less is more"). From our (re)new(ed) understanding, we suggest how experiment allows us to test our simplification through an interaction in which both we and the personal reality we make for ourselves find confirmation, extension, and modification (and renewal). (Glanville, 1999, p. 87)

In this circular process the Designer-as-Tourist explores the similarities and differences to conceive an overall understanding, changing plans to take a different route to a different theoretical paper, finding the path that takes us further afield to a different discipline and the one that takes us directly to the sight of a particular article, testing our understanding by engaging with the local culture, communicating with researchers from different disciplines, coming away with a better understanding of who we are and how we perceive the world as designers and as a modern society.

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13 Irigaray's (1985) notion of the researcher not being neutral comes from a discussion on scientists. This acts to emphasise the difference between disciplines and the extent to which the identity of the researcher is utilised within the research process, hence, highlighting the importance the design tradition gives to the role of the designer's identity in the design process.

In order for the Designer-as-Tourist to find their way to an integrated and enriched understanding, their journey will follow many different paths. Sometimes following paths set out by other disciplines such as the ethnographic methods from anthropology or the path of measured experiments from science or survey from marketing. Sometimes the Designer-as-Tourist creates their own paths, immersed in context, emotion and creativity (Hanington, 2000). Sometimes the Designer-as-Tourist seeks out routes to special sights within the Un-Natural World which are exemplars of the local culture. The Designer-as-Tourist explores the extent and nature of the site, reflecting on and discussing its qualities to gain a glimpse into the inner workings of the culture and traditions of the location (Downton, 2004, pp. 19-20). The Good Designer-as-Tourist is able to not only travel the well established Tourist paths but also explore the less known routes in order to find their own unique perspective of the Un-Natural World.

During the journey through the Un-Natural World the Designer-as-Tourist collects souvenirs along the way; citations, references, bibliographic entries, concepts and quotes. They are the mementoes of discoveries and experiences; they remind us of our trip and are a traditional way of validating our journey on returning home. When recounting our travel tales the souvenirs help to solidify our ideas into new perspectives and directions, such as a paper on new approaches to design or creating plans for a new piece of design.

Returning Home

On returning home from the Un-Natural World the Designer-as-Tourist brings with them the experiences and discoveries of their journey; back to the natural world and enacted in the artificial world. To fill in a kind of conceptual solar system, if the theoretical plane is the Un-Natural World then there would also be two other worlds associated with it: the natural world of which we are physically part and in which we live our everyday and the artificial world created by exerting our will on nature to form the 'man-made'. These three worlds of the Un-Natural, natural and artificial form a kind of three bodied problem, discussed further in the next section¹⁴. We know (thanks to Newton) what will happen in a relationship between two bodies; however,

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14 See the Three-Bodied Design part of A Complex Model for Design-led Research section in this Concept chapter.

adding one more throws the equation into chaos (in the mathematical sense of the term). Three bodied problems are unpredictable (Gribbin, 2004, pp. 14-17) and it is within this notion that the dancing with disorder becomes apparent. The Designer-as-Tourist on returning home goes about dealing with the complexities inherent in how these three worlds interact and creates designs that help to bind the three worlds together; the designer develops proposals for artefacts that helps us act in and conceptualise our natural world.

The Designer-as-Tourist on returning home has the potential to integrate their understanding of the Un-Natural World into a dynamic travel story that talks of similarity in difference and extracts ‘regenerative solutions’¹⁵ (Manzini, 2002, p. 145) that help repair the connections throughout the Un-Natural, artificial and natural worlds. The prospect of gaining an increased understanding of diversity and an ability to reassess the scaffolding of design, has the possibility to create designs for an artificial world that will sustain habitability of the natural world and facilitate wellbeing for our existence in it. Put into practice for the everyday, the Designer-as-Tourist contributes to an environment that is healthy, nice friendly and connected with clean air and water, a pleasant surroundings and a lively neighbourhood community which has strong connections to the rest of the world (Manzini, 2003). The hope is that this more holistic view could be more able to deal with the complexities of the contemporary world.

There is a growing need to dance with the disorder of the three bodied problem in order to sustain a habitable world. Journeying through the Un-Natural World can help in the generation of designs for this purpose. The design researcher as the fulltime Designer-as-Tourist has the potential to help in this process by fulfilling a role of tourist guide helping to direct swift, effective and enriching travel.

Conceptualising Design Research

There is time and room in the contemporary world to be idealistic about the potential of design research. As designers we have a part to play in how we think of, act upon and re-fashion the world. We can choose the current trajectory which will leave us barren

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15 Regenerative solutions are ‘systems of products and services... endowed with high regenerative potential’, which ‘act as positive agents in a process of regenerating ‘the different qualities of the contexts’ (Manzini, 2002, p.146).

and isolated at best or we can choose a different future; a habitable re-connected world with a sense of wellbeing that can sustain us into many future scenarios to come. We can only do this by forming connections between all levels of life; having an ecological view not only of nature but of artefacts, ‘ecology of the artificial’¹⁶, and theory. Design research is in a good position to integrate the theoretical (Un-Natural) world: ‘design... could form a fundamental, common ground of intellectual endeavour and communication across the arts, sciences, and technology... an interdisciplinary study accessible to all’¹⁷ (Cross, 2001, p. 54) and there is a growing need to do so:

Without integrative disciplines of understanding, communication, and action, there is little hope of sensibly extending knowledge beyond the library or laboratory in order to serve the purpose of enriching human life. (Buchanan, 1992, p. 6)

The need is made ever more insistent by the complexities of contemporary issues. Looming disasters such as climate change, social crisis and the need for a sustainable future require an integrated approach. The design researcher as *tourist*, is in a good position to write the guide book for the ecology of the Un-Natural. Such an endeavour could help reconnect discourse by dancing with disorder to repair fractures, rebuild connections and establish bridges forming an interconnected whole out of a diversity of parts. With this systems approach to the theoretical, perhaps, as Cross suggests, a communication between disciplines could be strengthened through the common ground of design. It seems logical that a combined effort is more effective than isolated instances of designing a discourse against disaster.

The narrative of the designer as tourist, explores how the nature and characteristics of design affect the way design-led research is conducted and the role design can fulfil in the world of research as an alternate perspective on integrative research. This analogy, along with the theoretical components from the previous section, becomes the foundation for the conceptual framework developed in the next section. The idea of a ‘guide book’ forms an objective for the design-led methodology in this study. The analogy also expands on the systems metaphor of *ecology of the artificial*

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16 Discussed in the Sustainable Design section of the Background Research chapter.

17 This quote is from Cross’ (2001) paper, where he is paraphrasing Herbert Simon. Although the quote is talking about design science, Cross goes on to discuss how this integrative nature is true for design in general. Buchanan (1992) supports this view in his paper ‘Wicked Problems in Design Thinking’.

to include not just the artificial but the natural and the un-natural (ie. theoretical). This expansion becomes a point from which a new systems metaphor is developed in the following section. The terms artificial, natural and un-natural become three interconnected systems used in the generation of the conceptual framework in the next section. The analogy suggests that for design research to be effective it should be immersed in the research 'culture' investigated. The following section applies this notion of immersion by assimilating ideas on participation, used in existing design-led methods¹⁸, to enable design by making it a cooperative activity rather than risking the misconceptions arising from isolation. The notions of a 'habitable world' and 'context based wellbeing' are aligned with the notion of sustainability in the development of the conceptual framework. Finally the analogy highlights the necessity of support for design to take the time to research. This study seeks to build such support through an attempt to share the design approach with the socially oriented research community by articulating an accessible design-led methodology.

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18 See the Design Research section in the previous Background Research chapter.

A Complex Model for Design-led Research

This section compiles the ideas and theory, proposed in the previous sections, to develop sketch-models conceptualising more complex models for this design-led approach. By *sketch-model* I am using the design studio definition and applying it to a research context. In the design studio sketch-models are very quick playful constructions to start generating concepts by playing with form. They are not intended to depict the real world in any way or the final design outcome; they are simply tools for play and experimentation to help develop the core concept for a design project. In the same way, the sketch-models used here apply this approach to research, where sketch-models are used to play with ideas. The sketch-models outlined below are not empirical representations, but playful conceptualisations. The first sketch-model considers the *three bodied problem* of design in relation to the natural, un-natural and artificial, terms initiated in the previous tourism analogy section. The second sketch-model envisages a move from the expert model to a co-design model. The third sketch-model develops a systems approach to design beyond *ecology of the artificial* and beyond the object by picturing where design might sit within the complex system of our *culture of living*. The purpose of these models is not for empirical accuracy, of describing exactly 'how it is'; instead, the model's purpose is to imagine a context for design in sustainability research. This conceptual framework forms the basis from which the core concept is distilled in the next section.

The section below is adapted from excerpts out of three papers I wrote during the course of this study. Firstly, a paper (Hocking, 2008a) I presented at the Changing the Change conference. Secondly, a paper (Hocking, 2009) I published in the International Journal of Design Principles and practices. Thirdly, a paper (Hocking, 2008b) I presented at the 'Undisciplined' Design Research Society conference.

Three-Bodied Design

This sketch-model develops out of the tourism analogy, using the terms natural, artificial and un-natural as well as the concept of the *three bodied problem*, introduced in the Returning Home sub-section above. I borrowed the notion of the three bodied problem from physics to develop this sketch-model for design. John Gribbin (2004) in his popular science book *Deep Simplicity: Chaos, Complexity and the Emergence of Life* (where I first came across the idea) explains the concept that more than two

bodies interacting becomes complex; that is, impossible to predict. Gribbin (2004) illustrates this through the notorious billiard ball example often used to explain Newton's laws: 'if one moving ball strikes another... then Newton's laws can be used to work out exactly how the two balls move after the collision'; however, if more than two balls simultaneously collide 'Newton's laws cannot tell you how the balls move apart after the collision' (Gribbin, 2004, p. 17).

The three bodied problem outlined by Gribbin is useful to illustrate the nature of design's dance with disorder as explored in the previous section's analogy. In the analogy three components were identified to form the context for design:

1. **Natural:** The interrelated physical earth systems including biosphere, hydrosphere, atmosphere and lithosphere; as described by earth systems science.
2. **Artificial:** An integrated landscape of artefacts; as described by the ecology of the artificial.
3. **Un-natural:** The interconnected web of understanding of thought, theory and concept - as described by Bateson's (1972) 'Ecology of Mind', Quine's (1951) 'web of belief' (1951) and Deleuze and Guattari's (1987) 'rhizomatic network'.

This forms the Three-Bodied Design sketch-model (see Figure 20) where design lies within the intersection of the three. Each component is both outside and integral to design. The natural could be considered as all those things that exist despite of us (ie. despite the actions of human beings), which encompasses all components of the biosphere including humans themselves. The artificial can be considered as all that exists because of humanity, and includes all the artefacts we have created from a poster to whole cities. The un-natural in this case refers to that which is other than natural; that is, not embodied in the physicality of the natural, consisting of all the virtual components such as thought, theory and concept. Design's placement in the intersection of these three bodies is used to consider the complex context of design.

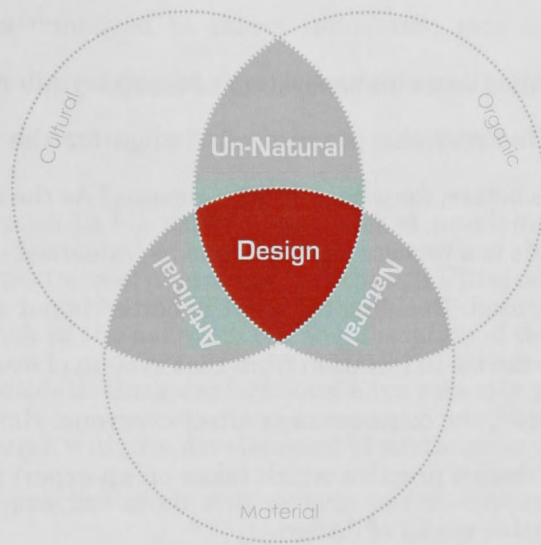


Figure 20: Three-Bodied Design

Design combines the natural, un-natural and artificial in the process of coming up with something new

This sketch-model sets up a ‘three bodied problem’, establishing a complex set of relationships the outcome of which cannot be predetermined, as described by Gribbin (2004) above. Hence, the activity of design exists within the complex relationship of the three bodies. This complexity highlights a core characteristic within design as its ability to deal with messiness.

This sketch-model attempts, also, to illustrate the concepts central to notions like the ecology of the artificial. Broadening the relationships out to describe an interconnected network of systems which include not only the material dimensions (natural and artificial) of humanity, our artefacts, environment and other species, but also the cultural dimensions (artificial and un-natural) of human life, thinking and expression as well as the organic realm (natural and un-natural) of innate processes in the ecological and psychological. Each of the three artificial, natural and un-natural realms describes a complex system which together becomes entangled into the complex messiness of everyday life. Design is enacted by dancing with this disorder to generate new possibilities that refashion each of these realms; materials from nature, concepts from the un-natural, ideas for the artificial, eventuating in artefacts that remould the environment and thinking. It is this effect that necessitates responsible design and situates design in a good position for making positive changes in our system of everyday life.

Co-Design

Making changes towards a sustainable system of everyday life requires developing change for the better¹⁹. From the premise of ‘change for the better’ a series of questions arise: what is better, for who, and who chooses? As the analogy of designer as tourist²⁰ suggests, this is a process that needs to be immersed in the system of the everyday being investigated. Deciding on ‘what is better’ is not something that can be left to the experts to devise in isolation from that system of everyday life because, as Rittle (1972) suggests²¹, the consequences affect everyone. Hence, there is a need to consider the kind of design practice which takes on an expert model and use this to construct a collaborative model of design.

Recent modes of designing for sustainable change have not gained the momentum required to generate a fundamental shift in the practice of everyday life²². Currently the process of designing for change often follows an expert model (see Figure 21),

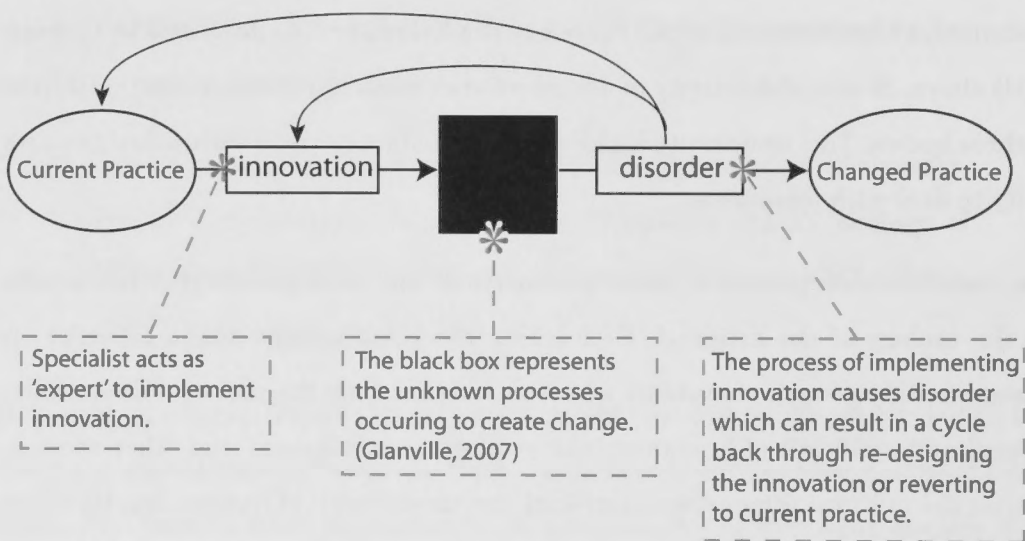


Figure 21: Expert Sketch-Model.

Designer, as expert, acts to create innovations on current practice towards changed practices.

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- 19 For further discussion on sustainability and the idea of change for the better see the Sustainable Design Section in the Background Research chapter.
 - 20 The analogy can be found in the previous An Allegory for Design Research section of this Concept chapter.
 - 21 Further explanation of Rittel's (1972) ideas can be found in the Complexity part of the Sustainable Design section in the Background Research chapter.
 - 22 Further discussion on this idea can be found in the Sustainable Context part of the Sustainable Design section in the Background Research chapter.

where the *expert* is employed to insert innovation into current practice. This frequently leads to a disordering process, culminating either in changed practice or in cycling back to re-designing the innovation or reverting back to current practice.

As Rittel (1972) implies in his paper about wicked problems, professional design often takes on an expert model of practice²³. Although Rittel advised against the use of the expert approach in the early 1970's, the discipline of design is still exploring more collaborative models. Such explorations have recently picked up momentum through design research with the development of participatory methods²⁴. However, professional design practice often still reverts to the Expert sketch-model which I have sketched out above (see Figure 21). This sketch-model was developed in a conversation with my colleague Andrew McKenzie, a landscape architect with more professional experience than I.

This *Expert sketch-model* describes the use of design to move current practice towards changed practice. The use of *change practice* is a very general way of considering what design can do in all its various forms. Whether the design outcome is a material or non-material artefact, the intended purpose is to come up with something new that has an effect on the way we do things. In this sketch-model a designer, as expert, is brought into a situation and asked to create an innovation. The innovation is implemented into the complexity of the everyday context and interacts with that context in unpredictable ways through undefinable processes, represented by the

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23 I have an anecdotal example of why perhaps more design firms rather keep the expert model than adopt this collaborative approach. I did some work with a design firm during my undergraduate years as part of a professional development course. The firm was designing environmental signage for a regional library. They were having trouble finding images at a reasonable price to use on the signs for the different book sections (eg. fiction, biographies, recreation, etc.). I was asked to look through many image libraries and collected appropriate images according to the designer's concept. In the end this was too expensive and the designer had to simplify his approach. I asked why they did not talk with the librarians to see if they had any local images in archives or involve the community. Involving people associated with the library was dismissed as causing more problems than it would solve. People complicated things. It was considered more appropriate to work independently – as experts. The firm considered that maximising involvement was not effective. Perhaps it was not time efficient or economically efficient. However from my inexperienced observations I saw the firm wasting a lot of time by applying the expert model and avoiding research.

24 For a further discussion on Co-Design and Co-Creation methods see the Design-led Methods part of the Design Research section in the Background Research chapter..

black box described by Glanville (2007)²⁵. This eventuates in varying degrees of disorder (Hielscher, Fisher, & Cooper, 2007) as the context is affected by the design outcome. The desired result is for this disorder to change the practice. However, often, due to the unpredictable nature of implementing the design outcome in the everyday context, the disorder can turn into discomfort, which requires amendments to the innovation or causes the process to revert back to its current practice.

Gaver's Cultural Probes (see Gaver, Boucher, Pennington, & Walker, 2004; Gaver, Dunne, & Pacenti, 1999) explore the use of disordering techniques to engage participants in the process of developing innovative ideas. Cultural Probes use disorder to engage participants in seeing their everyday lives from different perspectives and use this to enable them to imagine innovative change²⁶. Taking the disordering idea from Gaver, I considered what would happen if innovation and disorder swapped places. Hence, to develop new models of designing for change that enable 'co-design' by all actors in the system of the everyday, one such model could be created through the manipulation of the above expert model, by swapping *disorder* and *innovation*; thereby, transforming it into a Co-Design sketch-model (see Figure 22).

In this case the specialist becomes a facilitator (rather than expert) in enabling design towards changed practice that would engage all (community, business, specialist and so on)²⁷ in the process of sustainable change. The purpose of starting with disorder is to implement a break with current practice allowing people to see their everyday practices from a new perspective and thus able to imagine change. Then, through harnessing the creative energy of the community in imagining change, people can be enabled within the design process to develop innovations (Maase & Dorst, 2006) leading to changed practice towards a sustainable *culture of living*, a notion which will be further explored in the next section²⁸. These ideas are already emerging from

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25 Glanville's Black Box analogy can be found in The Black Box and Conversation part under the Complexity sub-section of the Sustainable Design section in the Background Research chapter.

26 Cultural probes are further discussed in the Design Research section of the Background Research chapter.

27 Brown identifies different knowledges associated with these various actors as individual, local, specialist, strategic and holistic (2007, p.31). Each of these have a part to play in sustainability projects. See the Enabling Design part under the Complexity sub-section of the Sustainable Design section in the previous Background Research chapter for a further discussion of Brown's knowledge cultures.

28 See the following Culture of Living section in this Concept chapter.

a systems approach to design research as explored in a variety of different design projects based in Europe (Maase & Dorst, 2006).

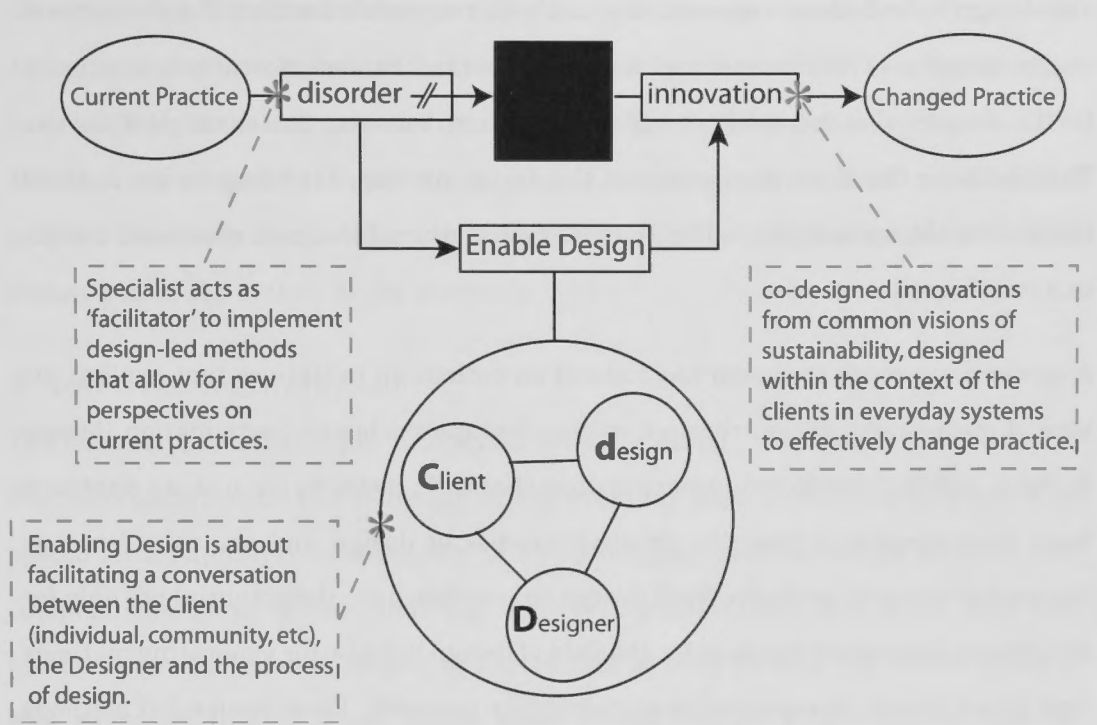


Figure 22: Co-Design Sketch-Model.

Designer acts as facilitator, enabling participants to design innovations to change practice.

Disorder is used to make a break with current practice to imagine change and allow for new perspectives and ideas to be generated. This break allows the designer to act as a facilitator of a conversation between the participant (client), the design process and the designer to enable the design of innovation to change practice. This sketch-model (see Figure 22) proposes the possibility that this innovation is better suited to changing practice since it has been designed in collaboration with participants from that particular context. This co-design approach attempts to more effectively immerse the process in the complexity the black box represents. The idea this sketch-model illustrates is to consider the use of a collaborative approach to design more appropriate outcomes.

The central circle in the diagram (see Figure 22) describes a conversation that is an essential part of design practice, but which needs to be made more explicitly collaborative. In any design project there is a conversation between the designer and the client. The client may be a single person such as in a private design project,

a group of people such as in a community design project or an organisation such as in a corporate design project. There is also a conversation between the designer and design²⁹. Both these conversations are well represented within the discourse of design practice. The conversation least represented in design practice (especially in the Expert sketch-model) is the conversation between the client and design. That is to say the client is also part of the design process. Enabling design is about facilitating the meta-conversation that engages all three (designer, client and design) in a collaborative process.

A systems approach to design has focused on bottom-up initiatives that explore the idea of open-source design through co-creation approaches to participation (Maase & Dorst, 2006). As explored in the previous chapter³⁰, methods for such an approach have been developed from the creative process of design and are considered as design-led research methods. Such design approaches have the potential not only for developing innovative methods for the field of design but also for generating methods that give a unique perspective to sustainability research. These design-led methods form the foundation from which the methods for a Co-Design sketch-model can be developed.

Culture of Living

The previous section, proposes an expansion of the systems metaphor *ecology of the artificial* to also include the natural and un-natural. The following sketch-model explores such an expansion to construct a new systems metaphor. This sketch-model takes the previous two models (the Three-Bodied Design and Co-Design sketch-models above) and combines them with the notion of the ecology of the artificial to develop a non-object-orientated notion of a systems approach to design. This system perspective is developed through a metaphor that encapsulates the role of design in our everyday lives beyond the artefact.

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29 The conversation between the designer and design comes from Glanville's conversation analogy discussed in the Complexity part of the Sustainable Design section in the Background Research chapter.

30 See the Design-led Methods part of the Design Research section in the Background Research chapter.

To introduce the construction of this sketch-model I revisit the ecology metaphor explored in the previous chapter³¹. The ecology of the artificial is not still commonly used in design discourse; although valuable for initiating a conversation into how design can play a role in sustainable change, it has limitations as a context for design. This phrase still restricts design to the object of its outcomes – the artefact. Although the phrase was important in moving attention away from the artefact and onto the behaviour that artefacts facilitate, it does not help in placing the activity of design within the system of the everyday.

A New Systems Metaphor

The next step, to a non-object orientated notion of design, is to consider a metaphor that encapsulates the role of design in our everyday lives beyond the artefact. The search for an appropriate metaphor, of a systems approach for design to tackle the complex messiness of sustainability, follows Ulrich's (1983) argument that 'the systems concept remains an empty abstraction so long as it is not linked to some root metaphor' (p.317). Then, design needs a 'root metaphor' in which to align its systems approach; one which includes motivation and purposefulness inherent in the social systems of design. In choosing a systems metaphor more appropriate than 'ecology' I have borrowed from Moscovici's phrase 'culture of life' (as in Whiteside, 2002, p. 17). Then, to better suit my purposes I have morphed 'culture of life' into the phrase *culture of living*. Here, *culture* is used as the metaphor for a network of interconnecting systems that forms patterns inherent in the practices of everyday life, and *living* is at the core of the systems purposiveness. The culture of living then implies a network of interconnecting systems that characterise a way of life in any one time and place. This systems metaphor describes an interplay of natural, artificial and un-natural systems, from the Three-Bodied Design sketch model above, enacted to form our everyday lives. For example, to put this phrase into action in a sentence: our western consumerist culture of living has proven to be detrimental to the world and hence we need to find a new, more sustainable, culture of living.

This systems metaphor allows me to consider the context of design as an activity in the system of everyday life and how it facilitates our culture of living. The world in

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31 See the Ecology of the Artificial part of the Sustainable Design section in the Background Research chapter.

which we humans live and enact our lives is made up of an interconnected network of systems that support our everyday practices. We live within a natural physicality by natural processes which exist despite us. We construct skins of the artificial (2D, 3D and 4D artefacts, from gardens to lamps to cityscapes) which re-pattern our physical world and our everyday processes that exist because of us. We construct patterns of understanding to form our un-natural world, of thought, theory and concept, which has no physicality, rather, exists virtually. Our human ecology is characterized by our biological and cultural adaptations (Schutkowski, 2006); however, in looking at our everyday practices the one cannot be separated from the other. Although *living* may be a biological process, there is no way of separating these biological processes from our *cultural* system. For example, a basic biological process of eating is an extremely cultural activity; consequently, describing eating solely in natural terms would make no sense. Thus our culture of living is the interconnecting system of natural, artificial and un-natural that support our everyday practices.

As an aid to conceptualising design's place in the system Figure 23 describes a cyclic process. We understand and act in our *natural* world through pattern

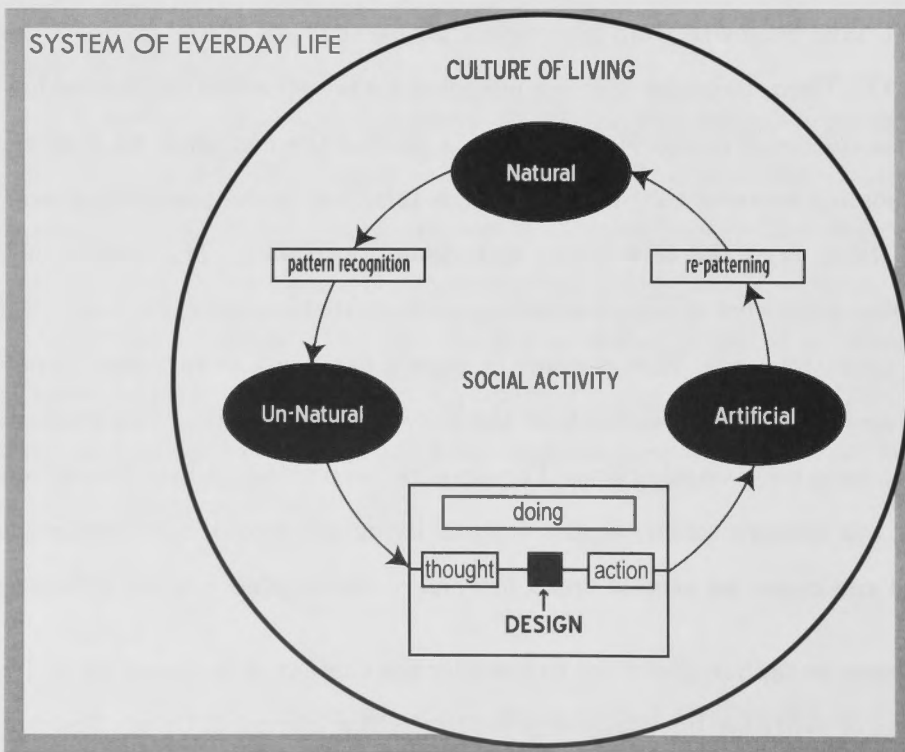


Figure 23: Culture of Living.

Conceptualising a context for design as an activity in the system of everyday life

recognition, this forms our *un-natural* world of thought, theory and concept; we utilise our un-natural world for doing, designing and making, which forms our *artificial* world, which in turn re-patterns our *natural* world. Here the culture of living is both the context of *social activity* and facilitated by social activity. The design act of *doing* is represented as an element in the cyclic process of social activity, acting as a link in the integration of the natural, artificial and un-natural systems that generate our culture of living. This diagram highlights the activity of design as a vital link in creating and recreating our culture of living in the system of everyday life. Placing design within this system assists in conceptualising a context for how design can play a role in sustainable change.

In order to ‘design now’ for sustainable change we should continue the conversation into a context for ‘how design can play a role’ in assisting that change. In the past the field of design has focused on its role in producing the artificial world. Now we need to move past the context of the artefact to a context of facilitating our culture of living. For although there is a value in designing sustainable artefacts, just as urgent is the need to design a sustainable culture of living as a whole. This is a project for all involved in the system of everyday life, as considered in the Co-Design sketch-model (see Figure 22 above).

The quest for sustainability, to date, seems to rely largely on education for the transformation required; such that, if you educate people they will be able to perform sustainably (Hobson, 2006). If we ask people to re-think each action they perform, as sustainability currently seems to necessitate, then this very quickly becomes overwhelming. This is not normally how humans achieve their everyday activities; these practices, for the most part, are placed beyond conscious thought by being embedded in culture³². Hence instead of seeing ‘popular culture’ as the enemy, demonized for proliferating an un-sustainable culture of excess, we perhaps need to see it as the kind of pathway that can lead to sustainable change. Design is particularly apt in seeking methods for pop-cultural transformation; using transgression, liminal notions, play, imagination, translation and integration. At their best these designerly abilities can be innovative, culturally rich and sophisticated or at their worst banal,

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32 This statement is an anecdotal assertion on my behalf which is sufficient for generating ideas for the conceptual framework, however, would need further work to be verified for other uses.

superficial and trivial³³. In response and in consideration of how the field of design can contribute is through sharing our ability to design, in opening up the design conversation, by enabling design within the system, to generate changes in our culture of living, towards something more sustainable. The significance of design's value in contributing to sustainable change lies beyond the *ecology of the artificial* and instead sits within the wider project of facilitating our *culture of living*.

Hence, how design contributes now becomes more than just designing sustainable artefacts but in sharing our ability to design for change. Considering the ambiguous notion of sustainability as *a kind of change for the better* turns this notion into a question about what the future should/could/ought to be. As explored in the previous chapters³⁴, these are fundamentally design questions and ones which research into sustainability is now grappling with. Using culture of living as a systems context for design opens up the possibilities for the field not only to contribute to sustainable changes in the physical world but also with the questions of sustainability in the research realm. Thus, conceptualising a systems approach places design as an activity for weaving together our culture of living, from the natural through the artificial to the un-natural, within our system of everyday life. Perhaps this context can form the foundation that enables us, as a society, to work together to co-design a sustainable culture of living for our future.

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33 Characterised by Manzini as 'superficial, photogenic styling' (in Jones, 1990, p. 17) and by Frayling as 'style obsessed' and 'trendy' (1993, p. 3).

34 See the Design Practice and Socially Oriented Research Context sections of the Background Research chapter and the Terminology part of the Introduction under Sustainability.

The Concept

Enabling Design from within the System of Everyday Life

This section draws on the conceptual framework developed through the above three sketch-models and distils them into a core concept. The Three-Bodied Design sketch-model gives the interconnected network of systems – natural, artificial and un-natural – making up the system of the everyday. This sketch-model places the activity of design within the intersection of these three bodies, creating a complex context for design within the system of the everyday. The Co-Design sketch-model provides a collaborative approach for design where disorder is used to enable the design conversation – between the designer, participants and the activity of design – to generate innovations better suited to that system of the everyday. The Culture of Living sketch-model establishes the role design plays within the social activity of creating and re-creating our culture of living. This sketch-model shows how design is embedded in and functions within the system of everyday life. From these three sketch-models the key components are the collaborative view of *enabling design*, the immersive aspect of *within* and the complex perspective of *the system of everyday life*. These components form the core concept for this study: *enabling design from within the system of everyday life* (see Figure 24).

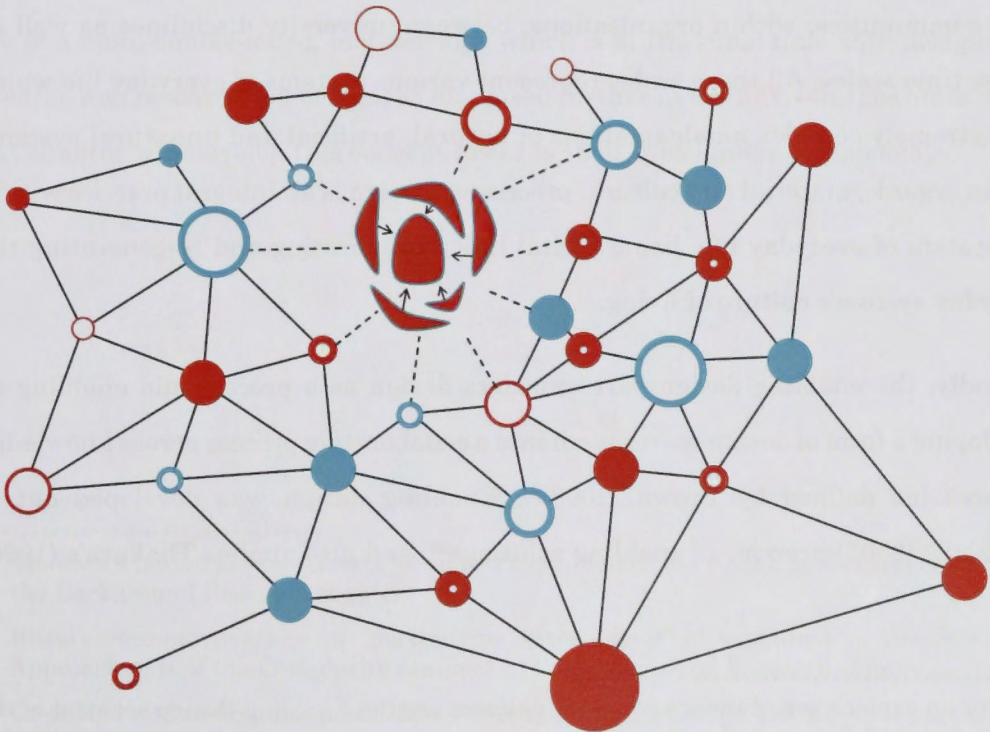


Figure 24: The Concept Visualised

A systems approach to design for enabling design within everyday life

The diagram above (see Figure 24) visualises the interconnected network of nodes as the system of everyday life and the form being constructed within the network as enabling design from within the system.

Defining the Concept

To explain the concept of *enabling design from within the system of the everyday* I will define each of the three key parts: (1) system of the everyday, (2) enabling design and (3) within.

Firstly, the system of the everyday, explored in the sketch-models, comes from Manzini's idea of needing to comprehend the complexity of our reality. Manzini's work focuses on the everyday and is used in this study to highlight the purpose of the research approach being developed which is to generate proposals for changing the complex system of social activities at an everyday scale. Within this concept, everyday life is made up of a complex network of interconnecting systems. The everyday is made up of a complex culture of living which is fractal like, existing in many similar but different forms across different scales both in place and time. There are similar but different forms of culture of living across spatial scales; for example, international countries such as China or Australia, within states, between local communities, within organisations, between university disciplines as well as across time scales. All these scales represent various systems of everyday life which are extremely complex amalgamations of natural, artificial and unnatural systems within organic, material and cultural processes. Design is an integral practice within the system of everyday life, being a vital link in generating and re-generating the everyday system's culture of living.

Secondly, the enabling design part considers design as a process and enabling as developing a form of design-as-research into a collaborative process across knowledge cultures (as defined by Brown, 2008)³⁵. Enabling design was developed out of Manzini's (2008) premise of enabling solutions³⁶, and also applies Thakara's (1990)

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35 For an explanation of these knowledge cultures see the Enabling Design segment of the Background Research chapter.

36 Manzini's enabling solutions are explained further in the Enabling Design segment of the Background Research chapter.

notion of open-source approaches to design³⁷ and Rittel's (1972) recommendation for maximising involvement³⁸. Enabling design removes the designer from the role of the expert and places them within the role of the facilitator of the design process. It follows the co-creation and co-design approaches emerging from design research³⁹. Enabling design requires building creative capacity within participants in order to enable them to engage in the creative process of design. It also embraces the conversational approach described by Glanville (2008)⁴⁰, opening up a collaborative conversation as well as taking on a conversational structure.

The third part of the concept, *within*, is used to establish who is being enabled and why. The system of the everyday is locally specific and hence researching possible futures is specific to a community (on whatever scale). Therefore, it is members of that community who need to be enabled to design proposals for changing their everyday lives. This suggests that designing sustainable futures should not happen outside, external or isolated from the system of the everyday; instead, the process needs to be immersed within the context of that system. The concept, as a whole, determines an approach to research that uses design as a process, rather than a profession, that can be shared in such a way as to try to comprehend the complexity of developing sustainable everyday proposals for change. This concept generates the core of a dual, double-sided, methodology which is at the same time both design-led research and research-led design, as discussed further in the following chapters. The next chapter will develop this concept towards such a design-led methodology.

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- 37 Thakara's notion of 'open-source' design is explained in the Enabling Design segment of the Background Research chapter.
- 38 Rittel's recommendation for 'maximising involvement' is explained in the Systems Approach part of the Complexity segment in the Background Research chapter.
- 39 Co-design and co-creation methods are discussed in the Design-led Methods part of the Design Research section in the Background Research chapter.
- 40 Glanville's conversation analogy is explained in the Complexity segment of the Background Research chapter.

Addressing the Brief

The conceptual framework, built through this Concept chapter, further develops the criteria from the Brief and the updated additions from the Background Research. In particular, the Concept chapter has expanded the last two of the existing five criteria (see Figure 25). The concept in this chapter also clarifies the rest of the criteria by extending the framework for assembling the methodology.

1. Remould design into research:	<ul style="list-style-type: none">• research through design• conversational structure• address what next questions• use abductive logic• non-object oriented• socially oriented research outcomes
2. Develop a creative approach to socially oriented research	<ul style="list-style-type: none">• Design-led approach• not definite, repeatable or stable• engages in tide, flux and general unpredictability
3. Construct collaborative forms of complex understandings	<ul style="list-style-type: none">• No experts• Use co-design and co-creation approaches• Use participatory design methods• Maximise involvement• Empowering
4. Build creative capacity to propose sustainable futures	<ul style="list-style-type: none">• By enabling design• Uses disordering techniques• Opens up the design conversation
5. Use a systems approach to design	<ul style="list-style-type: none">• that addresses complexity and sustainability• uses culture of living as an updated complex metaphor for design• engages with the uncertainty involved in developing sustainable outcomes,• is imbedded in the messiness of the network of systems that make up everyday life

Figure 25: Re-updating the Criteria

The first three criteria (see points 1, 2 & 3 of Figure 25) are carried over from the earlier chapters unchanged other than the requirements which are further informed by the conceptual framework. These criteria are now contextualised within the concept of *enabling design within the system of the everyday* and the three sketch-models (ie. 1. Three-Bodied Design, 2. Co-Design and 3. Culture of Living) provide added structure.

The concept elaborates on the first criteria to *remoulding design into research* (see point 1 of Figure 25) by giving it a particular form. This form entwines the criteria, where ideas of collaboration are enabled within design approaches in a systems setting of the everyday to construct knowledge for that system. The conceptual foundation outlines the potential for design as research to act as a guide to the un-natural. To open up paths that engage different disciplines and knowledge systems to integrate the un-natural. It suggests the design-led methodology should articulate effective approaches to design research in order to avoid inconsiderate, ill considered, superficiality. Design as research should contribute to how we think, act and re-fashion our culture of living. The design-led methodology should work towards knowledge for wellbeing through a re-connected, habitable system of everyday life. The conceptual framework suggests this design as research should engage in an interplay between the interconnected network of systems which includes the natural, un-natural and artificial. The methodology should follow a collaborative model that uses disordering techniques to open up the design conversation between the designer, the participant and the activity of design. This design-led approach should elaborate on design's role in creating and re-creating our culture of living. These further elaborations, from the concept, define a re-moulding of design into research which fulfils the design-through-research, non-object oriented and socially oriented research outcome mode as stipulated by this first criteria.

The second criteria to *develop a creative approaches to socially oriented research* (see point 2 of Figure 25) are still based in design practice; however, that practice is developed into a facilitated activity with collaboration at its core. The conceptual foundation outlines a style of design research used to increase a context-based wellbeing. This is wellbeing that improves the culture of living and suggests that the design-led methodology should facilitate the incorporation of a wide diversity of

theoretical perspectives, ideas and views. It also reiterates the importance of identity in the process of conversation and playfulness. The conceptual framework outlines a dancing with disorder approach of three-bodied design which acts from within the intersection of the natural, artificial and un-natural. That is, this conceptual context gives structure to a creative approach, embedded in collaboration, that uses disorder to enable design through collaboration to generate innovation appropriate for changed practice within the system of the everyday. It defines the role of the design-led methodology as a vital link in constructing knowledge for action in refashioning our culture of living. Through this, the concept identifies an approach for Law's (2004) request of non-definite, repeatable or stable methodology which engages in tide, flux and general unpredictability.

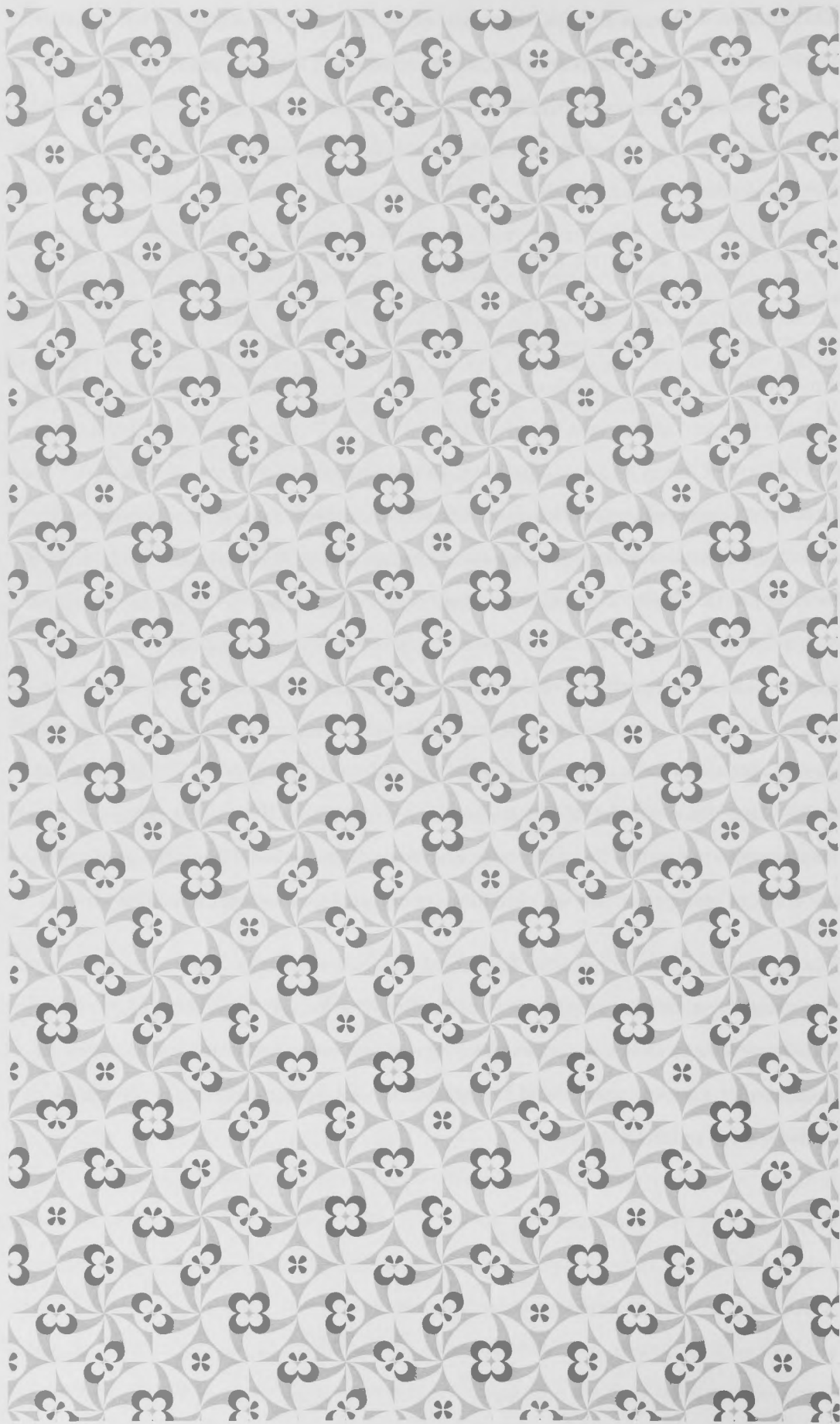
From the third criteria, to *construct collaborative forms of complex understandings* (see point 3 of Figure 25), collaboration becomes the key to immersing the practice in a complex context. This context is focused on the culture of living within the system of the everyday. The conceptual foundation outlines the need for the design-led methodology to incorporate the diversity represented in the system of everyday life. It also defines a combined effort and integrated approaches as requirements of sustainability. The conceptual context outlines a structure of enabling design through collaborating with representatives from that system. The design-led method is immersed within the system of the everyday through collaboration to generate a complex understanding.

The last two criteria (see points 4 & 5 of Figure 25) have been further expanded by additions based on this Concept chapter. The fourth criterion to *build creative capacity to propose sustainable futures* (see points 4 of Figure 25) is elaborated through the Co-Design sketch-model. Now enabling design is facilitated through disordering techniques which adds the opening up of the design conversation. Creative capacity is built through opening up the design conversation and using disordering techniques to enable participants to engage with the design process. Enabling design is still specified as the key concept for building creative capacity; however, this is elaborated on by utilising disordering techniques such as those explored in the cultural probe example (Hielscher, et al., 2007). The conversation like practice described by Glanville (2008) is used as the key structure for opening up the activity of design to

collaboration and engaging participants within the design process. This approach should generate sustainable proposals by constructing fictional possibilities to make positive changes to the culture of living. Building creative capacity in representatives of the system of the everyday allows these participants to engage in a design process to propose sustainable futures.

The Background Research added the fifth criterion, *use a systems approach to design* (see points 5 of Figure 25), to develop more complex models for design. This fifth criterion is further developed from the Culture of Living sketch-model. The requirement to address complexity and sustainability is integrated and sustainability becomes the goal of changes to our culture of living. This criterion, in addition, now uses culture of living as an updated complex metaphor for design to engage with the uncertainty involved in developing sustainable outcomes. Engaging with uncertainty is thus added as a requirement and stipulated as an approach which is embedded in the messy network of systems that make up everyday life. The sketch-models produced in this Concept chapter outline complex models for design and, as described above, they become an integral part of this study. This chapter constructed the metaphor of culture of living to develop the systems approach in a non-object oriented direction from the previous metaphor of ecology of the artificial. The Culture of Living sketch-model identifies design's role in the system of everyday life as engaging with the complexity to act as the link that puts knowledge into action. From this analogy the core concept was generated which will drive the systems approach for this study.

This chapter has distilled the key theoretical components into a core concept which will form the foundation for assembling the design-led methodology. In the following Concept Development chapter, the above criteria are used, along with key components from the Background Research and Concept chapters, to start compiling the design-led methodology.



Chapter 5

Concept Development

When most people think of design they would probably think of this phase in the process. It is the phase where the ideas start to take form. It is Ghery's famous organic sketches, Rossi's emotive painterly drawings, Dalisi's spirited metaphoric sketch models, but also a playful and conversational process that is embedded in the idea of 'thinking by doing'. I will restrict the explanation of this concept development process to illustrating how the parts came together to assemble a design-led methodology.

At this stage of the process there are still only vague ideas to be explored with a sketch like activity. Although because the concept being developed in this chapter has to do with participatory forms of design-led research, as established in the previous Concept chapter, participants are central to this 'sketchy' activity. Even though this part of the process involves *participants in a project* it should not be thought of as the core project in a practice based research approach or a test of the methodology or methods in a social research approach. Instead, it is akin to the sketching phase where the designer sits with paper and pencil in hand and assimilates ideas into a series of rough sketches. Like a conversation, the concept is developed by translating all the components into ideas and transforming those ideas into forms sketched out on the page, until there is a page full of different sketches and down in the bottom corner is something that can be identified as looking good enough. This is the sketch that gets drawn up to scale (in the next chapter) as the design outcome.

In this chapter the concept of *enabling design within the system of the everyday* is developed by engaging with participants to form ideas for a design-led methodology. This process begins by identifying the key parts to be put together. These parts are gathered from the theoretical components and the conceptual framework of the previous chapters. These components are then combined into a research model. This model is then enacted through community participation, as fieldwork in Tumut. The fieldwork acts as a thinking-by-doing process; where by, the methodology is further designed through a process of doing. The next chapter then renders these ideas, about assembling a design-led methodology, into the design outcome for this study.

Identifying the Parts

The concept stipulates how the components are to form parts of the design-led methodology. The concept *enabling design from within the system of the everyday* embodies nine key components (see Figure 26). These nine components were established both in the Background Research (see part A of Figure 25) and Concept (see part B & C in Figure 26) chapters.

A) Components carried over from the Background Research

- | | |
|---------------------------|---|
| 1. Design characteristics | <ul style="list-style-type: none">• The thinking-by-doing approach,• Centrality of the identity,• Engagement with fluidity of meaning,• Conversational,• A process of iterative steps,• Playfulness• The merging of theory and action into practice |
| 2. Design process | <ul style="list-style-type: none">• Brief• Background Research• Concept• Concept Development• Design Outcome• Presentation |
| 3. Design-led methods: | <ul style="list-style-type: none">• Cultural probes,• Game format• Scenario building |
| 4. Design as research: | <ul style="list-style-type: none">• Addresses questions of what next, what could/should/ought to be• Uses abductive logic• Generates fictional possibilities• Outcomes are proposals for the future• Dare to be different |

B) Components initiated in the Background Research and elaborated in the Concept

- | | |
|--------------------------------|--|
| 5. The system of everyday life | <ul style="list-style-type: none">• a systems approach to design• culture of living• interconnected natural, artificial and un-natural systems• role in constructing knowledge for action• positive change |
| 6. Enabling design: | <ul style="list-style-type: none">• to maximize involvement• engage participants directly in the design process• building creative capacity• facilitate a collaborative approach |

C) Components derived from the Concept

- | | |
|-------------------------------------|---|
| 7. Three-Bodied Design sketch-model | <ul style="list-style-type: none">• Natural system• Artificial system• Un-natural system• Integrated through design• Complex context for design |
| 8. Co-Design sketch-model | <ul style="list-style-type: none">• Changing current practice• Designer as facilitator• Using disorder• Enabling design• Open design conversation• Collaboration• Generating innovation• Better suited to the system of the everyday |
| 9. Culture of Living sketch-model | <ul style="list-style-type: none">• Forming patterns of understanding from the natural• Pattern formation constructs the un-natural• Design puts knowledge into action• Activated knowledge creates the artificial• The artificial re-fashions the natural• The process creates and re-creates our culture of living• Generated by and forms social activity• Characterizing the system of everyday life in any one time and place |

Figure 26: Components from the Concept and Background Research Combined

The components, of Figure 26 above, suggest a type of research methodology which uses a design approach for the complexity of everyday life. Enabling design is a core component (see B 6. in Figure 26) focused on engaging members of everyday life in the activity of design. Design is enabled with the help of the design-led methods (see A 3. in Figure 26) and this participatory approach is developed through the co-design sketch-model component (see C 8. in Figure 26), which focuses on engaging people in the design approach. This design approach is expressed through the design characteristics and the design process components (see A 1. & 2. in Figure 26). The approach is expressed as research through the design as research component (see A 4. in Figure 26), which outlines the type of knowledge construction formed from design. The concept focuses on everyday life as a complex system which is described in the system of everyday life component (see B 5. in Figure 26) and developed through the three-bodied design and culture of living sketch-models (see C 7. & 9. in Figure 26). The culture of living component (see C 9. in Figure 26) defines the role of design in the system of everyday life and the co-design component (see C 8. in Figure 26) defines how enabling design, with the use of the design-led methods, can open up the design conversation and hopefully produce changes to the culture of living. The concept ties these components together and in this chapter this relationship is developed to explore how the parts are to be put together into a design-led methodology.

Parts of this section includes excerpts from my paper (Hocking, 2009c) for the Cumulus conference.

Putting the Parts Together

The aim of this section is to consider how the parts go together to develop the concept, enabling design from within the system of the everyday, until the compilation resembles a design-led methodology for researching sustainable social change. The Concept chapter suggested the design of sustainable change needs to come from within the system of everyday life, not from outside the system dictated by an isolated expert; that is, we all need to be part of answering the question of what kind of future we want. Therefore, a design-led methodology should propose 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 and participants, representing the system, as also

engaged in that process. This approach should produce a design outcome able to act as a vital link in the social activity of constructing and reconstructing our culture of living. Hence, the formulation of the methodology repositions design in the form of design-led research, as a catalyst for social change, in the context of socially oriented research on sustainability.

In exploring how to assemble this methodology, the components identified above suggest the design-led research structure should be constructed in such a way as to utilise the nature and characteristics of design practice in research form. The *design process* component is chosen to form the initial structure for the design-led methodology, as a series of six steps (see Figure 27).

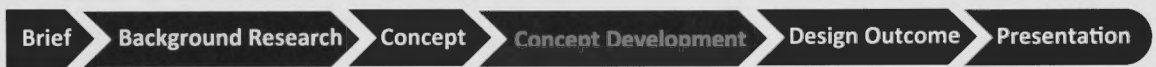


Figure 27: The Design Process

These steps in the design process are translated into six phases in the research methodology. The *brief* phase sets out an investigation into the research question asked, the system of the everyday being investigated and any specifications required for the project or the outcome. The *background research* phase can then guide 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 can act to translate the concept into a plethora of different ideas. Then in the *design outcome* phase these ideas can be transformed into a series of outlines for possible futures, and from which the most appropriate are chosen. In the *presentation* phase this chosen outcome can be clearly communicated: what it looks like, why it is of value and how it could work within the system of the everyday it has been designed for. From this research structure the rest of the components identified above (see Figure 26) can be assembled.

The components need to be put together in a way which allows the methodology to employ the designerly ability to work with the 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 the components from part A of Figure 26 above into the research structure it is possible to monopolise on these design abilities in a number of ways. Firstly, the implementation of the *design as research* component identifies abductive reasoning (Cross, 1990, p. 132) for the methodology which can be used to establish a context for formulating future possibilities. Secondly, the *design-led methods* components provide a playful and ‘exploratory’ (Cross, 1999, p. 28) manner of conducting this abductive process which has the ability to guard against pre-emptive outcomes. Instead, by inserting design-led methods into the research structure creates playful phases which can focus on generating the next phase. Thirdly, applying the *design characteristics* component through these methods can create a dynamic quality to the phases which means they can be ‘opportunistic’ (Cross, 1999, p. 29), incorporating unforeseen serendipitous circumstances. Fourthly, the dynamic nature formed from implementing these components makes the process ‘ambiguous’ (Cross, 1999, p. 30), this can be used to work within uncertainty. Finally, ‘intuition’ (Findelli, 1994, p. 63) is a key aesthetic skill in this process for recognising patterns in the disparate messiness of a complex system. All these qualities can work together to give this design-led methodology an ability to work within messy systems to generate outcomes for social change.

Further, the concept instigates the idea of a methodology that is not only required to work with the messiness of the system but, moreover, be immersed in the system; such that, it is enacted from within that context. The inclusion of components from part B and C of Figure 26 above can provide the methodology with an immersive ability in a number of ways. Firstly, the implementation of the *system of everyday life* component in conjunction with the *three-bodied design sketch-model* component and the *culture of living sketch-model* component gives the approach a way of working within the system, which can construct knowledge for action and generate positive change. Secondly, the *enabling design* component together with the *co-design sketch-model* component and including the above *design-led methods* component place this research structure inside the system of the everyday by engaging participants. Although many of the design qualities and abilities expressed above are shared with other disciplines and individuals, designerly practices are neither easy nor straightforward (Cross, 1990). Together with the ambiguous quality of design makes

the approach feel 'risky' (Cross, 1999, p. 30) and requires a suspension of disbelief because the likelihood of achieving an outcome is not known till the end. As a result, there is a need to build creative capacity in order to operationalise such a design-led methodology.

Thus, an approach which enables design from within the system of the everyday uses the characteristics of design to enable a co-operative process to propose more sustainable cultures of living. To achieve this cooperativeness the co-design model is applied with the use of design-led methods, to enable participants to engage with the design process. As research, this approach aims to develop new knowledge on fictional possibilities for sustainable futures. As a design process, this approach applies the culture of living model by engaging with participant's understanding of the interconnected systems, of the artificial, natural and un-natural aspects, in their everyday to imagine change, visualise sustainable wellbeing and to propose positive changes to their system of everyday life. Such a design-led methodology could reposition design, within socially oriented research, as a methodological approach to facilitate social change.

Developing the Methodology

The concept development part of this study is about playing with the possibilities, experimenting with ideas, making the ideas visible and seeing if they work. Most of all this phase is about *thinking by doing*. For this study, the development of a methodology – which enables design from within the system of the everyday – required the development to also occur within a system of everyday life by engaging with community participants. Hence, I left the isolation and security of my studio and went out into the field. Over the course of a year I conducted fieldwork in Tumut, a rural Australian town located in southern New South Wales. Tumut is known for its forestry, apple orchards and the Snowy Mountains Hydro Electric Scheme (for a profile of Tumut see Appendix 2). I chose the town as an example of everyday life. This Tumut fieldwork was about engaging community members as participants in a process to design a methodology; about enacting the concept to develop this approach and construct a methodology.

The theoretical and conceptual components, described in the previous sections¹, clearly suggest the kind of approach to be taken. The task for this concept development step is assembling these components to see how a methodology might be articulated. The first challenge being: how could this approach function? I responded by putting the components together into a preliminary research model and then ‘gave it a go’.

From the theoretical components above I derived the kinds of questions appropriate for this methodology, *what kind of sustainable change does the community want?*, from which a community could construct results in the form of design outcomes about possible futures. I went to the community on my own volition; asking members of the community to participate rather than the brief coming from the community. This meant there were a large number of unknowns. Most significantly, I did not know the core sustainability issues in the community. I decided to see if the process could uncover the brief. I chose to base the research question on designing possible futures that could improve the community’s sustainable wellbeing: *what could sustainable wellbeing in Tumut look like in the future?*. This question was based on Manzini’s

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1 See the Identifying the Parts and the Putting the Parts Together sections of this Concept Development chapter

research about sustainable wellbeing (see for example Manzini, 2003)². The question was broad and general enough to encompass any issue which might be uncovered. The breadth of the question also allowed the participants to guide the direction of the project.

The research model, I initially drew up, for this project combined design-led methods with the design process by inserting the methods between the phases of the process (see Figure 28).

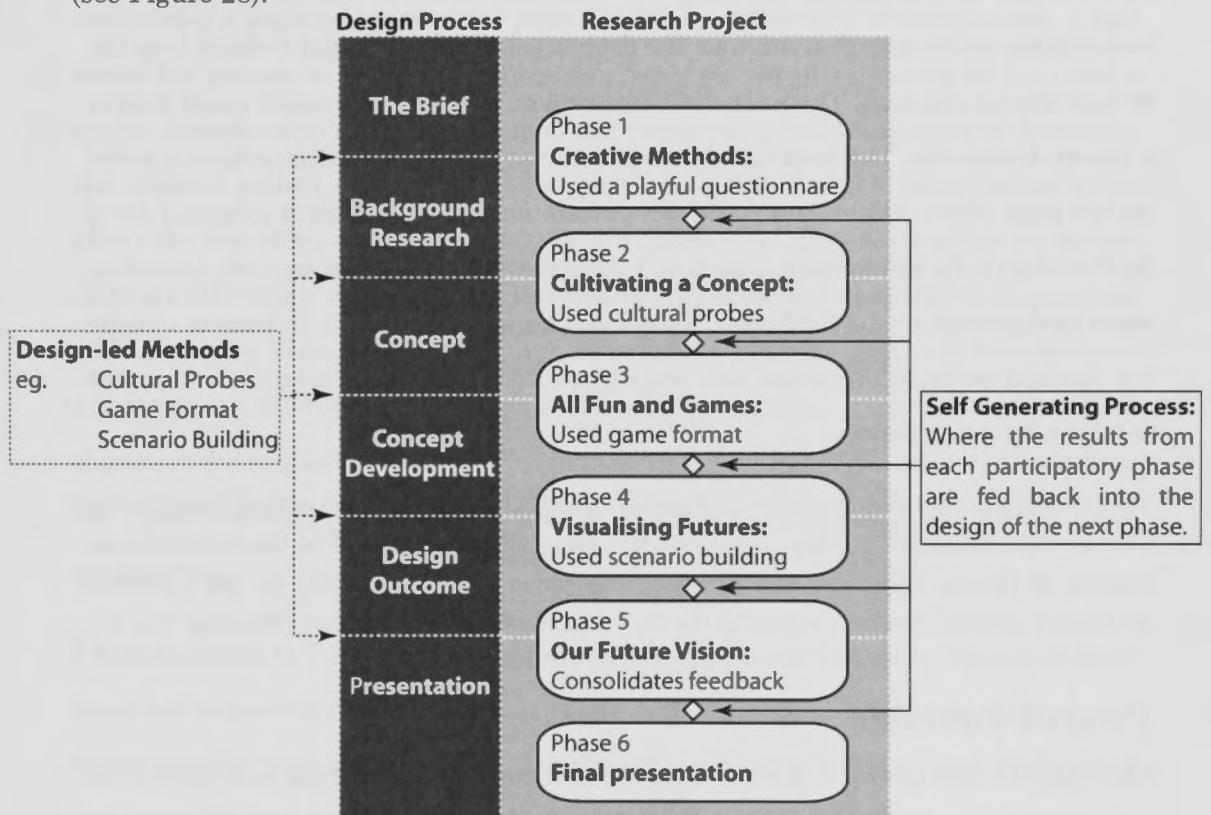


Figure 28: Research Model for Project Tumut

As can be seen in the diagram, I started with the intention of implementing six phases; however, I decided for the purposes of this study, it was only necessary to complete the first four. By the fourth phase I had developed the methodology sufficiently. The fifth and six phases were about refining the outcomes into a proposal for implementation. Although such a proposition may have been of interest to the community and assessed the effectiveness of the methodology, in this early developmental stage these final phases were not essential and perhaps even premature for the, as yet unformed, methodology to deliver.

.....
 2 Manzini’s notion of wellbeing is also explored within the Designer-as-Tourist part of the An Allegory for Design Research section in the previous Concept chapter

Based on the co-design conceptual sketch-model (see Concept chapter, Figure 22) I decided to use the disordering qualities of cultural probes in the first two phases to initiate Project Tumut. I then intended to follow this with a game format and then scenario building to complete the phases³. After the first phase the design and construction of the following methods were dependent on the participants' responses to the previous phase.

In response to the initial challenge of how the methodology could work, the sustainable wellbeing question and the design-led research model defined how the project should function. The next challenge was to see if this approach could deliver a research outcome. The next set of questions arose: *could this outcome have a social rather than object focus?* and *could the project help to articulate a proposal for a methodology?* In the following section I describe Project Tumut by first providing some background to the fieldwork. Then I go through each phase in turn to outline the method designs, operation and responses. I conclude with a reflection on this thinking-by-doing process.

This section includes excerpts from my paper (Hocking, 2008a) published in the Changing the Change conference proceedings, my paper (Hocking, 2009b) published in the International Journal of Design Principles and Practices, my paper (Hocking, 2009c) for the Cumulus conference and the section I wrote for the *Tackling Wicked Problems* book (Hocking, 2010).

Project Tumut

I intended to visit the rural town of Tumut a number of times over the year, each time implementing the next phase of the project. The time in between visits was spent collecting and analysing responses, then designing and planning the next phase. I gathered participants by inviting all those people I met while in Tumut to be involved in the project⁴. The participants differed from one phase to the next. The most support for the project came from a section of the Indigenous community associated with the Cooee Cottage (a centre for the local Indigenous community in Tumut).

This rural town was selected as the setting for the project because at this point of my research it was recommended, that rather than doing a collaborative project within a

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3 These methods are outlined in the Design-led Methods part of the Design Research section in the Background Research chapter

4 This also included talking with council members. I had a meeting with the Economic Development officer who was very informative, helpful and supportive.

university setting (of which I had more experience), it may be more robust to conduct this project in an external community. Having had no experience in community projects I looked for an existing project that might provide support in this endeavour. I was offered, by John Reid (then from ANU's School of Art), to join his fine arts field studies programme *Engaging Visions* (see <http://engagingvisions.com.au/>). Engaging Visions was both a field studies programme and a research project which engaged a number of researchers in assessing the programme's effectiveness in exploring the community's socio-environmental issues through the artist's interpretation. I had joined the project as another 'art student'. Being part of this programme provided a useful introduction to key members of the community, including council. However, the support gained from joining this programme was limited. Some issues arose about the role of my work in the Engaging Visions research project which made this setting challenging. Subsequently, the first two phases were conducted in conjunction with Engaging Visions visits to Tumut, then for the following phases it became more advantageous to work independently with the community. As a consequence, and thanks to the support of Rhonda French from the Cooee Cottage and Cate Cross from the Paint-and-Play programme in Tumut, the following Phases 3 and 4 were more productive.

I first travelled to Tumut with a preliminary contingent of Engaging Visions to meet some key community members and organise for the student to visit and be introduced to community members who could talk about Tumut. At this stage I had constructed my research model (see Figure 28 above) but none of the methods. I took photos, notes, collected pamphlets and other material during this visit to aid in the design and creation of the methods (eg. Figure 29). On returning from Tumut I designed the



Figure 29: Photo taken in Tumut and used as a background in Phase 1 project packs

Phase 1 project packs and sought Human Ethics approval. These packs are described below. I also set up a Wetpaint wiki webpage to provide updates, information and feedback to the community. I have not discussed the use of this website in any detail because it did not become a significant part of Project Tumut and there was no indication that participants used the site. The design and operation of each phase in Project Tumut is outlined below, followed by a reflection on the methods and methodology as a whole at the end of this section.

I have purposely not included specific details about the circumstances of Project Tumut to avoid any assumptions being made beyond the sketch like nature of this part of the thesis. These details were not significant in developing ideas for the methodologies. For example, although participation in Project Tumut was limited, the exact number of responses were not a significant part of this thinking-by-doing process. Numbers were not of concern for the project as a whole because even small numbers of responses were sufficient for this task, and I did not have anything significant to promise the community from my research that could justify further promotion of the project, which might have encouraged larger numbers. That is, Project Tumut was a process aimed at developing a methodology rather than producing an outcome for a community. For those interested in exact numbers of responses and types of participants I have included these details in the Appendix. It is premature to expect this preliminary stage of the methodological construction to be able to provide specific details able to convey something significant about the operation of the methodology. Such details would need to be generated after the design outcome is defined and as such is beyond the scope of this thesis. Nevertheless, such investigations should be an important part of future developments of the methodology.

Phase 1

In the first phase of Project Tumut I joined other art students staying in Tumut and participating in the Engaging Visions programme. The programme included site visits to meet with members of the Tumut community; during which, I took the opportunity to hand out my Phase 1 packs to those who seemed interested. Engaging Visions held a small exhibition of previous field studies work to introduce the project to the community. I was able to hand out Phase 1 packs and ask people to attend a workshop on a following day. The purpose of the workshop was to engage,

face to face, with participants to get feedback on the methods and approach I was using. Although one person attended the workshop⁵, which limited this purpose to a single conversation, this single conversation was fruitful in gaining a better understanding about the community of Tumut. On returning home I also received a number of responses to the Phase 1 project packs by mail. Hence, I accumulated enough responses from conversations and postal returns to design the next phase of the project.

Method Design

The first phase used a creative questionnaire to slot between the *brief* and *background research* steps. I designed and created a 'gift pack' (see Figure 30) to give Tumut community members. The packs included information about the project and a creative questionnaire using cultural probe like techniques.

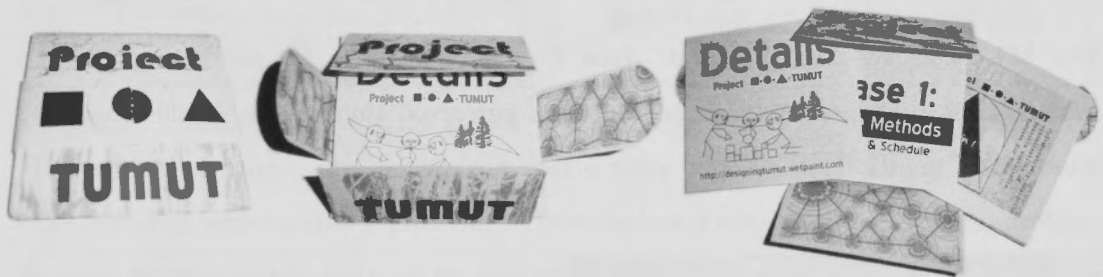


Figure 30: Phase 1 Project Packs

The packs measured 105mm square area by a few millimetres in thickness and contained three components:

1. Details fold up sheet
2. Phase 1 sheet
3. D-zine booklet

The *Details fold up sheet* provided participants information about the project as a whole (which fulfilled ethics requirements). The *Phase 1 sheet* provided information about Phase 1 specifically; what I was doing and how to get involved. The *D-zine* booklet contained questions based on cultural probes which could be filled in and returned by post. All these components were designed to be printed on double sided A4 paper on the office photocopier, then cut and folded to size. I made up 50 packs

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⁵ The exhibition event may have been a better venue for this workshop; however, I was not allowed to engage people in Project Tumut at this event, due to concerns raised by the programme's social researcher that my research may interfere with his own.

to hand out to interested community members in Tumut. As noted above (see Figure 29), I used the photos, images and information gathered about Tumut, in the previous trip, to develop the graphic design for the packs. I was hoping that by presenting my interpretation of Tumut, that participants would relate to this reflection and that it would help to initiate conversations through the activities.

The cultural probe style questions in the D-zine were intended to be a simple first attempt to assess how the Tumut community would respond to creative activities and how these methods could be appropriately designed. I wanted to establish what kinds of creative activities people preferred interacting with and which sustainability issues were most important to the community, to get to know them and their ideas about Tumut. Below is an overview of the main questions in the D-zine component, for full documentation of the Phase 1 project pack see Appendix 3a.

The My Creative Side question (see Figure 31) was attempting to gain an understanding of how creative participants perceived themselves. Linked to this question of creativity the ‘draw your oldest possession’ question (see Figure 32)

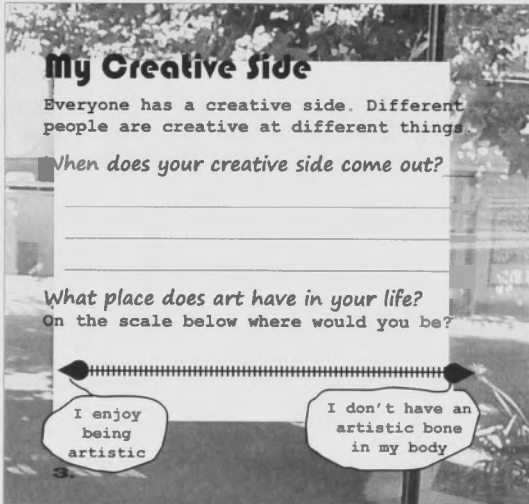


Figure 31: Dzine: My Creative Side

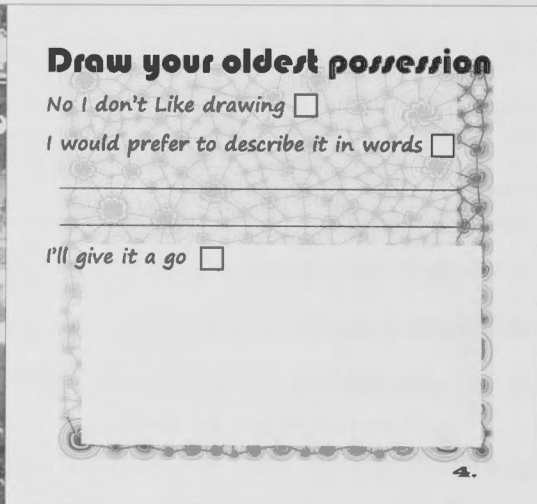


Figure 32: Dzine: Draw Possession

aimed at assessing how participants felt about being asked to draw and if they preferred to write. This question also explored the sustainable design notion about the nature of possessions that we value and keep for a long time, which counter acts the ‘throw away society’.

The *play* question (see Figure 33) aimed to prompt an understanding of what kinds of playful activities the participants felt comfortable in engaging with. The *Something about Tumut* question (see Figure 34) aimed to gain an understanding of the participant’s relationship with Tumut and identify issues in the community.

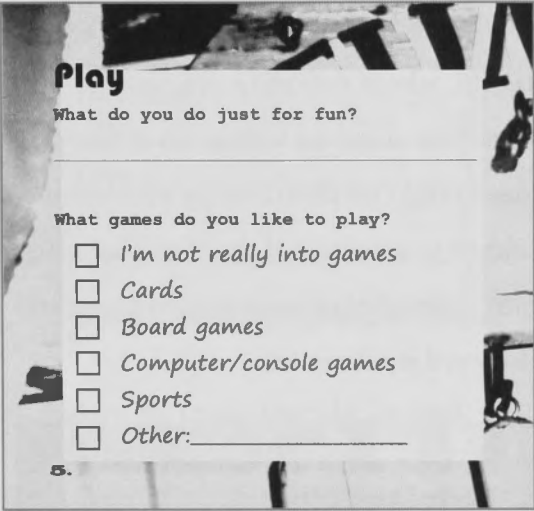


Figure 33: Dzine: Play

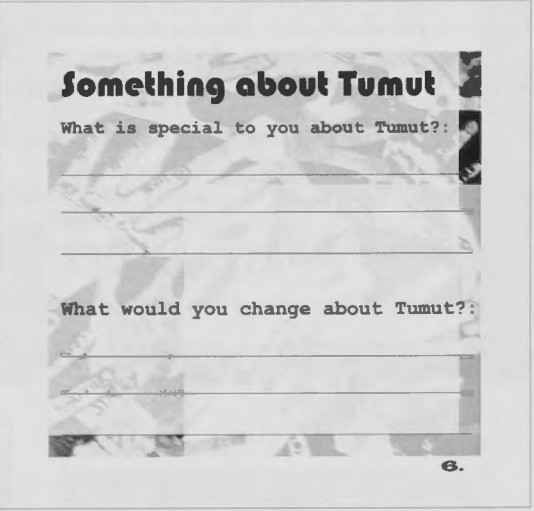


Figure 34: Dzine: About Tumut

The *mapping* activity (see Figure 35) illustrates how I used existing cultural probes to start developing the methods for this project. I generated some ideas from Gaver, Dunne and Pacenti’s (1999) use of a series of different maps that explore peoples ‘attitudes toward their environment’ (p.23). One of Gaver et. al.’s mapping activities used a map of the local area and asked participants to mark zones where they (1) would go to meet people, (2) would go to be alone, (3) liked to daydream (4) would



Figure 35: Dzine: Mapping middle page spread

like to go but can't. In a similar way my D-zine mapping activity shows a section of Tumut including the main shopping area. The questions asked participants to mark on the map: (1) Where is your favourite place? (2) What route do you take when you have some time to spare? (3) What place do you avoid going?

The idea for *Everyday Practices* question (see Figure 36) came from Manzini's work on Sustainable Everyday scenarios of urban life, where everyday practices are re-designed in more sustainable ways. I was attempting to get an indication of the sorts of everyday practices in Tumut and which ones might be identified as problematic. The *sustainability* question (see Figure 37) aimed to ascertain if there would be any confusion with the use of the word sustainability being linked to socio-environmental issues rather than to other areas in which the word is also used.



Figure 36: Dzine: Everyday Practice



Figure 37: Dzine: Sustainability

The *how would you describe yourself* question (see Figure 38) aimed to find out a little bit about the personality and characteristics of participants. The *My Alias* question (see Figure 39) asked participants to construct an alias for themselves. The idea of getting participants to give themselves an Alias was prompted by the requirement from Human Ethical Research that participants be able to remain anonymous. The alias became more of a necessity with the phase two booklets where there were multiple activities to return separately. I wanted to be able to group responses from the same participant. The alias idea did not work particularly well. People were not generally concerned about their anonymity and getting them to put their alias on

each of the first and second phase components was problematic. I should have just used first names or just asked for a name/alias and left it to the participants to decide.

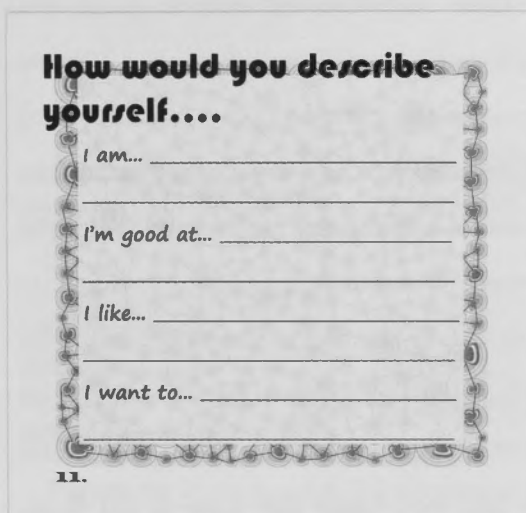


Figure 38: Dzine: Describe Yourself

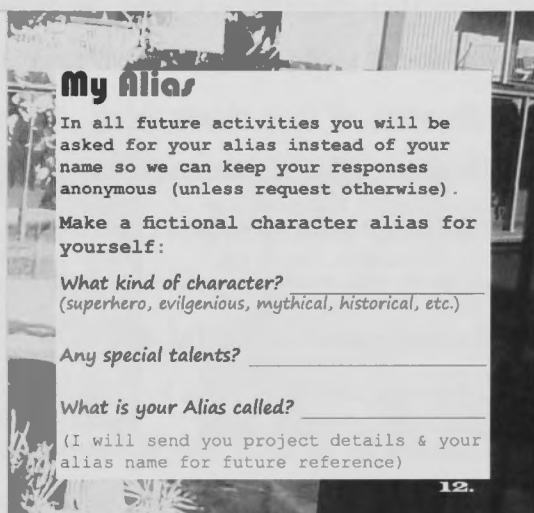


Figure 39: Dzine: My Alias

Responses

From the responses to the Phase 1 pack I was looking for feedback on the different kinds of creative methods I had trialled so I could tailor the next phase specifically for the community of Tumut. Below is a selection of examples from these responses. For the full documentation of responses see Appendix 3b.

In the responses to the creative related prompts in the D-zine (eg. Figure 40) all participants identified themselves as having a creative side although one participant identified themselves as only being somewhat creative even though they engaged

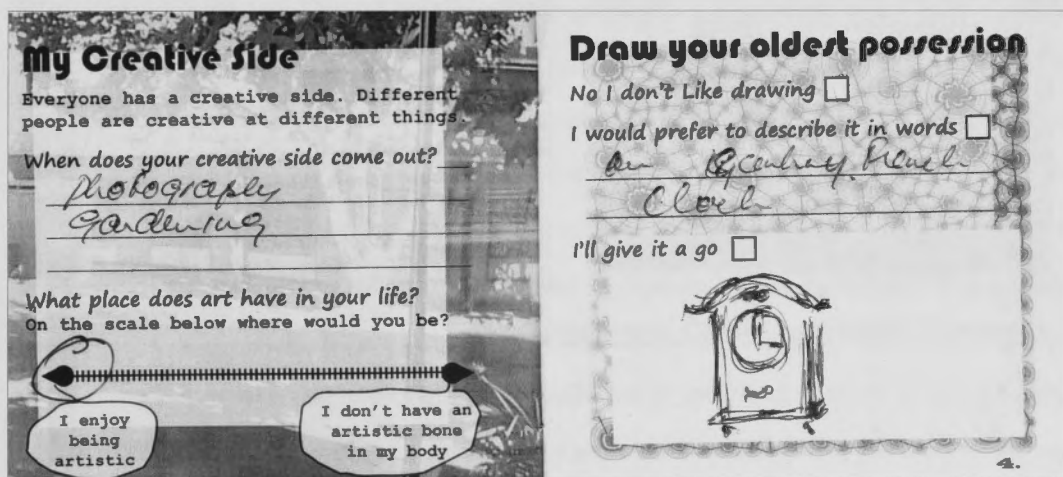


Figure 40: Participant 3 first spread response

in art related activities. However, these prompts did not say anything conclusive about the types of people more inclined to engage with the packs. All participants indicated that they were willing to draw their response but only one did, the other added a photo and the third said they ran out of time; whereas, all wrote an explanation of their oldest object. All participants identified play activities that they liked to engage in, although one said they weren't really into games but did do the crossword in the newspaper. This suggested that participants seemed willing to engage with the creative activities both in written and drawing form. Participants also seemed open to playful activities. There were other community members who I handed the packs out to that chose not to respond. I talked to one person who engaged in art activities in Tumut but who was not interested in responding to my methods. Another person said they had not found the time to fill it in.

Responses to the sustainability related prompts in the D-zine (eg. Figure 41, right) seemed to indicate that participants understood sustainability within a socio-environmental context. This suggested I could use the word in the project without too much confusion. Everyday practice (eg. Figure 41, left) likes seemed to centre on outdoor activities (gardening, cycling with the dogs) and dislike of work related activities (full time work, bookwork).

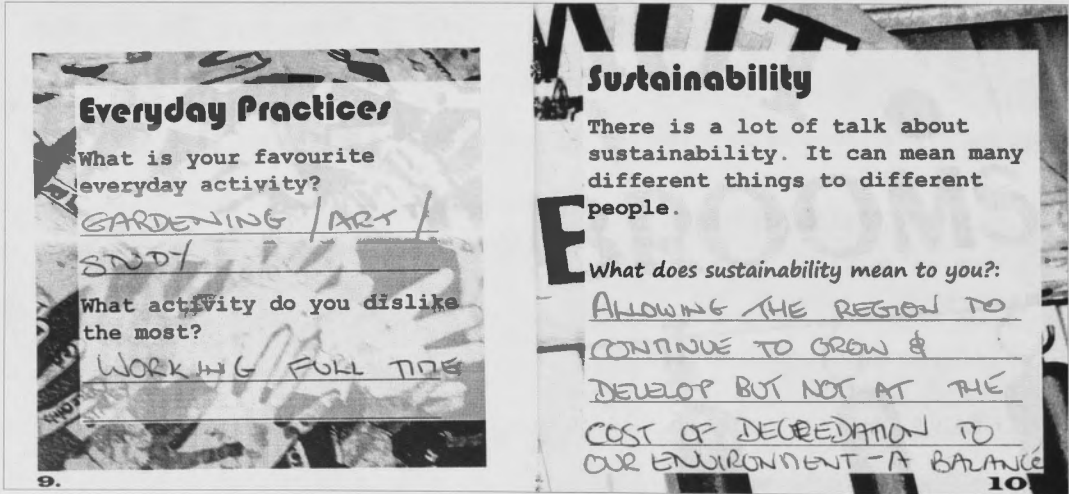


Figure 41: Participant 1 fourth spread response

The most common sentiment across all three participants came from their response to what they liked about Tumut (see Figure 42), which was its four distinct seasons. Conversely, dislikes about Tumut varied from the need for more cultural activities, council's actions, to a dislike of the pulp mill.

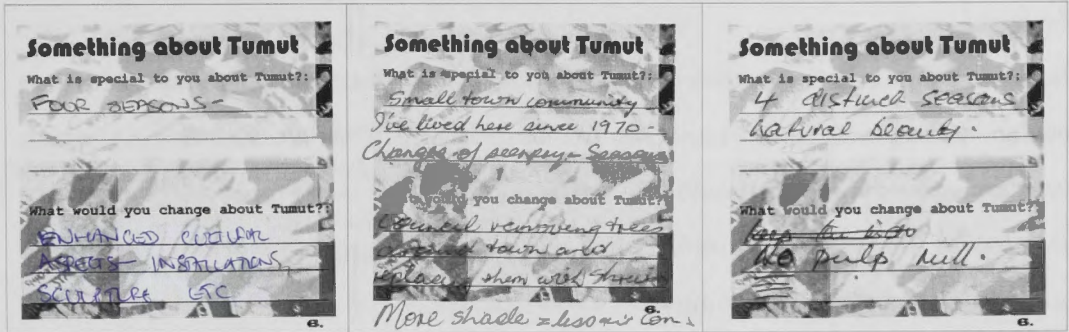


Figure 42: Participant 1, 2 & 3's response to questions about Tumut

These responses together with conversations I had with community and council members while in Tumut helped develop ideas for the following phase.

Phase 2

For Phase 2, instead of designing a completely different method I decided to work on adding to the first pack idea. The methods I designed, for these first two phases, heavily referenced existing work such as Gaver's (1999), Hielscher's (2007) and 'Underdogs & Superheroes' (Jacobs, et al., 2005); hence, the second phase packs included some content from the first packs plus added more activities which further referenced existing design-led methods. I also emailed the contacts I had made in Tumut and offered to meet them at a local cafe to discuss these methods. I returned to Tumut again with the Engaging Visions programme. There were a few participants that meet at the cafe and I was able to get some feedback on the methods used in the first pack. Another participant rang me to suggest that Cate Cross from the 'Paint and Play' programme⁶ would be interested in my project. Cate Cross organised for me to attend a paint-and-play session where I was able to introduce my project to the parents and hand out packs. One of the indigenous staff members of national parks who also took an interest in my project introduced me to Stan and Rhonda at the Cooe Cottage. Both Stan and Rhonda were very supportive of my project, particularly the idea of engaging community members in designing their own futures

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6 The Paint and Play programme was part of schools as community centres in Tumut

and the creative narrative based format of the methods. I left some packs at the Cooee Cottage to be given out. This support produced a few more responses being posted to me. On returning home I considered the feedback, analysed the responses and started to work on ideas for the next phase.

Method Design

The second phase slots between the *background research* and *concept* steps. I further developed the packs from Phase 1 to include more cultural probe activities, which aimed to explore ideas of sustainable wellbeing in Tumut (see Figure 43). This phase intended to harness community members' creative energy in working towards a concept of sustainable wellbeing for Tumut's future.



Figure 43: Phase 2 Project Packs

I changed the name of the pack, from *Project Tumut* in Phase 1 to *Tumut Project Pack* for this Phase 2, in order to distinguish the two packs and clearly articulate that there were activities inside. I also decided to add colour to the packs designs by printing on orange, yellow and white paper. The idea for adding colour was prompted by the feedback from the documentary photographer for *Engaging Visions* who suggested the packs might work better with a bit of colour. I was hoping this addition would help to catch participants attention, distinguish the different components of the packs and increase motivation to engage with the activities. The choice of adding colour through the use of coloured paper maintained the ability to print from the office photocopier and thus reduce costs. I used bright orange for the pack covers in an attempt to increase the visibility and participant engagement with the packs. I also used pale yellow for the information components to distinguish them from the activity components which remained white.

This Phase 2 pack measured 105mm square area by 15 millimetres in thickness and contained nine components:

1. Details fold up sheet
2. Phase 2 sheet
3. Participant sign-up sheet
4. 'As Time Goes By' activity
5. 'Everyday Wellbeing' activity
6. 'Sustainable Everyday' activity
7. 'Industrial Culture Jam!' activity
8. D-zine creative questionnaire
9. The next Phase 3 information sheet

The *Details fold up sheet* was the same design and gave the same information about Project Tumut as for Phase 1. The *Phase 2 sheet*, similar to Phase 1, gave participants information about this phase of the project. The *participant sign-up sheet* was intended to avoid the need for participants to include details and signatures in each component activity. This sign-up sheet collected participant's contact details so I could keep them informed about the progress of the project and a signature for the use of their responses, in which they could choose if they wanted to stay anonymous or be named. Having a separate sign-up sheet proved a relatively unsuccessful way of achieving this requirement as people seemed disinclined to fill in and return this component. The activities *As Time Goes By*, *Everyday Wellbeing*, *Sustainable Everyday* and *Industrial Culture Jam!* were new additions and are explained in more detail below. The *D-zine* booklet was modified slightly from Phase 1. I also included a *Phase 3 information sheet* to communicate an idea to install 3D interactive objects on the streets of Tumut for the next Phase 3. This sheet called for expressions of interest for participating in the next phase. After no responses and further consideration I decided this was overly ambitious and modified Phase 3, as will be explained in the next section. I made up 100 packs⁷ and handed them out to interested community members in Tumut.

The activities in the Project Packs were designed to extract ideas in a creative way such that participants engaging in the activities could contribute to the process of

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7 I was gratefully able to enlist the assistance of my husband, who was an enormous help at this very detailed process of cutting, sticking and folding together all of the components to form 100 packs.

cultivating a concept. The project package consisted of creative activities which asked participants to look at their everyday happenings in a new way. Participants were free to pick and choose which activities to fill in and return. Each activity was slightly different and ranged from a straightforward written activity to playful and drawing activities. During the previous, Phase 1, time in tumut I was again able to take more photos that I used in these new activities. Below is an overview of the main components in this pack, for full documentation of the Phase 2 pack see Appendix 4a.

The As Time Goes By activity (see Figure 44 below) was developed to explore an idea gained from Phase 1 about the Tumut community member’s relationship to time. Responses from Phase 1 suggested participants expressed the same sense of having ‘no time’ as is common in more urban settings (noted through conversations

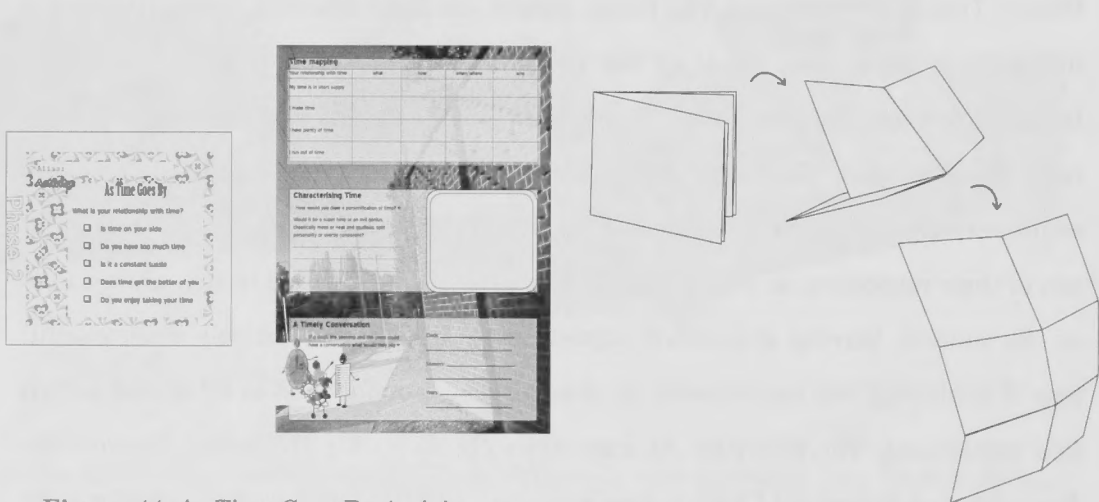


Figure 44: As Time Goes By Activity

from left to right: front cover, inside spread, fold diagram

I experienced in Canberra and Sydney)⁸. This activity used ideas from existing cultural probe research to develop a variety of different activities that investigate participant’s relationship to time. The front cover question for each activity was like a warm up question to help participants get into the spirit of the activity at hand. The front cover of the As Time Goes By activity made use of simple multiple choice style questions to start participants thinking about their relationship to time. The

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 8 My own move from the city (Sydney) to the country (Jindabyne) had highlighted a change in my relationship with time. This was a move from a high velocity of always being in a rush and experiencing everyone else in the city being in a rush to one of taking more time and everyone else having more time in the country. So I was slightly surprised that there still seemed to be a strong perception in Tumut of having no time. This activity aimed to investigate this relationship with time further.

internal questions started with a simple table to fill in. Participants were asked to respond with details of what, how, when/where and why: (1) *my time is in short supply...*, (2) *I make time...*, (3) *I have plenty of time...*, (4) *I run out of time.....* The next question employed a drawing exercise with room for an additional written explanation. The question asks participants to characterise time, *how would you draw a personification of time?* The question further prompts by asking: *would it be a super hero or an evil genius, chaotically messy or neat and studious, split personality or overtly consistent?* The final question called *A Timely Conversation* takes inspiration from Hielscher's (2007) cultural probe asking participants to write a conversation between hair care products. Similarly, this question asks *if a clock, the seasons and the years could have a conversation what would they say?* with personified illustration of the clock, seasons and year and a formal space to add the dialogue.

The *Everyday Wellbeing* activity (see Figure 45 below) was a playful activity that gained inspiration from game play and aimed to investigate everyday life in Tumut. As a warm up activity on the front cover the first question asked participants about their everyday practices. These questions aimed to start participants thinking about their personal views on their daily activities: (1) *what do you do to make stressful activities less stressful* and (2) *where do you go and what do you do to relax?* The inside activity was called *Playbeing: Cultivating Connections*. This playful activity aims to explore everyday life in Tumut, the relationships between and among age groups, everyday concerns, attitudes and activities of work rest and play. The activity was based on the Hip-Bone game (Cameron, 1997)⁹. I modified Cameron's Hip-Bone game by adding cards as prompts.

The activity contains five cards (see Figure 46 below) with an associated letter code. Each card shows an illustration of a character from a particular age group conducting an activity on top of a photo of a scene in Tumut. The first panel of the inside sheet gives instructions on how to play the game. Participants are given the option of playing alone or with others. The participants are asked to interpret each card and

9 I have used Cameron's Hip-Bone game extensively in my role as an educator both in design education and earlier as a high-school debating coach in my undergraduate years. It has proven to be a valuable exercise for getting students to start think intuitively in the sense Findeli (1994) intends. Specifically, to make connections between disparate ideas and formulate some complex generalisation in narrative form.

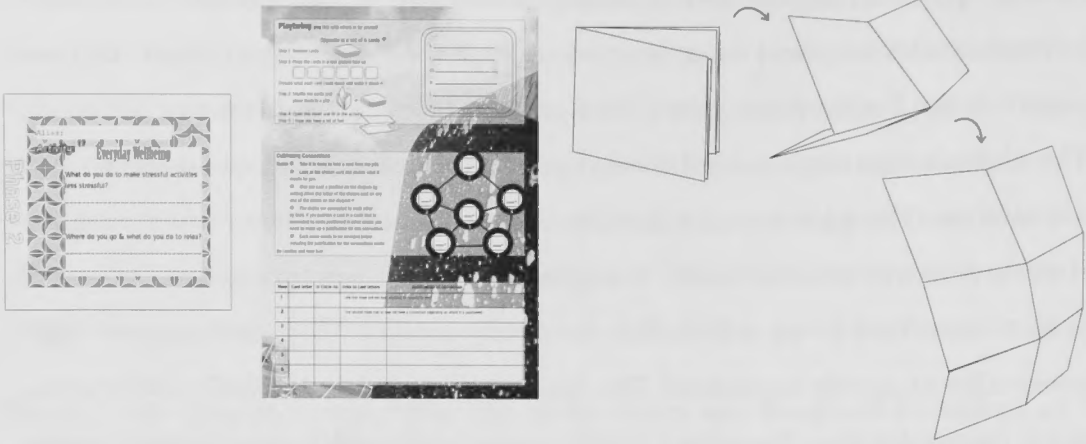


Figure 45: Everyday Wellbeing Activity
 from left to right: front cover, inside spread, fold diagram

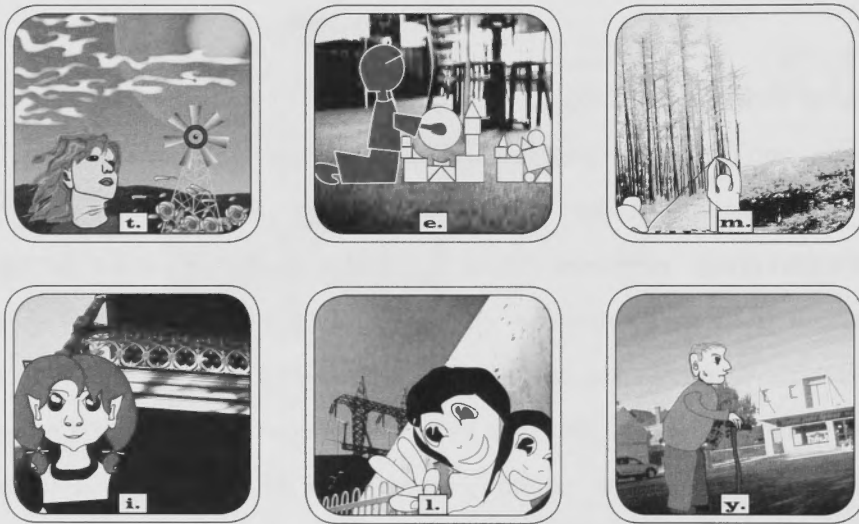


Figure 46: Cards in the Everyday Wellbeing Activity

write down in the space provided what each card means to them. Then participants are to shuffle the cards and place them in a pile. The next part of the activity gives the Hipbone game board (Cameron, 1997) and instructions on the rules of the game. Participants are asked to take a card from the pile and put the letter code from the card in one of the circles on the Hipbone board. The participant is asked to record this move on the table provided. Then another card is picked and given a place on the board. If it links to the existing card then the participant is asked to explain the connection in the table. The participants are asked to continue to pick cards,

give them a position on the board, record the move and explain the connections. Participants are encouraged to be creative and have fun. When they are finished, as is the same for all the activities, there are instructions on how to refold the sheet into the reply paid envelope to post back.

The Sustainable Everyday activity (see Figure 47) was a relatively straightforward writing activity which asked participants about their sustainable practices. The activity started off simply and grew in complexity to finish with a question asking for ideas on innovation. To avoid confusion over terminology and to start people thinking the front cover included an explanation of what I mean by sustainability and sustainable practices as positive changes to everyday behaviour. Inside there were three activities. The first activity asked participants to write down as many sustainable principles as they could think of. The next activity asked participants to record their observations through the course of one day writing down all the sustainable and un-sustainable things they saw and did. The final question asked participants to first reflect on their responses to the previous two activities; then, write down any ideas they may have come up with about how to make their everyday activities more sustainable, and to draw a diagram of this activity, what it might look like and how it might work.

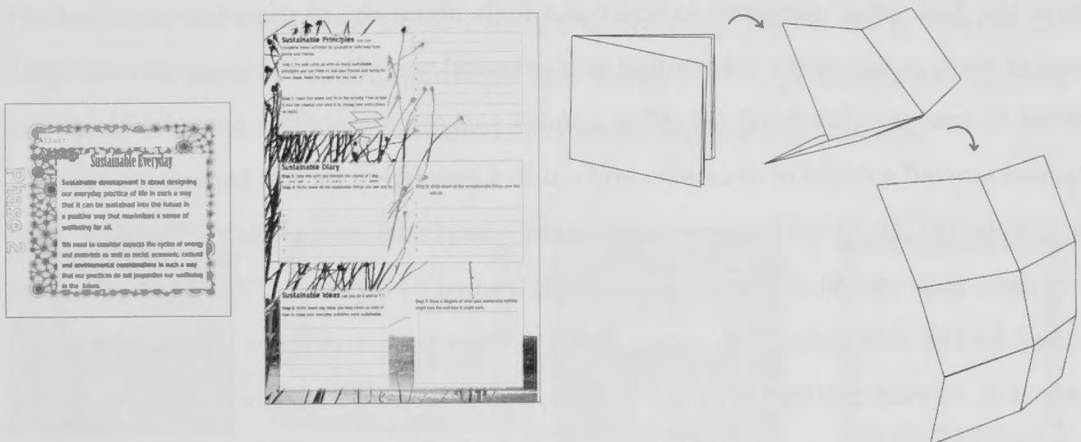


Figure 47: Sustainable Everyday Activity
 from left to right: front cover, inside spread, fold diagram

The *Industrial Culture Jam!* activity (see Figure 48 below) asked participants to respond quickly, in an intuitive way, to explore the intersection between culture and industry in Tumut. This activity explored the intersection between culture and

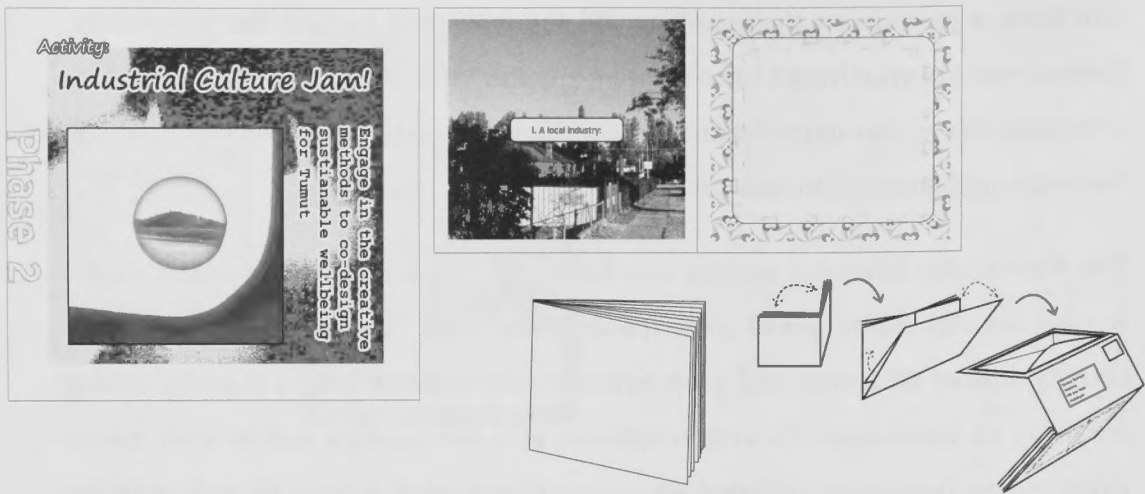


Figure 48: Industrial Culture Jam Activity

from left to right: front cover, an inside spread, fold diagram

industry in Tumut. It aimed to generate highly intuitive and abstract response to maximise potential for creative interpretation. Participants were asked to respond to the questions as fast as they could to prevent over complicating the questions and to maintain spontaneity. The booklet form was used to aid interaction; that is, by turning the page and engaging with one question before turning the page for the next question. The first inside page spread performed the same warm up function as the front covers of the other activities. First, I provided some instructions and then gave the first set of questions to find out a little about the participants personality and to start participant's responding in a personal way: (1) *what motivates you?* (2) *What is your comfort food?* (3) *What annoys you the most?.* The next double page spread started a series of questions laid out in a consistent format (see inside spread in Figure 48). On the left page one question was placed on a photo of Tumut while the right page provided a space to respond, framed by a pattern. The first question asked for the first thing that comes to mind when the participant thinks of a *local industry*. As participants turn the page they are presented with the next question on a photo and space to respond. I took each photo during a walk through Tumut. The photos are presented chronologically to suggest the questions are being asked during a casual walk around Tumut. The photos also aim to juxtapose the question and prompt locally relevant ideas. The next question asks for the first thing that comes to mind when the participant thinks of an *object from a different local industry*; the next, for *the colour of this object*; then, for *a possession you have of the same*

colour; the next, for an activity you use the possession for, and finally for a place you do the opposite kind of activity. This activity attempted to ascertain a range of features of Tumut that may not have appeared in previous activities and some kind of relationship between these features for everyday life in Tumut. However, when looking at the responses to this activity, rather than uncovering anything new, they acted to reinforce and build on previous responses.

Responses

The amount of replies posted were still only small; however, indicated that participants were able to respond to these activities in a playful and intuitive way, as hoped. Below is a selection of examples, for the full documentation of responses see Appendix 4b.

Every activity except for one was attempted by at least one participant. The *Sustainable Everyday* activity was the only activity absent from all returned responses. This absence might suggest that these participants seemed to prefer the more creative and playful activities than the more straightforward written activities. Although nothing conclusive can be said about any returned activities specifically, as there were only a maximum of two responses for each activity. The responses did build upon the Phase 1 responses and conversations during my visits to Tumut. For example, the *Industrial Culture Jam* responses (eg. Figure 49) reiterated the dominance of forestry related industries and Snowy Hydro, gardening and outdoor activities, work/home life with an absence of extended socio-cultural life.

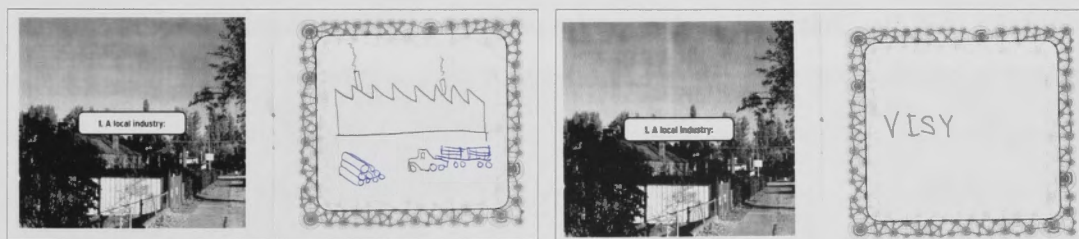


Figure 49: Industrial Culture Jam Responses

from left to right: images from Response 2, images from Response 4.3

I used the responses from the Phase 2 packs together with Phase 1 responses and conversations from both Tumut visits to generate the concept. Together these

responses and conversations suggested that for the community of Tumut to develop their sustainable wellbeing into the future they should:

1. Diversify their enterprises¹⁰
2. Find a balance between industry and culture in the life of the town (being primarily an industrial forestry town)
3. With an aging population they ought to encourage a diversity of age groups
4. Form relationships between the array of different age groups to improve the town's vibrancy.

These responses were analysed and distilled into a core concept (see Figure 50).

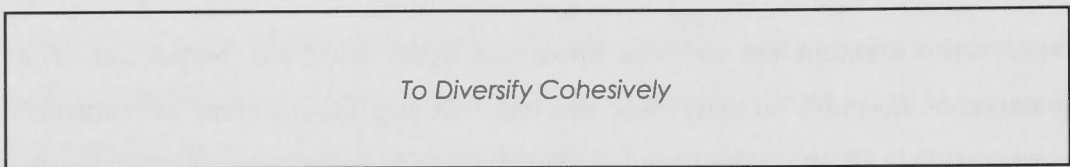


Figure 50: Project Tumut Concept

The outcome of this phase was used to develop playful interactive designs for Phase 3. I was very pleased with the responses I received from Phase 2 and the methods seemed to be enabling the dynamic iterative approach intended. However, I realised that because these methods were quite different from anything else most community members had experienced, both in terms of their aesthetic and function, these participants needed more support while engaging with the activities. This meant I could not just distribute the packs and let people try and fill them out in their own time. I needed to be able to set up situations where participants were supported by being able to ask me questions and work in groups or get ideas and suggestions from others. Hence, for Phase 3 I intended to rectify this by planning a face-to-face event in which participants could engage with the next activity.

.....
10 This idea came from a conversation with one of the council members who suggested there was too much reliance of the community on forestry and that the Tumut community should develop a diversity of different enterprises.

Phase 3

For Phase 3 I was able to explore my own adaptation of design-led methods in game form. Since the two dimensional packs seemed to fail in engaging wider interest I wanted to explore the possibility of three dimensional interactions. I had been sketching ideas based on designer toys (Budnitz, 2006). I used one of these sketches (see Figure 51) to make a three dimensional creature that participants could interact with by pinning stories on it.

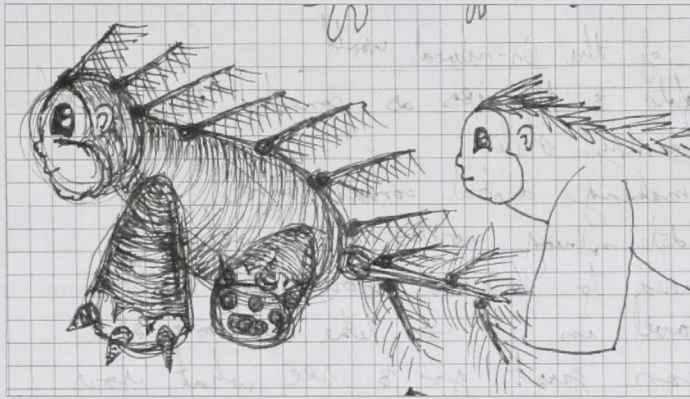


Figure 51: Preliminary Sketch

First I had to work out how to sew soft toys. Then I created a small prototype (see Figure 52). I placed this prototype in transient spaces around my university department: in the photocopy room, the tearoom as well as taking the creature to a Human Ecology Forum and passed it round. This allowed me to assess how this three dimensional interaction could work. In conjunction with the interactive toy creature I started to design a game for Phase 3. Through my conversations with members of the Cooee Cottage I was asked to attend a couple of Koori kid's camps, for local Indigenous children, in order to run my game method as one of the activities.

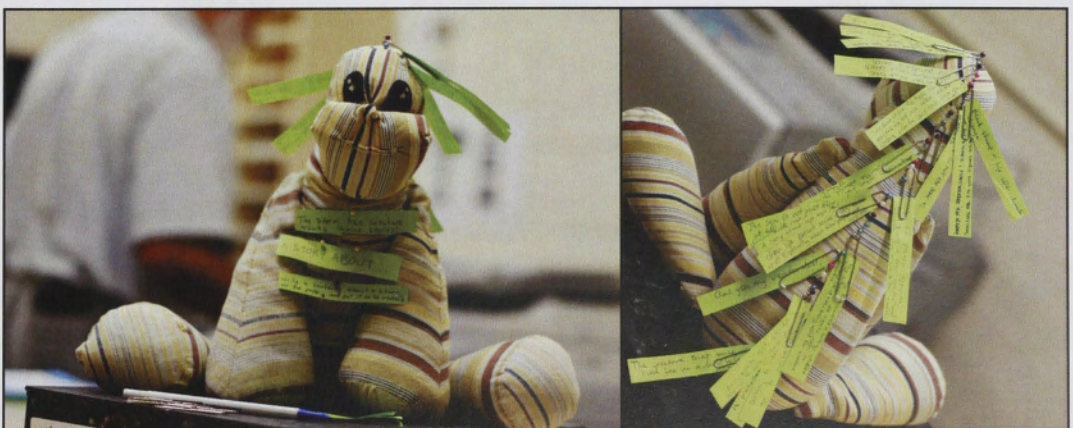


Figure 52: Initial Mock-Up of the Story-Tree-Creature

The kids named the creature Larry and I was able to trial the idea I had for a game that could use Larry as a first step. After I had finalised the construction for the game method I organised an event with Rhonda French and Cate Cross to run Phase 3. This event gained the best turn out of the whole project and I am thankful for all participants who turned up in forty degree heat and persisted with my game method for the day (see Figure 53).



Figure 53: Photos from the Phase 3 day

Method Design

Phase 3 used the game format method to slot between the *concept* and *concept development* steps. This phase was about engaging in game play. It was about playing with ideas generated in the previous phase and developing them into possible sustainable scenarios. The aim of this phase was to enable participants to play with the concept uncovered in Phase 2, *diversify cohesively*. I included two parts to this phase in order to experiment with both a three dimensional interactive object, Larry the Story Tree Creature (see Figure 54), as well as a game based on card and board games, The Storyscape Game (see Figure 57 below).



Figure 54: Phase 3 Larry the Story Tree Creature

Larry measures one metre tall. He turned out a little bigger than I intended, but thankfully still fit into my little hatch back car for transport, manages to squeeze through most doorways, and fortunately is very light. Larry is successful at drawing attention and although he is awkward to drag around I have found him highly successful in engaging people in Tumut and elsewhere (including university presentations and lectures). I constructed Larry out of old curtains I found at the Tumut op-shop and filled with polystyrene beanbag beans. Larry was intended to look like some sort of strange but cute tree like creature with branches down his spine. I attached paperclips to the ends of Larry's branches. The idea was that participants could foliate Larry with stories. I constructed leaf shaped pieces of paper for participants to write their stories and foliate Larry. From experiences with the prototypes and with Larry at the Koori kid's camp, I decided it would be better to give participants some further direction than just blank leaf shaped pieces of paper. I made up packs which contained instructions and ten paper leaves. The packs gave participants guidance on what to write. Most people think of a story as at least a few paragraphs long, however, I wanted participants to explain their story in one or two sentences. So the information in the packs (see Figure 55) and on the leaf (see Figure 56) aimed to aid people in writing a sentence story.


<p>Instructions: Write a couple of sentences on the leaves opposite -> Tell Larry (the story tree creature) everything about your community of Tumut. When you have finished put your leaf on Larry to foliate him with stories.</p> <p>Make sure you tell Larry about everything from the unique to the obvious</p> <p>Write about:</p> <ol style="list-style-type: none"> 1. Everyday life in Tumut 2. What people do for work 3. Family life and friends 4. What people you know do for rest, relaxation and play 5. What kids, Teenagers, the youthful, the grown ups and the elderly do 6. Networks and community groups 	
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Figure 55: Leaf Pack

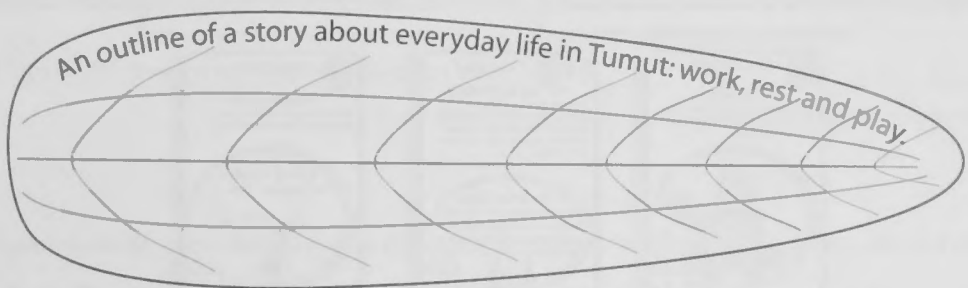


Figure 56: Paper Leaf

The information on the pack told participants to write a couple of sentences on the leaves provided, to tell Larry everything about their community of Tumut and when they were finished to attach the paper leaf to Larry. The information prompted participants to write about everything from the unique to the obvious and then gave some suggestions.

I included ten leaves in each booklet to encourage participants to not be concerned about finding the most appropriate story but just write about anything that came to mind. Most participants used all ten leaves. I used a prompt question on the paper leaves to further aid participants in writing a one sentence story. I used light green photocopy paper to print the leaf shape and the prompt, *an outline of a story about everyday life in Tumut: work, rest and play*. I then cut the leaf shapes out and assembled them into the packs. After participants wrote their one sentence story about everyday life in Tumut on the paper leaves they were clipped to Larry's branches; acting to foliate him with stories of Tumut.

Then the participants were provided lunch. After lunch the tables were set up for the second part of this phase: the Storyscape game (see Figure 57). I designed the Storyscape game as a card and board game in one.

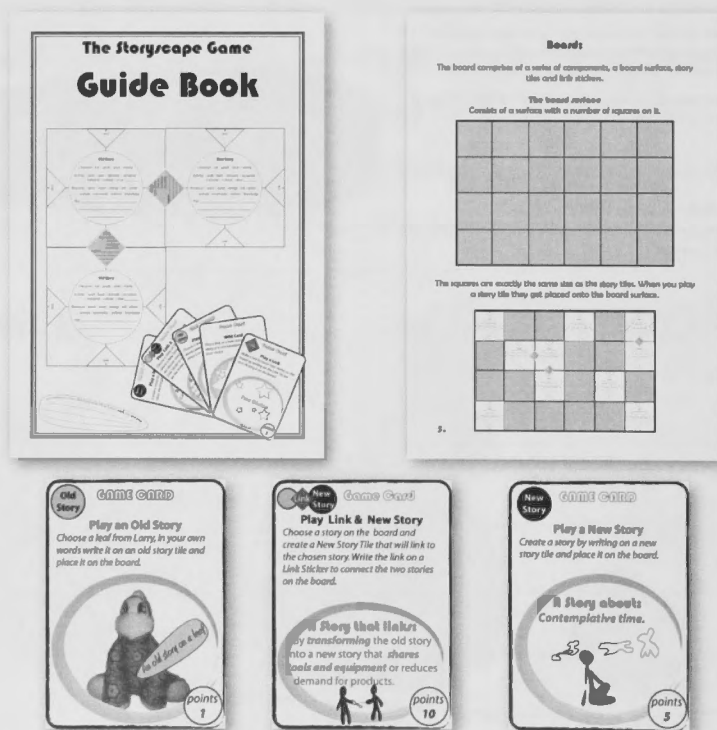


Figure 57: Phase 3 Storyscape Game

The game aimed to engage participants in the concept of *diversifying cohesively* using sustainable principles from Manzini and Jégou's work (2003, p. 56). The results from this phase aimed to develop the concept into interconnected stories.

Participants were divided into three groups. I introduced participants to the game and how it would work. I also gave each participant a guidebook that they could refer to through the game. I stayed at the edge of the room so participants could ask me questions if needed without intruding too much on their game play. Each group was provided with a board made from butcher's paper containing a four by five grid. There were two different squares of coloured paper that were to be filled in and placed in the grid. A green paper square represented old stories which asked participants to take a story from Larry, write their interpretation on the green square and place it on the board. A blue paper square represented new stories where participants were asked to write stories about the future and place it in the grid. There were also link stickers which asked participants to link adjacent stories and write an explanation of how the two stories linked. There was also a set of pink playing cards. Examples of these game components can be seen in Figure 58.



Figure 58: Storyscape Game Board & Components

from the Phase 3 day at the Cooee Cottage in Tumut

The game cards were designed as prompts for when to play a new story, an old story or a link. The new story cards also prompted the participants to imagine futures that were more sustainable. To do this the new story cards used sustainable principles

from Manzini and Jégou’s work (2003, p. 56). There were in total five different sorts of game cards (see Figure 59).

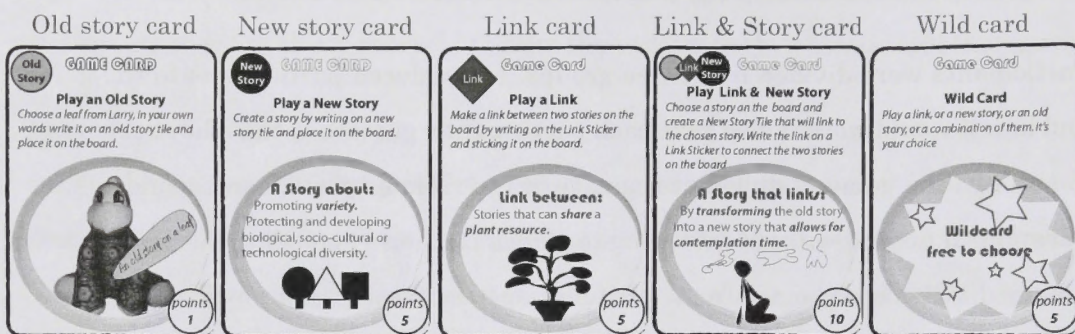


Figure 59: The Five Types of Storyscape Game Cards

The link cards prompted players to make a link between stories on the board. The link-and-story card prompted a story to be written that could be automatically linked to a story on the board. The wildcard allowed players to have a free choice of what they wanted to do.

Each player was dealt five cards to start and picked up another card each turn. Players then choose a card from their hand to play each turn. Each player’s turn



Figure 60: Playing a Card

Photo from Phase 3 day

consisted of picking up a card from the pile, choosing a card from their hand, following the instructions on this card (new story, old story link, etc), writing on the appropriate square, placing the square on the board and reading out what they had done before passing on to the next players turn (see Figure 60). The game continued until the board was full or no more squares could be put on the board. To give players a little extra motivation I included prizes¹¹ for the most stories and links.

11 Prizes consisted of ‘white elephant’ Christmas presents I had collected over the years; presents I did not have a personal need for and kept in a box for occasions such as this.

Participants found the game a little bamboozling to start with; although, this is in keeping with my experiences of introducing a group to a new board game. As the game went on participants appeared to become more engaged. Participant's feedback suggested the game did ask them to do a lot of thinking and there were some confusing elements. One older lady, due to her lack of formal education (occurring to her daughter), felt very inadequate; however, she relaxed and with the support of her fellow players she was able to engage in the game. Although I had done some preliminary trials of an earlier version of the game, the form used in Tumut had not been previously played so there were some things that could be improved. Regardless, all participants were able to play the game and provide very fruitful responses. Hence, even though some participants had felt some unease, the ability to play the game and develop such productive responses meant in total the game had been successful. For a full documentation of the game see Appendix 5a.

Responses

There was a good turnout even though it was a very hot day, about 40 C. In conjunction with the preceding week or more of very hot weather meant the foremost idea on participants' minds was keeping the family cool and doing activities to keep cool. As a result, The Tumut river was central to the conversations.

Larry was foliated with many stories which covered each of his branches making him look lush with leaves. A Selection of these stories are documented in Figure 61, for a full transcript of these leaf stories see Appendix 5b.

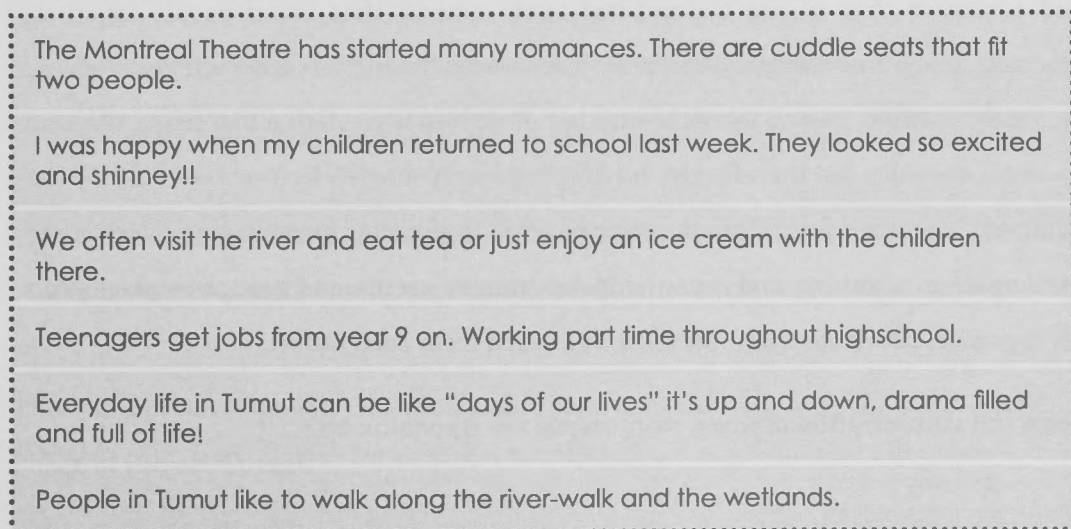


Figure 61: A Selection of Stories that foliate Larry

After the exercise the participants walked around Larry looking at all the leaves and commented ‘what wonderful stories’ had been added.

There were enough participants to produce three games. I collected the storyscape boards (labelled X, Y, Z) which documented the old and new stories participants had linked together. All boards developed many ideas about sustainable wellbeing for Tumut’s future from within the conceptual framework of diversifying cohesively.

Storyscape X: talks about the centrality of the river for activities and the need to develop more infrastructures like seats and rehabilitate the fauna, both introduced and native species. It talks of the need for more activities other than sport, like the arts and crafts, to link all people and cultures. It also describes the need for more activities for teenagers especially at night. Also, activities that welcome new families to Tumut, to include them and show them what is on offer.

Storyscape Y: talks about the need for responsible drinking practices and more health education for children. It suggests increasing music and dance related activity can bring the whole community together. It also describes the importance of family oriented activities and interactions between families, suggesting river related activities where adults teach kids about the river and activities to welcome new families to Tumut.

Storyscape Z: talks about the need for a variety of activities rather than just sport. It suggests promoting health and wellbeing through posters, the Falling Leaf festival and activities that utilise the natural environment, that bring people together, interact, share knowledge, learn and increase wellbeing. It also suggests giving facilities multiple uses to increase number of activities available like using the pool for aqua-aerobics for the elderly, having yoga and movies by the river, using the Montreal Theatre¹² for different performances. It suggests encouraging everyone to participate in planning and organizing community events and groups so people can get together, share common interests and learn from each other.

For a full transcription of these storyscapes see Appendix 5b.

.....
12 The Montreal Theatre is the local volunteer run movie theatre in Tumut

The responses collected through this phase could be seen as the most substantial of all the phases. On returning home I analysed these responses and was able to isolate a few trends which identified some key stories for the future (see Figure 62). Participants created storyscapes which talked about a need for more diversity in culturally based activities, which provided opportunities for multiple age groups and that would be organised by members of the community. I was able to email the participants these outcomes.

- Key concepts and general trends that emerging from the Storyscapes:**
1. More activities for teenagers especially night time activities and responsible drinking
 2. Family related activities and activities to welcome new families to Tumut
 3. Using facilities in multiple ways to support more activities eg. a diversity of performances at the Montreal theatre, aqua aerobics for the elderly at the local pool, movies and yoga at the river.
 4. More people getting involved in organizing events and activities

Figure 62: Project Tumut Storyscapes

These general trends and key concepts from the participant’s storyscapes were assimilated into a core narrative. This narrative developed the concept into an idea of sustainable wellbeing for Tumut’s future (see Figure 63).

A future where the Tumut community facilitates public creativity:
Encouraging members of the community to engage in creating new groups, projects, events and activities in Tumut, using facilities and venues in multiple ways to support a larger diversity of activities.

Figure 63: Project Tumut Concept Development

This concept development was then used to construct scenarios in the next and final phase of Project Tumut.

Phase 4

After analyzing the results of the concept development in Phase 3, I quickly appropriated three existing ideas into scenarios for Phase 4: (a) a guidebook, (b) a Time Bank, and (c) co-creation projects.

The guidebook idea came from my early university experiences belonging to clubs and societies (The Socratic Society, the student newspaper Tharunka and Cyber-Soc) as an undergraduate in the 1990's at the University of New South Wales. The student organization provided guidelines for students wanting to create a new club/society and this helped to create a vibrant university life on campus.

The Time Bank proposal was an idea I found when looking at other PhD abstracts on the electronic thesis depository at ANU. I was looking at these digital theses not for Project Tumut ideas but for ideas on writing up my own thesis. In the process, I identified Elizabeth Miller's (2008) thesis on Time Banks as a possibly appropriate outcome for Project Tumut.

The co-creation projects came from the notion of open-source activities that I have been interested in for a while and had been discussed through the PhD-DESIGN List during my PhD candidature. Popular examples of open-source activities include Wikipedia, and other internet projects that engage an international community in creating anything from an encyclopedia to a movie¹³.

I followed Manzini and Jegou's (2003) scenario building format to develop these ideas into three scenarios which I visualised through my own version of storyboarding. I develop a comic strip version, which proved a useful format for communicating the possible outcomes generated through the project. During this process I drew on influences from Manga comics and flash animations such as 'The Imp'. Then, from these influences I developed my own Manga like characters and sketched out ideas for the storyboards. I then drew up these ideas into final illustrations (see Figure 64).

As I worked on transforming these stories into three possible outcomes I asked participants for recommendations about where I could display these visualisations

.....
13 Open-source design was also discussed earlier, from John Thakara's (2006) perspective in the Enabling Design segment of the Background Research chapter.

Influences:



Left: *The Imp*, Flash Animation (<http://www.theimp.tv/>); Middle: *xxxHolic*, Manga Comic (Clamp, 2004); Right: *The Complete Idiot's Guide to Drawing Manga*, Instructional Book (Layman & Hutchison, 2005).

From Sketches to Final Artwork



Left: Practicing manga style drawing, preliminary sketches and storyboard ideas; Right: Final artwork laid out in comic book format

Figure 64: Developing a Comic-Strip Storyboard

and collect peoples' feedback. I was given a few suggestions and finally decided on the conference room at the council building. I then notified participants of the upcoming event and encouraged them to invite others by mailing them a number of flyers. Unfortunately, when I held this Phase 4 event only a couple of the previous participants attended – which left me a bit confused. I also tried inviting some council members via email but none attended. Luckily, I had asked a friend in Forests NSW¹⁴ (located in the same building) to invite his colleges, which boosted the numbers attending on the day. My friend suggested that offering tea and biscuits was not as enticing as offering beer and wine; however, alcohol was an ethics issue I was not prepared to try and negotiate. Another potential deterrent may have been

14 Forests NSW is a government department responsible for management of some government owned forests

that I had conducted this event after hours on a Friday and the cleaners had turned off all the lights in the foyer part way into the event. This and other issues of time and place may have contributed to a lower turnout than expected. I was able to enlist the help of my husband as research assistant (a role we fulfil for each other's research projects from time to time) and both of us were able to conduct informal interviews with attendees based on a feedback sheet I had constructed. From these conversations I received a number of good responses to the visualisations. I was also able to drop off some booklets documenting the visualisations to the Coee Cottage so that some of the participants who could not attend could at least see the outcomes.

Method Design

This phase used the scenario building method to slot between the *concept development* and *design outcome* steps. These scenarios were based on the results from Phase 3. The analyses of these results formed the core idea for Phase 4: of facilitating public creativity in such a way as to motivate community members to develop social activities for Tumut. From this result I generated three scenarios which I visualised in four posters (see Figure 65).



Figure 65: Phase 4 Posters

from top left clockwise: Information poster about the project, Guidebook scenario poster, Co-Creation Projects scenario poster, Time Bank scenario poster

The first poster (see Figure 65 top left) introduced the project and the background to this phase, described on the poster as:

Future visions of Tumut as a community that facilitates public creativity for developing a diversity of activities to increase sustainable wellbeing.

The poster explained that Phase 4:

Aim to get community feedback on a future scenario for Tumut's sustainable wellbeing.

It outlined how these visualisations were created from the participant's storyscapes:

Created by participants in Phase 3, analysed for general trends and a core idea was constructed out of this analysis.

Then, described this core idea of sustainable wellbeing for Tumut's future as:

A future where the Tumut community facilitates public creativity.

This idea was about encouraging members of the community to engage in creating new groups, projects, events and activities in Tumut as well as using facilities and venues in multiple ways to support a larger diversity of activities.

The following three posters responded to the question of how to facilitate public creativity in the community by depicting three different future scenarios. The posters showed each of the three scenarios as a visualisation of what this might look like and how it might work: (a) Promotion, (b) Capacity, (c) Motivation (see Figure 66).

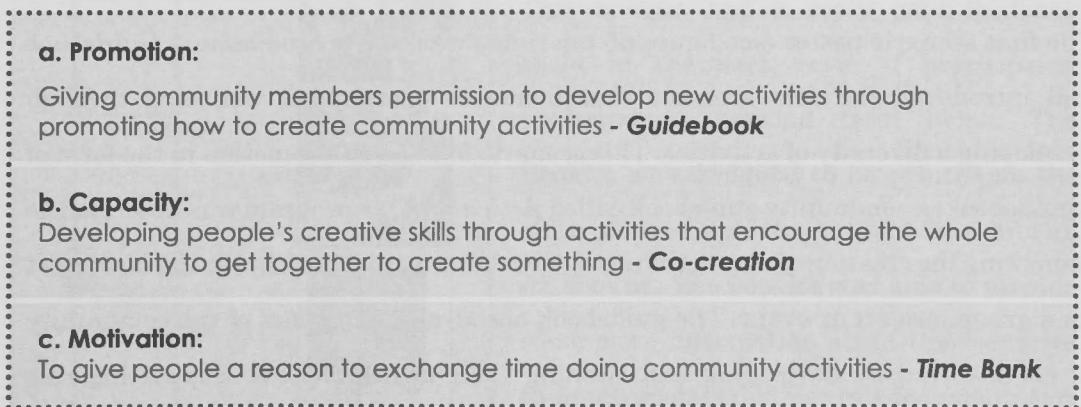


Figure 66: Three Scenarios Visualised in each Poster

These three scenario posters also identified the sustainable principles used in each scenario (see figure 67). These set of seven principles were taken from Manzini and Jégou's (2003) list of eleven sustainable principles¹⁵.



Figure 67: Sustainable Principles used in the Phase 4 Scenarios

from Manzini and Jégou's, 2003, pp.56-57

The first scenario poster (see figure 65 top right) was called *Promotion = Guidebook* and introduced the first scenario that increases sustainable wellbeing through developing a diversity of activities. This scenario focused on promotion in the form of a guidebook; a community guidebook called *Activate!*. This program was described as promoting the creation of new activities by providing a guidebook outlining how to set up a group, project or event. The guidebook encourages members of the community to get involved by developing and running their own activities. Supporting this diversity of activities could be as simple as using venues in multiple ways such as out-of-hours or when they are not booked for their regular purpose.

15 For a full list of Manzini and Jégou's Sustainable Principles see the Background Research chapter under the Scenario Building Part of the Design Research Section.

The second scenario poster (see Figure 65 bottom right) presented the next scenario called *Capacity = Co-Creation*. This project was called *The Multi-Makers* and was described as a Co-Creation projects. The poster explained The Multi-Makers to be a collaborative project where community members are invited to join together to create a piece of art, craft, music, drama, writing, etc. Anyone can propose a project. Then the community gets together to provide resources such as scrap materials, and each person adds their creativity to the project. Everyone is encouraged to have a go so that each finished piece has multiple authors from the community.

The third scenario poster (see Figure 65 bottom left) presented the final scenario called *Motivation = Time Bank*. This endeavour was called *The Exchange* and was described as a community Time Bank. The poster explained The Exchange as Time Bank meant people can swap help and services. Members are matched up according to their skills and needs. Each hour spent doing something for others earns time dollars that can be spent getting someone else to do something for you. You could offer your services depending on what you are good at or share your interests, swap skills or help someone else and receive services, skills, interest or help in return. For full documentation of these posters see Appendix 6a.

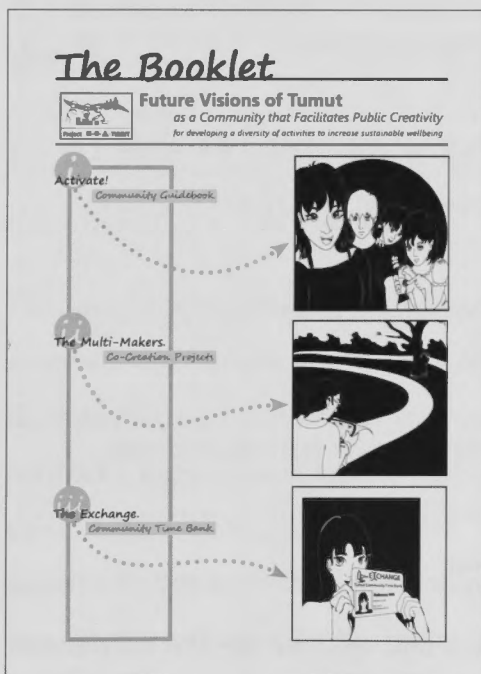


Figure 68: Phase 4 Booklet

I designed a booklet (see Figure 68) as a take-home piece to give to participants. As described earlier, I also handed out booklets to the participants who could not attend. This booklet had a reply paid feedback sheet in the back cover if participants preferred to respond from home. The Booklet was designed to be printed on the office photocopier onto A4 and folded into an A5 booklet. The booklet was able to provide some more information about the scenarios than the posters did. For full documentation of the booklet see Appendix 6a.

Participants were encouraged to give their feedback on the three scenarios by talking with a research representative or filling out a question sheet on their own. The feedback sheets were designed to generate some responses on the scenarios (see Figure 69).

Q1. Which scenario do you like the best? and why?
This question is asking for a personal response. Pick the scenario that appeals to you most. Choose one or more of the following.

- (A) Activate! Guidebook
- (B) The Multi-Makers. Co-Creation
- (C) The Exchange. Time Bank

Q2. Which scenario do you think is most appropriate for Tumut? and why?
This question is asking you to respond as a representative of your community. This may be the same or different to question 1. Choose one or more of the following.

- (A) Activate! Guidebook
- (B) The Multi-Makers. Co-Creation
- (C) The Exchange. Time Bank
- (D) A combination of A, B or C (explain)

Q3. How would you facilitate public creativity in your community?
This question is asking if the above scenarios give you any other ideas; give examples.

Q4. What would you like to see happen next? This question is asking what you see as the next step for these scenarios of sustainable wellbeing for Tumut's Future. For example is it about creating more scenarios, continuing the conversations started from these scenarios, finding out which one of these scenarios the community likes best or something else? Explain your answer.

Q5. How would you get the rest of the community involved in further developing a scenario like the ones presented here?
This question is asking how to engage more people in this kind of project so as to increase a sense of community ownership.

Q6. What is the value (if any) of these Scenarios for Tumut's Future?
Give your thoughts and opinions.

Q7. Do you have any other feedback?
Please express any other thoughts, comments, ideas and/or opinions you may have.

Figure 69: Questions from Phase 4 Feedback Sheet

I printed out one kind for face to face feedback and another for the take-home booklets. Both contained the same questions. For full documentation of the feedback sheet see Appendix 6a.

When I installed the posters in the council conference room they seemed very small. In hindsight they may have been more effective bigger¹⁶. Originally I thought this phase could coincide with the Engaging Visions programme final exhibition in Tumut; however, time and other factors intervened. Exhibiting the posters in conjunction with another event may have been more ‘festive’, improved the turn out and general mingling. Although this Phase 4 event felt a bit ‘flat’, I was able to collect some good responses.

Responses

These scenarios received very positive reactions from participants. Participants identified the scenarios as addressing core needs for improving Tumut’s sustainable wellbeing. Each of the scenarios displayed above were seen as appropriate for a Tumut context and all were considered to have the potential for making positive contributions to the community. No one scenario was isolated as the most popular solution. This suggested that what was preferred was a diversity of approaches rather than just choosing one outcome. Participants also reiterated the difficulties they had experienced with the community inertia and lack of motivation for instigating such activities. Some suggestions were made about using community organisations to help disseminate information and improve engagement with such a project. Most participants gave their feedback by talking with a research representative, some filled out their own forms at the time and a couple of others replied by post. Figure 70 below provides a selection of these responses. For a full documentation of this feedback see Appendix 6b.

This feedback suggested that Project Tumut had uncovered a need for community members to be enabled to develop their own socially oriented projects. As Phase 4 documented, such community driven projects could help to empower people, develop networks, increase participation, bring people and things together, use what already exists, share tools and equipment, reduce the need for the new and reduce the demand for products (Manzini & Jégou, 2003) all of which work towards developing sustainable wellbeing for the community.

.....
16 I designed these posters so they could be printed at the University printers and laminated at Fenner thanks to Clive Hilliker our Fenner designer and cartographer. The laminator had a maximum size so I designed the posters to fit that size.

Questions	Participant A	Participant B
<p>Q1. Which scenario do you like the best? and why?</p> <p>(A) Activate! Guidebook (B) The Multi-Makers. Co-Creation (D) The Exchange. Time Bank (D) A combination</p>	<p>(A) New to area, a guidebook would be good.</p> <p>(B) Been involved in a creative capacity building activity where I use to live and liked it.</p>	<p>(B) Makes innovation look easy. Makes the challenging look possible. Break conservative constraints on the use of public space.</p>
<p>Q2. Which scenario do you think is most appropriate for Tumut? and why?</p> <p>(A) Activate! Guidebook (B) The Multi-Makers. Co-Creation (C) The Exchange. Time Bank (D) A combination</p>	<p>(A) People have made comments to me about community involvement - "if you want something done you have to do it yourself ". Something like a guidebook might make it easier to connect people together.</p>	<p>(A) Because of accessibility and equity "we can", Tumut is capable.</p> <p>(C) Refreshes volunteerism.</p> <p>(A) & (C) most helpful for Tumut</p>
<p>Q3. How would you facilitate public creativity in your community?</p>	<p>Something to connect people better like a local web based guide. Like RSVP, though not for dating but for linking interests instead.</p>	<p>Difficult to answer as community inertia is hard to overcome. Would build creativity by being an advocate for visiting artists.</p>
<p>Q4. What would you like to see happen next?</p>	<p>It would be good if something came from this process - to encourage more networking in town especially to help new people to connect. At the moment everything seems to happen from the book store.</p>	<p>Enact multi-makers. Engage an artist to create a focus for the project and to give it energy. Then do the process with council and then with targeted groups.</p>
<p>Q5. How would you get the rest of the community involved in further developing a scenario like the ones presented here?</p>	<p>Hard to say being new. Radio worked where I use to live. Perhaps events in conjunction with other festivals (as long as they are not competing). Rotary Clubs and other existing networks.</p>	<p>Use multi-maker to promote process and involve community</p>
<p>Q6. What is the value (if any) of these Scenarios for Tumut's Future?</p>	<p>Yes, don't know a lot about the Tumut community yet but where I use to live was dynamic. I liked that and would like to be involved in that here.</p>	<p>Huge value. Non-conflict process to develop scenarios. Very positive process.</p>
<p>Q7. Do you have any other feedback?</p>	<p>Interesting process. I'm sorry I was not involved in the process earlier because that sort of thing interests me.</p>	<p>Articulate "more and how" better. Further examination of the process.</p>

Figure 70: Examples of Responses to Phase 4

A couple of participants requested that some booklets be sent to members of the Tumut Shire Council. A member of the Council then contacted me interested in finding out more. After talking with a couple of the council members¹⁷ it became clear that in proposing *a need for the community to be enabled to develop their own socially oriented projects* I had uncovered an important issue for Tumut. The outcomes of Project Tumut were 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. The councillors also expressed the same confusion, repeated throughout this research process from those outside design, where the obstacle for design research seems to be the object. Councillors had trouble understanding how a discipline based on objects and making things 'look pretty' could also make a useful contribution to research and the betterment of their community. Hence, the meeting also highlighted how much work is still required before design is more widely accepted as having a significant, legitimate and valid role to offer as research that can be a catalyst for social change.

If Project Tumut were to continue I would use the feedback to engage in another iteration of the project. First I would need to find community members wanting to get involved in continuing the project. I would also encourage the exploration of potential funding for the project with the community. I would follow up on the organisations that participants suggested could help disseminate information and improve engagement. Then I would use the visualisations from Phase 4 as *critical artefacts* to prompt more ideas on possible outcomes (perhaps using some of Bowen's 2009 critical design methodology). This would be followed by engaging the community in choosing and/or amalgamating scenarios into a proposal that could be implemented by the community.

.....
17 These were different council members than I had talked with at the beginning of the project, during the Engaging Visions programme. My understanding was, over the period of the study there had been a change of Mayor and some staff changes, which I gather in normal for councils.

Reflection

There were times during the process when I thought the project may not deliver an outcome. However, even with limited support and resources, the project delivered a socially focused outcome of fictional possibilities for sustainable wellbeing in Tumut. Perhaps, in the future, community members will be able to develop these proposals into action. Unfortunately implementing the outcomes was beyond the scope of this study (although I offered my support and assistance if requested by the community). Primarily, Project Tumut was the key step in developing the concept for this study, *enabling design from within the system of the everyday*, towards an articulation of a design-led methodology. The initial components of the approach started to coalesce into guidelines for a methodology.

Through the project I learned many lessons. Many of the issues arising from Project Tumut came from the design of my methods or my lack of experience in community engagement. However, these issues also suggested possibilities for the development of the guidelines for the methodology.

During Project Tumut

At the beginning of the fieldwork I thought about what kinds of people would choose to engage in these kinds of activities. Whether it would appeal, mainly, to people who saw themselves as creative; or, to a younger generation more used to multimedia than those of the older generations more familiar with traditional forms of communication. Neither considerations of age nor creative orientation were obvious from the responses or feedback to Project Tumut; perhaps, these are issues that could be explored further in the future. However, a conversation with one participant highlighted a potential problem associated with the reading and writing required to engage in the Phase 1 and 2 activities. The participant suggested, over coffee, that perhaps the packs required a level of education beyond a lot of community members in Tumut. Although this was only one person's assessment of the education levels in their community, the suggestion was thought provoking and seemed a significant point. This significance was not so much about education (which may or may not be the case) but the packs did rely on written questions and prompts; making me consider that perhaps I needed to redevelop the activities to be much more visual and much less reliant on reading and writing. This was more a matter of method design

than methodology; although, did have potential ramifications on the development of the methodology, which perhaps needed to promote more visual and narrative forms of operation.

Despite national concerns at the time about drought and other socio-environmental issues, Phase 1 did not uncover any primary sustainability concerns in the Tumut community. Hence, I could not rely on one socio-environmental issue as the motivating factor in my project. I needed to find other ways to engage people in a project that developed ideas for sustainable wellbeing for the future of their town. In Phase 1 I tried inviting members of the Tumut community to a workshop and found that most people were disinclined to turn up. In Phase 2 I changed this to coffee at the local café with only marginal improvement. By the end of Phase 1 I thought the motivational problems might be solved by a redevelopment of the model to better uncover the sustainable needs of the region. By the end of Phase 2 I thought that perhaps there was a need to develop the methods for opening up the design conversation to all the knowledge cultures (as defined by Brown, 2008)¹⁸ and to develop the method in a more collaborative way. I also considered that the project would have been aided by a larger research team with a diversity of skills including community consultation. These issues grew out of my inexperience with community engagement. As a designer I did not feel like I had the community consultation skills needed (skills which in my experience were not part of learning to become a designer). Perhaps I need to either learn these skills or collaborate with someone who has them. Hence, perhaps the development of the methodology needed to explore how to operationalise community engagement, possibly by incorporating collaborators with this expertise or including community members in the facilitation process.

By the end of Phase 2 it seemed that the process in Tumut was starting to identify the brief for the project. As the project proceeded, I realised the ambiguity of the starting question was useful and that it was a natural progression for the brief to be clarified through the design process. After Phase 2 I was keen to implement Phase 3 in a way that would more directly engage participants in constructing storyscapes and could further develop the Tumut community's ideas. From Brown's (2008) list of

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18 Brown's knowledge cultures are explained in more detail in the Background Research chapter under the Enabling Design part of the Sustainable Design section.

five knowledge cultures¹⁹, I also realise I had focused the research model mainly on local knowledge; although, the methods did also encourage individual and holistic knowledge. Therefore, I identified specialist and organizational knowledge as the knowledge cultures particularly missing from this project. I would have liked to introduce other knowledges to the model; like specialist knowledge, perhaps, by developing a workshop for interested academics working on issues relating to the Tumut region and engage them in the Phase 3 Tumut storyscapes. However, I also had felt it was important not to bring in specialist knowledge too soon; I wanted to see what the community of Tumut thought before asking the ‘experts’ for thoughts on Tumut’s sustainable future. This was partly a deliberate attempt to avoid the expert sketch-model I described earlier²⁰ in favour of enabling design from within the Tumut system of the everyday. Consequently, in doing so I had limited the set of knowledge cultures engaged in each phase. Unfortunately, I was not able to add a specialist knowledge approach which could engage academics in Phase 3 or 4 due to time restrictions. Instead, I had to rely on my own specialist knowledge and knowledge I gained from academic sources (eg. the thesis on Time Banks). Therefore, building the inclusion of all the knowledges within the research model is an issue that could be reviewed further in future research.

The design outcomes for Phase 4, I felt were developed in a limited way. With more time and resources this development could have been explored more extensively. Phase 4 could have been achieved more rigorously perhaps by including participants in developing the ideas presented in the posters or perhaps in using these outcomes as a starting point for engaging participants in constructing more. The presentation of these outcomes, by way of scenario building, could also have been developed further. The visualizations of the three scenarios were presented in the form of posters and a booklet. Viewers were asked questions about what they thought of the proposals, how appropriate they were to the Tumut context and what they would like to happen next. However, the scenario building interactions could have been developed to perhaps include a workshop where more scenarios could be constructed and then consolidated into the most promising proposal to present for implementation.

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19 Brown’s knowledge cultures include: individual, specialist, organisational, local community and holistic, as explained in the Background Research chapter.

20 See the Co-Design part of A Complex Model for Design-led Research section in the previous Concept chapter

Nevertheless, Project Tumut can be seen as achieving its aim to construct knowledge about possible futures that were considered desirable. As discussed earlier, if the project were to be continued then more authorisation would need to be sought from the community to engage participants in a worthwhile pursuit that the community supported. That is, Project Tumut was not authorised by the community. I was not invited into the community to do this research. Instead, I imposed the research on the community, calling for volunteers to engage in the process of designing a research methodology. The indigenous community seemed to perceive the most value in investing their time to help develop a process that would enable communities to design their own sustainable outcomes towards more positive futures. In addition, the project's outcomes gained recognition from participating members of the community as having value and legitimacy in the Tumut context. The next step for this project would be to continue the conversation. The outcomes would become a starting point for establishing an authorised community project. One which was community driven, where members of the community would take up the running of the project. The researcher could then provide the service of facilitating the methodology to develop the project. For example, a number of community members may show an interest in establishing a project for developing community based social activities. The researcher could then work with these community members to recommend how to proceed and help implement the process of designing such community based social activities. The feedback suggested that more people could be engaged in the project through other organisations like Rotary or festivals like the Falling Leaf. This way more people could be involved in the process of developing the kind of activities that would be supported by the community to increase 'buy in' and commitment. However, community members and/or organisations would need to be found to directly support the initiatives and take responsibility for their implementation. Due to the inertia identified by the community, this continuation would need a catalyst; for example a grant to aid in establishing a proposal and find interested community members and organisations to support such a project. Once such a project is established, there is some evidence from the Project Tumut results that it would gain momentum and achieve a significant amount of support. This kind of project could be of value for many rural Australian towns and perhaps is a significant future research project to consider more widely.

I am also conscious that the process described in Project Tumut still relies too heavily on my ability as a design researcher to translate the participant's responses and transform them into the outcome for each phase. For example, I translated the responses to Phase 2 into the concept of *diversify cohesively* and fed that back into the design for the next phase. Then from the concept of *diversify cohesively* I designed a game about making and linking stories to form a storyscape. Perhaps there is a need to include designers, or other kinds of creative practitioners, in collaborative teams for sustainability projects in order to perform these kinds of creative translations and transformations. Creative practitioners and designers in particular, are specifically equipped with the skills to effectively perform this kind of role in a research project team. On the other hand, design is an activity that is not exclusive to the design discipline; hence, I believe the design research methodology I am attempting to articulate gives the discipline of design a chance to share and build the creative capacity in others for skills such as translation and transformation. In order to share, this design-led methodology needs to articulate the design approach so that this aptitude for design can be transferred to others. Although Design may not be easy (Cross, 1990), I still think there is a way of articulating this process such that it can be of use not only to those trained as designers (who already have the skills to perform these translations and transformations) but also by others outside the design field.

The dynamic nature of the design research methodology, where each phase designs the next phase of the project, could prove challenging to those with more traditional notions of research. An example of this comes from seminars I gave at the ANU's Fenner School of Environment and Society²¹. Notably, questions from the audience (of natural and social scientists) were largely about what I was going to do with the *data* I received from each phase in terms of quantitative or qualitative analysis. I explained that I was not treating the responses as *data* (in any traditional sense of the word); instead, the outcomes of each phase would be used to design the next phase until the overall design outcome was achieved; in this case, a visualization

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21 The Fenner School at the Australian National University is an interdisciplinary school. Although it may be considered predominantly an environmental science school, it has a multidisciplinary agenda. Hence, the school is populated with a variety of disciplines, like myself representing design. The seminar I am referring to here is the Human Ecology Forum.

of sustainable wellbeing for Tumut's future to be exhibited. Design research as a different kind of research does seem to challenge more 'traditional' conceptions of what research is. Through this fieldwork I am closer to being able to show that the design process can be articulated as design-led research and research-led design and that this is useful for bringing a different kind of approach to sustainability research, although there is still more work to be done.

Limitations

From the reflections outlined above this fieldwork highlighted several ways the project could be improved. Firstly, the methods used should be less reliant on the participant's reading and writing skills; instead, perhaps use more image based activities. Secondly, the operation of the project would be improved by more directly involving community members in running the activities. Thirdly, perhaps more collaboration with other disciplines and skill sets would have aided the project's engagement with the community. Fourthly, the project could have engaged participants in more of the design process to involve them more directly in co-creation aspects rather than just parts being co-designed. Additionally, the project only really accessed a limited selection of knowledge cultures, mainly individual and local knowledge. Perhaps the full gamut of Val Brown's (2008) set of knowledge cultures (individual, local, specialist, strategic and holistic) could have been employed with the aid of the above improvements (ie. improved collaboration and community involvement). Nevertheless, the project went some way to integrating a holistic development of new knowledge with the limited knowledge cultures engaged. Hence, these improvements should help provide a design-led methodology which can holistically integrate knowledge cultures towards constructing new knowledge on possible sustainable futures.

Significance

Despite the limitations discussed above this fieldwork was able to show that the approach could enable a design process. More applications of the approach and further development to refine the engagement through future research will hopefully further improve the operation of the methodology. Hence, despite the limitations of the fieldwork, a methodology can be proposed. The overall process of inserting participatory methods into the design process seems to be able to engage community

members in the design process and thus enable design from within the system of the everyday. The question of how effective this methodology is at enabling design, empowering participants, encouraging 'buy in', developing innovative solutions and particularly as a catalyst for social change, will only be established after further application, study and future research. Nonetheless, the results of this fieldwork show its potential especially after the positive interest in the approach from disenfranchised communities like the indigenous participants from Tumut. This interest suggests how important alternative forms of research are, especially ones based on more creative practices. The indigenous community seemed to find an affinity with the narrative, visual and creative processes in this methodology as well as the aim to maximise involvement and enable the community to design outcomes for themselves. From this involvement I also found that restoring a balance in forms of knowledge construction in research is not just potentially important for creative practices and researchers but also for indigenous cultures, like those in Tumut.

Despite the need for improvements, the thinking-by-doing process enacted through Project Tumut led to the assembly of ideas for a design-led methodology. The results suggested a form the methodological outcome should take; as a research process operationalised through engaging participants in the design-led process. This means inserting co-design methods into the phase structure. Choosing an appropriate method for each phase is essential for facilitating the design-led structure and building participant's creative capacity to enable design. 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, this methodology applies methods that utilise disordering techniques (as conceptualised in the Co-Design Sketch-Model, see Figure 22 in the Concept chapter). 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 (1999) cultural probes²² are examples of a method which uses disorder in this way. These kinds of disordering participatory methods are particularly useful 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

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22 Cultural probes are explained further in the Design-led Methods part of the Design Research Section in the Background Research chapter

with the concept generated by the previous phases. Methods like the game format used by the research project *Underdogs & Superheroes* (see Mazé & Jacobs, 2003)²³ 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)²⁴ is an example of a method useful for producing a set of future possibilities. Although I used these set of methods in my Project Tumut fieldwork for this study, this does not mean there are not other possible combinations of design-led methods that could be used in the methodology.

Project Tumut served to promote the value of design research to communities like Tumut. However, a wider acceptance of this design-led research methodology needs further work and future efforts to demonstrate its effectiveness as a catalyst for social change.

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23 The game format used by the research project *Underdogs & Superheroes* is explained further in the Design-led Methods part of the Design Research Section in the Background Research chapter

24 Scenario Building is explained further in the Design-led Methods part of the Design Research Section in the Background Research chapter

Addressing the brief

This concept development part of the process, to design a methodology, has taken the theoretical and conceptual components, established in the previous chapters, and enacted them by putting the components into an initial methodological configuration then tried this approach in everyday life. The result commences the finalisation of the criteria for the design-led methodology.

Each chapter has refined the brief, making additions and amendments. Now the final list is compiled (see Figure 71) to form the concluding criteria for this study. The first five criteria are carried through unchanged. The Tumut fieldwork, however, start to articulate the form these criteria will take.

The first criteria to *remould design into research* (see point 1 of Figure 71), takes research-through-design and creates a methodological approach which forms a duality: simultaneously both design-led research and research-led design. That is, Project Tumut is an example of researching sustainable futures through a design-led approach and also an example of designing sustainable futures by constructing knowledge through research-led methodology. In this way design and research are brought together to form a combined approach. This approach takes the conversational structure from design and operationalises it through a series of phases immersed in collaboration and participation. Like the feedback loops of a conversation each phase engages with participants to generate the next phase till an outcome is reached. Internally each phase is made up of many conversations between the collaborators, which build and enrich the process. The methodology can address *what next* questions about what a community or group of people might want for the future: proposals, propositions or possibilities.

The Tumut fieldwork expanded the second criteria to *develop a creative approach to socially oriented research* (see point 2 of Figure 71) by applying design to research, as above, to produce a socially oriented outcome. The project constructed knowledge about what a community might want for their future. This design-led approach allowed the methodology to address the specifications set by Law's (2004) requirements. Firstly, many aspects of the fieldwork were not definite: from the initial question, the knowledge of Tumut, the activities, to the responses. Secondly, the

1. Remould design into research:	<ul style="list-style-type: none"> • research through design • conversational structure • address what next questions • use abductive logic • non-object oriented • socially oriented research outcomes
2. Develop a creative approach to socially oriented research	<ul style="list-style-type: none"> • Design-led approach • not definite, repeatable or stable • engages in tide, flux and general unpredictability
3. Construct collaborative forms of complex understandings	<ul style="list-style-type: none"> • No experts • Use co-design and co-creation approaches • Use participatory design methods • Maximise involvement • Empowering
4. Build creative capacity to propose sustainable futures	<ul style="list-style-type: none"> • By enabling design • Uses disordering techniques • Opens up the design conversation
5. Use a systems approach to design	<ul style="list-style-type: none"> • that addresses complexity and sustainability • uses culture of living as an updated complex metaphor for design • engages with the uncertainty involved in developing sustainable outcomes, • is imbedded in the messiness of the network of systems that make up everyday life
6. A non-deterministic guide	<ul style="list-style-type: none"> • ensure manipulation and modification • embed re-design into operation of the methodology • a catalyst for creativity in researchers
7. Applying a self generating research design	<ul style="list-style-type: none"> • each phase designs the next phase • making the operation specific to time and place

Figure 71: Final Criteria

project is not repeatable, even if the location was the same the progression of phases would give different responses which would lead to different method constructions which in turn would give different outcomes. Thirdly, the approach could be thought of as unstable because it was opened to serendipitous discoveries, variations, and forthcoming possibilities that can be dynamically incorporated into the process. In addition, the necessity to suspend disbelief in acquiring the outcome also disrupted the stability of the design-led approach. These qualities meant that the Project Tumut approach engaged in tide, flux and general unpredictability.

The methodology explored through Project Tumut addressed the third criteria to *construct collaborative forms of complex understandings* (see point 3 in Figure 71). There were no 'experts'; I certainly was not an expert on the community or issues relating to Tumut and this aided to promote the participants as knowledgeable contributors. The project implemented co-design approaches by engaging community members in the creative process of designing sustainable proposals for their future. Community members were engaged primarily through the use of participatory design methods like cultural probes, games and scenarios. The methodology intended to maximise involvement by inviting anyone from the community who was willing to participate and empowering people through a design process to imagine change.

The approach used in Project Tumut addressed the fourth criteria to *build creative capacity to propose sustainable futures* (see point 4 in Figure 71) by enabling participants to engage with the design process; through the use of participatory design methods, mentioned above, which applied disordering techniques to encourage people's imagination. This process opened up the design conversation between the design researcher, participants and the design process, each responding to the other in the process of building a design outcome.

The Tumut fieldwork addressed the fifth criteria to *apply a systems approach to design* (see point 5 in Figure 71) by dealing with both the complexity of everyday life and sustainability. The project achieved this through developing the concept: enabling design from within the system of the everyday. By inserting participatory methods into the steps of the design process the project was able to be embedded in the messiness of the network of systems that make up everyday life. The process

engaged with the uncertainty involved in developing sustainable outcomes by using creative, imaginative and intuitive approaches from design which make the methodology fluidly dynamic, serendipitous and empowering, as mentioned above.

This Concept Development chapter also identifies two further criteria for the construction of the design-led methodology. The sixth criterion establishes a *non-deterministic guide* (see point 6 in Figure 71) to ensure manipulation and modification of the approach which embeds re-design into the operation of the methodology and acts as a catalyst for creativity in researchers. The seventh criterion is *applying a self generating research design* (see point 7 in Figure 71) as each phase designs the next phase, making the operation specific to time and place. These two, complete the set of criteria to be used in the final construction of the design-led methodology in the next Design Outcome chapter, which consolidates these findings into a proposal for the design-led methodology.



Chapter 6

Design Outcome

The design outcome is the point in the design process when the proposal, in this case for a design-led methodology, is consolidated. It is the second last step in the design process that compiles the work from the previous steps into an outcome and answers the brief. This step acts to articulate what has been achieved so it can be presented in the final step. Although a typical design project often goes through a series of possibilities which culminate in a selection of choices to be refined into a single outcome, this study has focused on explaining how the one final outcome was reached.

This chapter explores this second last step in the design process by outlining the final form of the design-led methodology. The chapter starts by naming this methodology and placing it in a wider socially oriented research context. Then, reflects on the methodological considerations including its features, obstacles, structure and possible configurations. Concluding by consolidating how the outcome addresses the brief. This description is then used in the next chapter to present the proposed design-led methodology.

Naming the Methodology

In this section I start to describe the design outcome by naming the methodology proposed. The objective of this study has been to construct a design-led methodology out of existing parts from the design discipline, including components of practice, research and sustainability. As only one of many possible design-led approach, this methodology needs a name so as to distinguish it from others that exist now or in the future.

From this point on I will refer to the proposed design-led methodology as *Bigamatics*¹. This name was chosen to describe the process of designing good ideas for action. *Biga* is a baking term referring to a starter culture used in making bread (see Figure 72).

The biga is made by retaining a portion of dough to be used in the next day's bread to improve its texture and flavour. Before the development of commercial yeasts bread was leavened with a 'mother', a batter of flour and water hosting a live culture of wild yeasts, 'mothers' are still used in the production of sourdough bread. Commercial yeasts improve the speed of fermentation and make bakeries more efficient, however commercial yeasts produce bread with less flavour and a poorer texture. A biga is used to improve bread made with commercial yeast.

Figure 72: The Biga

defined by Richard Hocking

Biga adapts an old method of bread making (i.e. the mother culture used in sough dough) to make a new method work better (i.e. the use of commercial yeast). Like the biga in bread making, Bigamatics proposes a design-led methodology which takes an 'old method' from creative practice, specifically design, and applies it to a 'new method', research. In this case 'work better' is defined as more creatively. Bigamatics

1 I had been trying to come up with a name for some time. I thought I might be able to avoid having to use a name but naming is useful. I had, temporarily, given up. Then one day, while writing my thesis, I had stepped out of my study and my husband, who used to be a baker, announced:
"you know, baby, the next time I make pizza dough I'm going to make a biga"
"Oh", I said "is biga a starter culture?"
"Yes it's a starter that ferments overnight"
"Maybe this would be a good name for my methodology, bigamatics!"
Biga seemed an appropriate symbol that encapsulated the essence of the methodology I had constructed.

is constructed specifically for each use and is not a universal methodology. Bigamatics is like a starter culture for generating proposals for changes to our culture of living. The Bigamatics methodology outlines how to collaboratively construct the sagacity needed to achieve serendipitous discoveries. However, Bigamatics goes further than just coming up with a good idea; it moulds the idea into a proposition for implementation. In this context a good idea is sustainable, supports the system of everyday life and in so doing improves our culture of living. Bigamatics is a proposal for how to design a 'good' idea which is a catalyst for positive social change.

Characteristic Features

The Bigamatics approach exists within a messy, uncertain, serendipitous and opportunistic context. This methodology is a collaborative approach for investigating a context – a system of everyday life – to construct proposals for the future. The system is made up of the natural, unnatural and artificial, as defined in the Concept chapter (see Figure 20). Hence, the system is not necessarily location specific. Collaborators are members of this system and also representatives of different knowledge cultures: individual, local, specialist, strategic, and holistic (Brown, 2008). Collaborators can also be identified outside the system as representatives of certain knowledge cultures to aid the facilitation of the research. Collaborators are asked to engage in fiction and construct responses out of their context. These responses then function as sources of inspiration which are used for 'researching things that haven't happened' (Wood, 2010). Bigamatics works to amplify the effect of design as a link in the social activity of creating and recreating a culture of living, as defined in the Concept chapter (see Figure 23). The purpose of this methodology acting as a catalyst is to work towards change which is better, positive and more sustainable. The outcome of Bigamatics is generated with the mindfulness that it could be implemented and therefore should be possible without needing to specifically define the implementation. The process of implementing the outcome into the system of everyday life is beyond the scope of the methodology in its current form.

This methodology defines a self generating process where each phase is both independent and contingent on the previous phase. The characteristic feature of the Bigamatics structure is that it starts big and then works to clarify the specifications to isolate an area of output (as illustrated by Figure 6 in the Background Research

chapter). Then the methodology constructs a series of possible outcomes to be refined into a proposal. This means the Bigamatics superstructure works from the general to the specific. Its initial question is characterised by a large, generalised, open and ambiguous question (eg. imagining sustainable wellbeing for Tumut's future). The concept phase starts to refine the project into certain conceptual specificities. Each following phase works to take the project from the general to the specific until a design outcome is reached.

The Bigamatics methodology is simultaneously both design-led research and research-led design. Design-led research uses the design approach to develop socially oriented research outcomes; whereas, research-led design describes the use of a research approach to design outcomes for society. In both cases the outcome is a proposed fictional possibility. Although Bigamatics is both, the focus may shift to either design-led research or research-led design, I will primarily consider design-led research.

Research Context

This section contextualises Bigamatics within socially oriented research by making use of a comparison with social research methodologies and other design research methodologies, as outlined in the Background Research chapter². Three social research approaches were chosen: (1) participatory research, (2) Action Research, (3) Deliberative Democracy; and three design methodologies: (1) Critical Artifacts, (2) MAPS and (3) The ID Chicago Approach. Thus, a comparison is made with social research and design research in general and to these six approaches specifically. These comparisons aim to help clarify the description of the proposed design-led methodology rather than being an in-depth comparative analysis.

To initiate these comparisons I must reinforce that the methodology has no direct evolutionary links to Action Research or other social research methodologies. The comparisons set out here are made after the construction of the Bigamatics design-led methodology and has not been part of its development. As discussed in the Background Research chapter³, because Action Research has a longer history within academic research it is often compared to the process of research in creative practice. Therefore, there is a value in describing this Bigamatics methodology by comparing it to methodologies that other socially oriented researchers may be more familiar with. This is, however, only a superficial comparison and those with more experience in Action Research and other social research methodologies will realise the limitations of this explanation. These limitations would benefit from future cross-disciplinary conversations and considerations on the Bigamatics outcome.

In addition, similarly, the three design methodologies, like for social research above, were not directly used in the development of Bigamatics rather they are used here to define and contextualise this study's outcome. A comparison of the Bigamatics methodology and other research-through-design approaches is not intended to be a competition between which methodology will 'win', given that all these methodologies are working towards the same goal: to provide a range of approaches available for design research to conduct research *through* design. Like the many forms of

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2 See the Methodological Associations part of the Socially Oriented Research Context section in the Background Research chapter

3 See the Action Research segment within the Methodological Associations part of the Socially Oriented Research Context section in the Background Research chapter

participatory research approaches which populate the social sciences and allow for a diverse range of research to be conducted, so to for design research proliferating the range of approaches available also allows for a diverse research culture.

Approach

Bigamatics has a constructivist epistemology⁴. That is, the purpose of Bigamatics is for construction rather than interpretation. This epistemological position may differ from many (but not all) types of inquiries in social research; however, is held in common with most design approaches, especially in the area of research-through-design.

Where the question is often a dominant part of social research projects (de Vaus, 2003), in comparison, for Bigamatics the dominance of the question is replaced by the brief. Although a question is seen as necessary for initiating the research project, the Bigamatics methodology defines the question as vague, ambiguous and open to interpretation allowing the process to further refine and define the brief. The question is defined as malleable and contingent on the nature and purpose of the research project.

Bigamatics, like the other design research methodologies outlined in the Background Research chapter, articulates a research-through-design approach. However, the Bigamatics methodology is not so much about designing objects or products but visualising possible futures. As a research-through-design methodology Bigamatics could also be considered as practice based research. Practice based approaches exist across socially oriented research and include many methodologies from social research like Action Research and most design research approaches. Comparing Bigamatics to practice based research like Action Research helps to highlight the aspects formed from following design and creative practice conventions. Where Action Research is described as ‘learning about doing by doing’ (Carson, Gilmore, Perry & Gronhaug, 2001, p.163) the Bigamatics design-led methodology uses the creative practice of ‘thinking by doing’. Action research is also described as ‘appropriate for learning tacit knowledge in addition to articulated knowledge’ (Carson, Gilmore, Perry & Gronhaug, 2001, p.163) and so too Bigamatics, as a creative practice based

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⁴ For a further explanation of constructivist epistemology see the Brief chapter under the Epistemology section

approach, also uses tacit knowledge and articulated knowledge. However, the emphasis in Bigamatics is not in change through learning but through construction. Where Action Research aims to implement an action, Bigamatics aims to propose a possible design outcome for implementation. Action research is described as forming a duality between action research and action learning. Similarly Bigamatics forms a duality between design-led research and research-led design. Perhaps, the impetus for Action Research could be described as putting theory into practice, in contrast to Bigamatics where design-led research is constructed to put practice into theory. Both, however, attempt to work within complex contexts.

Structure

The Macro and Micro levels used in Jonas' Teams MAPS approach to give a 12 step hyper cycle can be compared to the Bigamatics approach which can also be defined as using macro and micro processes and cycles to form the structure of the approach. Similarly, this macro-micro structure can also be compared to Action Research where a micro cycle exists within a macro process. That is, in Action Research a six step macro process (identify the problem, plan what to do, learn more, put plan into action, observe results, reflect on what happened) cycles through a series of four micro steps (action, observation, reflection, plan). While some correlation can be seen between Action Research, MAPS and Bigamatics phases they describe different approaches. For example, Bigamatics does not have the same emphasis on reflection as Action Research. Like in a conversation the reflection happens 'on the fly' in the process of feeding back information into the conversation rather than assigning a distinct phase for reflecting on what was experienced. In comparison to MAPS were the 'Kolb type' process (research, analysis, synthesis, realization) is placed as a micro process within a macro cycle (analysis, projection, synthesis). Bigamatics places a micro cycle of collecting, selecting, assimilating, translating and transforming into the macro design process (brief, background research, concept, concept development, design outcome). In addition, the micro cycle in Bigamatics is not as prescriptive as the micro process in MAPS and as such a hypercycle is not defined. These are small semantic differences in an overall similar approach which both apply, what Jonas' Team terms, macro and micro cycles. However within these semantic distinctions defines the differences in the approaches.

For Bigamatics the macro level is linear and the micro level is cyclic. The linear process is an analogue continuum from nothing to something rather than a digital progression of steps. This means steps can fall on or between the headings of the design process. Also, the Bigamatics approach is not wedded to the headings proposed in this thesis and could use different design process headings – which could be an area for further study. The key characteristics of this linear process are that they start from nothing then the brief is ambiguously defined in relation to a vague question of what could, should or ought to be and in so doing identifies a community of knowledge groups within a natural, un-natural (virtual/theoretical) and artificial ‘landscape’, which in turn further influences the brief. Research is conducted into what already exists in this trivalent landscape, surrounding the context of the brief and beyond. Similar to this thesis structure each step acts to further define the brief. The next phase distils all the research components into a core conceptual idea in relation to the brief (which in turn is further modified). This concept is then explored and developed into fictional possibilities of what could, should or ought to be. The next phase consolidates and visualises these possible futures to present in the final phase a piece of communication which articulates the outcome in such a way that others can imagine what is being proposed. Auxiliary to the Bigamatics approach are further approaches, which might be defined by other methodologies like Action Research or Critical Artefacts, which can take the proposal produced and work towards its manipulation for implementation. Alternately, the knowledge constructed in the outcome can be fed back into the research context to further explore hopes dreams and aspirations for the future.

The micro cycles of Bigamatics are not linear, instead like the APS macro cycle in MAPS are iterative and can be entered into at any point. Like the diagrams often drawn for Action Research of a line spiralling across the page to express the iteration of a cyclic process across time, in Bigamatics there are continues cycles across the phases through collecting, selecting, assimilating, translating and transforming. There also may be spirals or parts of spirals within spirals across a phase. That is, there may be a whole series of iterations, combinations and compilations of segments from the cycle. This effect is not unique, instead it could be seen as in keeping with other descriptions of ‘learning cycles’. The significance is that each phase works

towards assimilating the fragments and spiralling cycles into an outcome, which is used not as an outcome in its own right but to be transformed into the design for the next phase. To this extent, the characteristic of each phase working towards designing the next phase makes Bigamatics like a *travel guide*, as discussed in the Concept chapter⁵. The Bigamatics methodology attempts to be even more open and less structured than the other three design methodologies appear. That is, the Bigamatics approach recommends how to develop a general *travel plan* and that the specifics of the journey, where to go next, are to be determined *on the road* and at the end of each *excursion* based on the experience and knowledge gained. This approach attempts to maximise the potential of unforeseen serendipitous circumstances being integrated into the process and elevate the role of collaborators not just as generating outcomes but also as developing the research process.

Methods and Operation

Like MAPS and the ID Chicago Approach, Bigamatics also defines a set of methods ranging from co-design and co-creation approaches like cultural probes and game formats to studio techniques and design education approaches like sketching, peer evaluation and strategic mapping. This differs from the Critical Artifact Methodology which applies a critical design specific method. In addition, where the ID Chicago Approach stipulates the kinds of methods to use at each step, Bigamatics leaves it open for the researcher and collaborators to choose from an open ended pool of methods and then re-design each method to make them specific and appropriate for the phase, group, time and location.

Unlike many forms of qualitative and quantitative social research methodologies the methods used in Bigamatics do not collect *data* as such. Though, the creative methods applied need to be documented in some form; particularly, the outcomes or responses need to be collected. For example, in cultural probes the collaborators record their responses with the material supplied and the game format method needs to be designed in such a way as to collect the outcome of the interaction. The distinction is that *data* has the connotation of being able to *prove* something is so, were as what is collected through methods used in Bigamatics can only be described

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5 See the Conceptualising Design Research part of the An Allegory for Design Research section in the Concept chapter

as providing inspiration. Although these methods cannot *prove* anything about the world or even people's attitudes or perspectives on it, they can provide inspiration on the world and the future, people's hopes, dreams and aspirations. For example, Gaver et. al. (2004) warns against the use of cultural probes being used in a more traditional manner to collect data as proof. They highlight that cultural probes are not effective for this form of data collection and should not be used as such. Hence, rather than formally analysing the data, the responses are interpreted for ideas and inspiration. I call these *outcomes* rather than *results* because again results imply something far more stable and conclusive than the inspired outcomes. The outcomes of these methods are dynamic; their meaning is fluid, uncertain and messy. The Bigamatics approach does not require these outcomes to be 'pinned down' classified or defined exactly. As inspirations the outcomes provoke a continuing process till a final design outcome can be presented and evaluated in subjective, positive or negative, terms (Rittel, 1972). In analysing each outcome the researcher applies the creative approach of pattern recognition and formation. That is, the responses are considered in terms of the links that can be established within and between them. This process is not well documented within creative practices; as Downton (2004), for example, describes:

Many accounts of design fail to describe at a level that reduces the mystery and present their story in such a way as to suggest that 'good design' can be attained by following the path prescribed. (p.103)

In the Bigamatics structure this process is described as translation and transformation. It is a highly cultural process that relies on the whole of the design researcher's knowledge, experience and personality. Hence, in Bigamatics, collaborators can also be enabled to engage in this translation-transformation process through the implementation of methods designed to build creative capacity and thus facilitate this process.

Participation and Collaboration

Like the social research approaches of Participatory Research, Action Research and Deliberative Democracy, Bigamatics engages participants in a research process which is context specific. These social research approaches are about constructing knowledge for 'implementing purposeful action' in order to 'improve a particular

situation' (Carson, et. al., 2001, p.159). Although this form of knowledge construction is similar to the Bigamatics approach, Bigamatics focuses on the construction of knowledge about fictional possibilities for sustainable change rather than the implementation of change.

Like many participatory social research approaches Bigamatics works to amplify the effects of the researcher-collaborator interaction. For Bigamatics the researcher should not attempt to be a 'clean slate', however, they should not attempt to be 'the expert' either. The researcher should express their whole personality while maintaining an open and receptive countenance, not unlike most creative practitioners are trained (or self acquired) to do. The collaborators should be encouraged to do the same through the establishment of the creative methods.

Bigamatics does not stipulate a formula for selecting types of participants/collaborators, like some social research (eg. some grounded theory projects). The general philosophy of the methodology is to be as inclusive as possible. The open context of the methodology aims to seek out opportunities, including finding groups who are particularly interested. The source of collaboration will be partly determined by the system of everyday life identified for the project. Although in the case of Project Tumut it was broadly defined as members of the Tumut community, it could be collaboration within a university for a project focused on adapting the culture of life in a university or an interest group where a project might focus on changing practice around a certain activity.

In Deliberative Democracy there are different approaches for selecting participants. Sometimes participants are self selected, randomly selected or stakeholder selected. In Bigamatics the focus is on maximising involvement from members of the identified system thus encouraging involvement from anyone who is interested. A system may or may not be identified within a specific location. For example, a local community like Tumut is defined by a geographic location where as an interest group like the Australian Youth Climate Coalition is not location specific. However, even if the project is location specific, this does not mean that participants need to be only selected from that geographical location. That is, because Bigamatics also encourages representation from all of Val Brown's (2008) knowledge cultures

(individual, local, specialist, strategic, and holistic) this may move the members of a system beyond a special location. For example, University academics who work on Tumut related issues may be identified as part of the un-natural aspect of the system and thus form representatives of specialist knowledge groups in a Tumut project. Also, the collaborative aspects of Bigamatics may mean knowledge groups, such as people from other disciplines, identified as outside the system may also be involved in facilitating the project. Hence, the selection of participants in Bigamatics goes beyond identifying stakeholders, as the Critical Artefacts Methodology does, by involving not only a wide range of members from the system but also from different knowledge groups both within and outside the system.

In Participatory Research approaches (like Participatory Rural Appraisal, Community-Based Participatory Research and Participatory Action Research) participants are distinguished from the researcher as locals from a community, stockholders or 'non-experts' (Park, 2001, p. 81). Participation is used to varying extents in different Participatory Research projects; from informing and listening to engaging people in the whole decision making process. Bigamatics, in an attempt not to make a distinction between participants and researchers, instead involves *collaborators*. As pointed out above, these collaborators could be other designers, people from other disciplines, members of other professions, local community members and so on. Like the varying degree of participation in Participatory Research projects, Bigamatics projects can also apply collaboration in different ways through the process. There could be different combinations of knowledge groups and different groupings of members from inside the system versus outside the system engaged in different parts of the process. There are also options, if collaborative opportunities are limited, to conduct small portions of the process by oneself (eg. the translation-transformation steps at the end of a phase as was conducted in Project Tumut).

In addition, the self generating structure of Bigamatics also gives a distinct characteristic to this collaboration. The collaborators are not only involved with generating the outcome for each phase but also in creating the research method for the next phase. Hence collaborators are engaged both in constructing the research process and in generating the research outcome.

Methodological Considerations

The characteristic features of the Bigamatic design-led methodology are found in the questions, approaches, processes and outcomes of this research process (as defined above). In this section I reflect on these methodological features by considering obstacles and possible configurations.

Obstacles

The process of identifying the obstacles to be avoided when applying the methodology helps to further distinguish the requirements of the Bigamatics approach. Researchers should be aware of four obstacles when applying the Bigamatics design-led methodology appropriately. Firstly, avoid translating the Bigamatic approach into more traditional research terms like notions of *testing* or *data*. Secondly, the methodology is inappropriate in searching for certain types of information; particularly when seeking ‘true/false’ or ‘right/wrong’ forms of information. Hence, the information gained should not be used to prove the existence of something or to describe a current phenomenon. Thirdly, avoid seeking problems to define the initial question. The focus of Bigamatics is on improvement rather than problem solving. A problem does not need to be identified or even present for there to be a desire or need to improve. This can be explained through what Rittel (1972) identifies as the complication of choosing a problem within a wicked context (in which Bigamatics operates) due to all problems being symptoms of other problems. Finally the successfulness of the outcome remains uncertain, despite gaining collective support through the process. The outcome remains, as Baudrillard (1968) defined, a ‘techneme’ until implemented into the system from which it was constructed. Then, as Baudrillard suggests, the system of everyday life will continue to morph the design outcome’s form and role. Hence, perhaps Bigamatics should also include, or collaborate with, a further two additional processes. The Bigamatics methodology in its current form initiates a proposal. Then, perhaps, there is a need for the addition of another step for implementing the design and a final step for developing the outcome once implemented.

Possible Configurations

As a non-deterministic guide the Bigamatics structure may be configured in a number of different ways; the extent to which, could be an area of future exploration. As mentioned in the outlines above, these include forms of collaboration, further applications and possibilities beyond the scope of the methodology.

Within the Bigamatics approach there may be many different levels of collaboration, from committed to casual involvement, and ways of operationalising that collaboration. For example, the project may involve collaboration to facilitate the research project (ie. be set up by more than one researcher from different disciplines). There may be organisational support, key members of the system committed to supporting the process and other members who are interested in being involved in part of the process. There may be segmented collaboration within different knowledge cultures, as defined by Brown (2008), such as multiple groups representing local, specialist and strategic knowledge systems to be formed. There could also be inter-knowledge system collaboration. These different forms of collaborations could be employed at various phases of the project in different ways. This could form a variety of combinations and permutations between different kinds of participants, participatory design-led methods and positions in the design process, as will be explored further in the Presentation chapter⁶.

Collaborators can be involved with the process in a wide range of ways, from segments to all the various parts. The translation and transformation part, for example, need not be done by the researcher alone (as was the case in Project Tumut). Due to its cultural nature there may be added value in engaging participants in this process. The one drawback is that this is one of the most difficult design (or creative) skills required. Even within design education this skill is usually taught more through practice than explanation. Often it is the part assigned to creative genius; however, I prefer to see (as does Findeli, 1994) that this and all creative design skills are acquirable; despite some people having the aptitude to express these skills better than others. In order to facilitate collaboration in the translation and transformation stages requires methods that are able to support this process by building creative capacity where needed.

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6 See the Mock-up part of the How? Section in the next Presentation chapter

Bigamatics is simultaneously design-led research and research-led design. Although I have focused on design-led research, research-led design forms a practice of design that need not be reliant on the academy. Bigamatics could be used as a community based project where a design researcher as practitioner facilitates this design project. The outcome can fulfil the needs of the community to develop sustainable change.

Bigamatics in its current form, however, does not outline the next step of refining and implementing the proposal. The main purpose of Bigamatics as a design-led methodology is imagining change and the generation of knowledge about what kind of change might be wanted, rather than refinement and reflection for implementation. Perhaps, Critical Artefacts could be applied after a Bigamatics process to further refine the outcome for implementation. The Critical Artefacts Methodology may be able to further develop the outcome into a 'product' idea for implementation having engaged participants in considering possibilities and potential issues. In addition, Action Research focus on the implementation of change could make it another such methodology appropriate for moving the outcome of a Bigamatics research project into implementation in the system of everyday life. Action Research could be applied either after or instead of Critical Artefacts. Also, since many comparisons are made between Action Research and existing processes in business practice, these business processes could also be seen as appropriate for implementing Bigamatics outcomes.

Bigamatics is still in its 'primordial' form. Hence, in the future this methodology could be developed to include implementation; or, perhaps preferably, suggest a secondary methodology for implementation; or work in with a series of existing methodologies. Perhaps, the choice of existing methodologies is best determined by the requirements of the project. They could come from either research or practice. For example, for Project Tumut perhaps the choice would be more appropriately a practice or community based one. It is also feasible that the research outcomes from an application of Bigamatics could be used for further research rather than being directly developed for implementation. In this way, the outcome from a Bigamatics project could be used by another kind of research project applying other sorts of methodologies.

Answering the Brief

To consolidate this design outcome it is necessary to reflect on the initial Brief chapter to show how the outcome addresses each of the specifications set out there before outlining how the outcome fulfils each of the final set of seven criteria from the Concept Development chapter. Answering the brief finalises the construction of the design-led methodology, resolves the structure of the approach and its operation within the concept to enable design from within the system of the everyday.

Fulfilling the Specifications

The study is established within the intersection of design and research in the context of sustainability. From this position the brief specified that the methodology should contribute to the wider socially oriented research community, by providing imaginative, creative and innovative approaches, to develop what it is we want our future to become. To achieve this, I have constructed Bigamatics as a design-led methodology which applies design as a process in forming an approach that can restore a balance to the diversity of research paradigms; particularly, in the context of sustainability as a kind of change for the better. In doing so the methodology offers a role for design in constructing knowledge for change. By immersing the methodology in the design approach, rather than following other more traditional research formats, Bigamatics ‘dares to be different’. Bigamatics employs the qualities and characteristics of design in an attempt to form an ‘endemic’ design-led methodology that engage with the messiness of everyday life to offer a mode of research which can engage with complexity. This endemic approach means Bigamatics follows a sustainable design research agenda as specified through the purpose set up in the brief.

The Brief chapter identifies the purpose of design research from Findeli et. al.’s (2008) specification: ‘to improve or maintain the “habitability” of the world, in all its dimensions (physical, psychical, spiritual)’ (p. 74). This means, a design research methodology needs to ‘improve the act of designing and consequently the lives of those addressed by the act, ie. presumably all of us inhabitants of the world’ (Findeli, et al., 2008, p. 74). In response, Bigamatics focuses on sustainability as addressing the need for positive change towards maintaining a habitable world. Thus, the application of

Bigamatics, as a design-led methodology, should construct knowledge for sustaining the habitability of our world and act as a catalyst for positive social change; by aiding the imagining and building of sustainable futures, as Manzini (2007) attests. In addition, because sustainable change has community wide consequences the Bigamatics methodology requires that the community engages in the design process. This turns the design-led process into a facilitated act, operationalised through collaborative design methods that maximise involvement and empower people. This enables more people to be involved in designing proposals for their community's future. Thus, Bigamatics is constructed firstly, to improve design by articulating the design approach as a process for constructing socially oriented knowledge, and secondly, to improve the lives affected by the act by empowering participants within the process to imagine change and design sustainable futures.

The Brief chapter also responds to Findeli, et al.'s (2008) core set of three questions for design research, to help define the kind of methodology the study was to construct. In response to the first question, 'what exactly are the objects [ie. subject-matter]' (Findeli, et al., 2008, p. 69), the brief stipulated the subject-matter for the methodology as: *a habitable system of everyday life, where habitable is linked to the notion of sustainability*. Bigamatics fulfils this specification by using *culture of living* as the metaphor for design to engage with the system of everyday life and address the complexity of sustainability. The Bigamatics approach works with the uncertainty involved in developing sustainable outcomes by embedding the operation of the methodology within the messiness of the network of systems that make up everyday life. Responding to the second question 'what are the phenomena of the world we are interested in observing and understanding' (Findeli, et al., 2008, p. 69), the brief identified the phenomena of interest as: *imagining change for the better*. Bigamatics addresses this specification by using the characteristics of a design-led approach for developing participant's creative capacity to imagine change and applying a variety of collaborative design methods for 'observing and understanding' participant's imagining. In response to the third question 'what do we intend to say about these phenomena' (Findeli, et al., 2008, p. 69), the brief specified as knowing about: *'our dreams for the future', what we as a community and a society might want to be and what might be possible and plausible actions*. Bigamatics incorporates

this specification, to enable the design of possible futures, by opening up the design conversation between the designer and participants within the activity of design.

The Brief chapter additionally applies Findeli et al's (2008) recommendations to stipulates the need for the design outcome of this project to address primarily 'the researchers' community [which] is interested in "fundamental" or "theoretical" knowledge' (p. 74). Secondly to account for the interests of 'the educators' community in "teachable" and "applicable" knowledge' and to some extent consider the interests of 'the practitioners' community in "applied" and "useful" knowledge' (Findeli, et al., 2008, p. 74). Consequently, the main focus of this study has been to propose a methodology that can contribute to the role of design within socially oriented research. Hence, Bigamatics can be used by design researchers and potentially other socially oriented researchers as a creative approach to research for enabling the design of possible futures. In addition to the 'fundamental' and 'theoretical' knowledge associated with this contribution to research, Bigamatics also outlines 'applied' and 'useful' knowledge by presenting a methodology that can be used in other research projects and because Bigamatics is intended to be shared with other researchers it also provides 'teachable' and 'applicable' knowledge. Although these aspects will be explored in more detail in the following Presentation chapter, they require further study. Through future research the methodology could be developed to take on further practitioner and education forms.

Crotty's (1998) epistemological hierarchy is used in the Brief chapter to specify the epistemological framework for the methodology. Bigamatics can be shown to fall within this framework (see Figure 73).

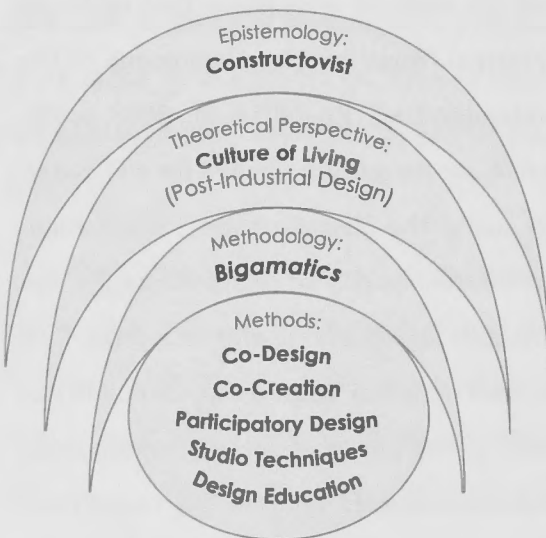


Figure 73: Epistemological Framework

adapted from Crotty, 1998, p.4

The Bigamatics approach sits within a constructivist epistemology. As such it forms a framework for constructing knowledge about fictional possibilities. Bigamatics works within the theoretical perspective initiated by Post-Industrial Design. This theoretical perspective

has been developed in this thesis to move design past the object by using a *culture of living* sketch-model for designing sustainable futures. The Bigamatics methodology, as defined in the sections above, provides guidelines for a design-led approach to research that recommends the use of collaborative methods. These methods may come from co-design or co-creation approaches, participatory design-led methods, design studio techniques or design education.

Fulfilling the Criteria

Rittel (1972) asserts that ‘every formulation of the [problem] corresponds to a statement of the solution and vice versa’ (p.392). Consequently, the final set of seven criteria in the previous Concept Development chapter (see Figure 71), along with the approach developed, have allowed the design-led methodology to be consolidated in this Design Outcome chapter. Hence, here I confirm how Bigamatics fulfils each of these final criteria.

The Bigamatics outcome resolves the remoulding of design into a research methodology as required from the first criterion (see point 1 of Figure 71). For this reason, Bigamatics forms the kind of methodology which expresses a research-through-design form with a conversational structure. It is a design-as-research methodology which engages with questions about the future, requiring responses in the form of fictional possibilities. These are *what next?* kinds of questions including what *could*, *should* and *ought* to be. It is a methodology that can generate desirable or unfavourable outcomes which are neither right nor wrong, as outlined by Rittel’s work (1972)⁷. Bigamatics applies the abductive logic of discovery from the design process. This use of abductive logic does not start with a hypothesis instead ends with what might be more appropriately called a proposition. This methodology follows a designerly approach, which is non-object oriented, to generate research outcomes in the form of new knowledge. By applying a conversational structure, this approach immerses the design process in the complexity of the system of the everyday. Thus, the Bigamatics design-led methodology is the outcome of a process to *remould design into research*.

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7 Rittel’s work on wicked problems is outlined in the Background Research chapter under the Complexity part of the Sustainable Design section

Bigamatics is a creative approach to socially oriented research as specified in the second criterion (see point 2 of Figure 71). It applies a design-led approach utilising characteristics from design practice. These characteristics of design practice include: thinking by doing, centralising of identity, engagement with fluidity of meaning, conversational structure, iterative steps, playfulness and the merging of theory and practice. It requires the application of creative approaches that are playful, dynamic and requires the researcher to express their identity through the operation of the methodology. This forms a methodology that is not definite, repeatable or stable, as Law's (2004)⁸ requests. The dynamic nature of Bigamatics means the playfulness is open to agile manoeuvring and changes of direction with each new identity influencing the outcome. The Bigamatics methodology employs thinking-by-doing to enable design within the system of the everyday. This means that the construction of knowledge is enacted in collaboration with the researchers and other participants. This defines a methodology that engages in tide, flux and general unpredictability, as Law's (2004) recommends. A conversational structure along with characteristics of a design-led approach enables the Bigamatics methodology to work with Law's (2004) context. This establishes Bigamatics as a *creative approach to socially oriented research*.

Bigamatics uses collaborative forms of complex understanding which are imbedded in the concept of enabling design within the system of the everyday as stipulated in the third criterion (see point 3 of Figure 71). It applies a collaborative rather than an expert sketch-model. In the Bigamatics methodology the collaboration is supported by the researcher who is not the expert rather facilitates a design process. This methodology uses co-design approaches through incorporating design methods, such as cultural probes, game formats and scenario building, to maximise involvement. These methods are slotted into the design process which defines a series of phases: brief, background research, concept development, design outcome and presentation. The implementation of participatory design methods in the design process forms a co-design approach. Bigamatics' collaborative approach aims to maximise involvement, as recommended by Rittel (1972), to develop outcomes as a process of empowering

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8 Law's work is outlined in the Introduction and Brief chapters

people, as advocated by Manzini (2008)⁹. Hence Bigamatics *constructs collaborative forms of complex understandings*.

The Bigamatics approach builds creative capacity to propose sustainable futures as specified in the fourth criterion (see point 4 of Figure 71). This collaborative approach supports the development of creative capacity in participants to enable design. The methodology achieves this by using a variety of design-led approaches such as the disordering techniques applied through cultural probes, open-source approaches as described by Thakara (2006)¹⁰ as well as opening up the design conversation between the designer, participants and the design process. In addition, to enable design for possible sustainable futures, the methodology embeds sustainable principles into the process. Thus the Bigamatics methodology *builds creative capacity to propose sustainable futures*.

Bigamatics is a systems approach to design as required from the fifth criterion (see point 5 of Figure 71). This approach uses *culture of living* as an updated complex metaphor for design as a systems approach that can address sustainability. The core concept for Bigamatics is derived from this complex metaphor. In applying the concept, enabling design within the system of the everyday, this methodological outcome is embedded in the messiness of the network of systems that make up everyday life. This methodology engages with the uncertainty involved in developing sustainable outcomes through the application of the design-led approaches described above. Including, engaging with complexity without attempting to ‘clean up’ first, such as the conversational structure enables. Therefore the Bigamatics methodology *uses a systems approach to design* that addresses complexity and sustainability.

Bigamatics is not deterministic as stipulated in the sixth criterion (see point 6 of Figure 71). Instead it is like a guidebook to the un-natural world, as was outlined in the Concept chapter¹¹. Manipulation and modification are ensured by embedding ‘re-design’ into the operation of the methodology. In doing this the methodology acts as

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9 Manzini’s perspective is explained in the Background Research chapter under the Enabling Design part of the Sustainable Design section.
10 Thakara’s open source explanation is outlined in the Background Research chapter under the Enabling Design part of the Sustainable Design section.
11 In the Concept chapter see the Conceptualising Design Research part of the An Allegory for Design Research section.

a catalyst for creativity in researchers; engaging the researcher in a design project of both re-designing the methodology and enabling the design of possible sustainable futures in collaboration with members of the system of the everyday. This makes the Bigamatics methodology context specific, not generalisable or universal. Thus, establishes Bigamatics as *a non-deterministic guide*.

The Bigamatics methodology is operationalised in a self generative way as defined by the seventh and final criteria (see point 7 of Figure 71). This means each phase helps to design the next phase of the research. This ensures the methodology is specific to the time and the place in which it is enacted. This constructs Bigamatics as a methodology which applies a self generating research design. Each phase designs the next phase. This self generating approach can also be seen as part of the conversational structure, as explained above, and hence makes the methodological operation of Bigamatics specific to time and place for the chosen system of the everyday. This conversational structure is also the way the methodology verifies its understanding; like people engaging in a conversation are able to ascertain the level to which they understand, as described by Glanville (2008)¹². Similarly, the Bigamatics approach feeds the construction from each applied method phase back into the system for modification. In addition, because Bigamatics operates on a subjective positive-negative axis rather than a true-false or right-wrong axis, this process is able to verify the analysis and synthesis outcomes. Thus, Bigamatics achieves *a self generating research design*.

Finalising the Outcome

In fulfilling each of the final seven criteria the design outcome has responded to the question of *what kind of methodology is produced from this construction?*. Bigamatics is a proposal for a methodology, and as a proposal requires further development to be implemented. The consolidation of the proposal, outlined in this chapter, raises further questions for future research. For example: what is the breadth of the specific kinds of questions within specific contexts required for this methodology? What are the effects of including inside as well as outside system representatives? And how does the different extent to which collaborators are engaged effect the outcome?

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12 Glanville's conversation theory is explained in more detail in the Background Research chapter under the Complexity part of the Sustainable Design section

In this way, the intention of the following Presentation chapter is to facilitate this further development by articulate the Bigamatics methodology so it can be shared, discussed and tested in future research. The next chapter will conclude the design process by presenting Bigamatics in the form of a mock-up for a guidebook to the methodology.



Chapter 7

Presentation

Presenting the design outcome is about capturing the audience's imagination and allowing them to envision this outcome in use. The presentation is also about articulating the outcome in such a way as to help facilitate further conversation. This is the part of the design process which Cross (1999) describes as 'rhetorical' (p.28) meaning that design is persuasive and seductive.

This rhetorical nature of design has been summarised in a comment by the outstanding architect, Denys Lasdun:

Our job is to give the client... not what he wants, but what he never dreamed he wanted; and when he gets it, he recognizes it as something he wanted all the time. (Cross, 1999, p. 28)

The previous Design Outcome chapter has described, in detail, *what kind of methodology is produced*. This chapter moves on to the *how* and *why* question in order to illustrate the design proposal for the Bigamatics design-led methodology. First, I explain how the Bigamatics methodology could work. As part of this how explanation I present the methodology through a mock-up of a guidebook entitled: *Researchers Guide to Bigamatics: a design-led methodology*. This mock-up shows the Bigamatics methodology in a form that others can apply to their own projects or analyse for further discussion. The aim of this guidebook is to facilitate further conversation into Bigamatics as a design-led methodology. By further conversation I am implying both as discourse and practice. Secondly, I consider why this design-led methodology should be of significant value and then complete the design process. The next Conclusion chapter will reflect on this design proposal, its implications and future directions.

How?

Bigamatics can be used as a methodology for engaging in cross-disciplinary and inter-community conversation, forming a network of knowledge cultures; individual, local, specialist, strategic and holistic (Brown, 2008) to construct propositions about possible futures. To illustrate how this methodology works, this section presents a guide to the Bigamatics design-led methodology.

Mock-up

A mock-up of the Bigamatics guidebook is included at the end of this section. Before presenting this guidebook it is necessary to explain the design considerations I made for compiling this mock-up.

By mock-up I am referring to the design term of a draft or a representation of the final design outcome, which demonstrates the ‘look and feel’ of the design proposal, to check and discuss before implementation. This mock-up of a guide to Bigamatics has been compiled by adapting segments from the previous chapters of this thesis; it forms an instructional guide for researchers interested in applying a Bigamatics approach to their research project. I have designed this guidebook for early career researchers, particularly Honours and PhD students. I have chosen research students as the main audience because, from my experience during this study, this group has shown the most interest in using creative approaches for their research projects. In particular, research students from the Fenner School of Environment and Society have actively sought me out during the course of this project to find out more information about using creative approaches¹. So, it is for them that I write these initial guidelines. Some of the sections in the guidebook are responses to questions that I have been asked by these research students. The graphic elements of this guidebook are designed to help simulate the look and feel of a mock-up for a book.

The following explanation is adapted from a section of my paper (Hocking, 2008b) presented at the ‘Undisciplined’ Design Research Society conference.

.....
1 In addition, there has also been interest from design and other creative researchers who I have presented to through the Creative Research Discussion group at UC and international conferences as well as natural and social scientists who have attended my presentations at the Human Ecology Forum at ANU.

About the Guide

The mock-up gives instructions on how to implement the proposed design-led methodology. It is a *how to* users guide, or as Manzini defines, a Do-It-Yourself (DIY) kit describing how to apply a Bigamatics methodology. The main purpose for this mock-up is to propel the Bigamatics methodology beyond the proposal phase by encouraging the reader to imagine this methodology in action. The intention is to facilitate further conversations and the development of the Bigamatics methodology.

The guide to Bigamatics outlines how to get started; what questions are appropriate for the methodology to address and how to initiate a design-led project. It describes the nature of the approach and the self-generating, conversational structure. The operation of the methodology is illustrated through a structure formed out of the design process. The role of the designer in this process is described as a facilitator, rather than expert, who needs to be open to unforeseen possibilities. As part of this role, the guide highlights the importance that researchers and collaborators are able to express their personality and various identities through the research project.

This mock-up also provides *maps* of different possible research designs which explore different structures, forms of collaboration and knowledge systems. Suggestions are given for where to find out more information to help develop a Bigamatics project; for example, more sources of participatory design methods and more information on creative approaches. Some extra hints and tips are included for those unfamiliar with creative approaches, as well as information on identifying obstacles to applying the methodology. Then the nature of the Bigamatics outcome is defined as finding fiction in the form of design proposals rather than truth.

This Bigamatics guide is meant to be neither deterministic or universal; instead, it provides recommendations that enable researchers to design the approach to suite themselves, their project and particularly the system of everyday life they are investigating. This guide is intended to be accessible not only to designers, who will be familiar with many aspects of the approach, but also other socially oriented researchers. For this reason, the guide includes a glossary of terms to aid the accessibility for non-designers.

Researcher's Guide to Bigamatics: A Design-led Methodology

The following pages present the mock-up of a guide to Bigamatics.

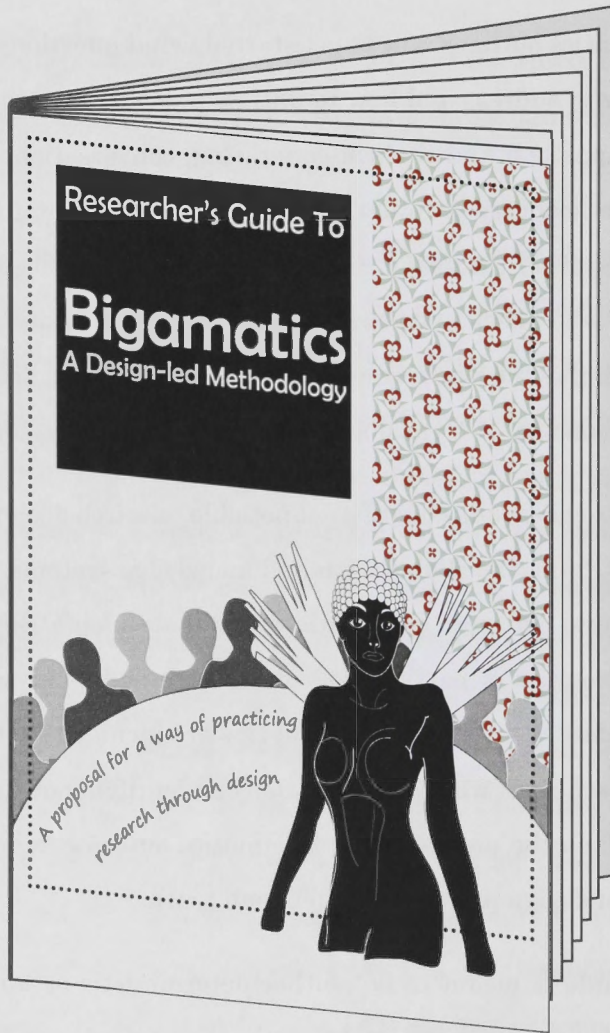


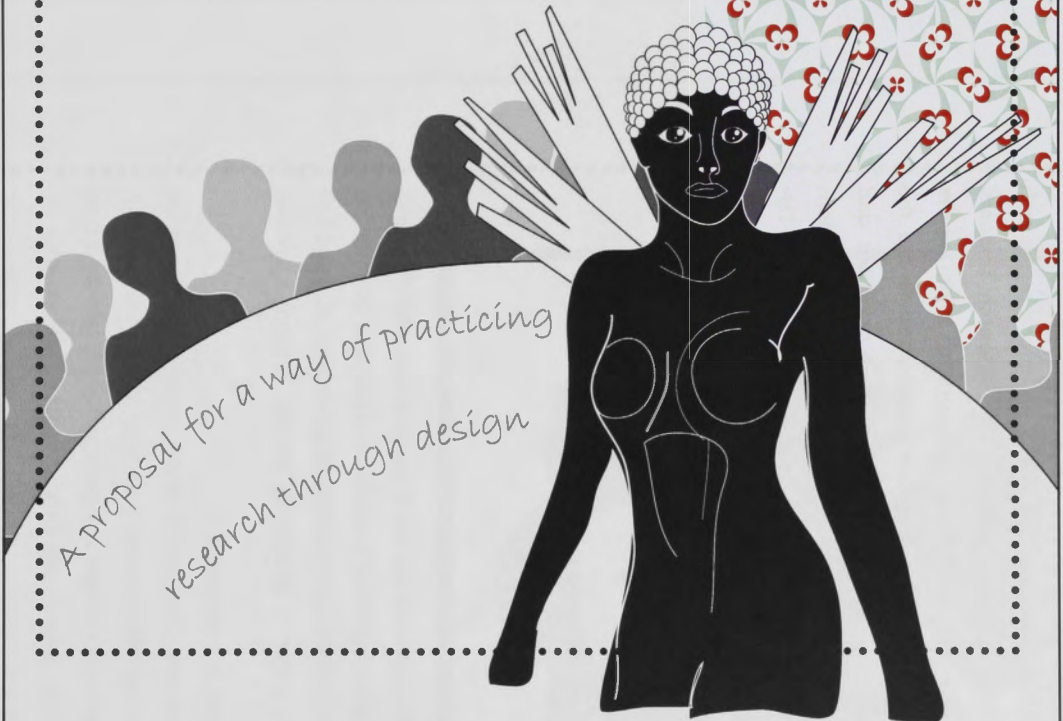
Figure 74: Researcher's Guide to Bigamatics

mock-up of an A5 book

Researcher's Guide To

Bigamatics

A Design-led Methodology



*A proposal for a way of practicing
research through design*

How to use this Guide

This guidebook is intended for a diversity of socially oriented research disciplines including design and particularly for research students. Designers will be familiar with the designerly approach taken by the Bigamatics Design-led Methodology and are encouraged to use the methodology in its entirety while applying their own additions and modifications. Other social researchers may only want to use sections of the methodology for certain contexts in their own research. This guide only intends to make suggestions of what could be done and leaves plenty of scope for the reader to develop an appropriate methodological approach for their own research project.

Like a guide to cooking without a recipe book!

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Design-led

There are many ways to understand design. Often people think of 'design' as objects - like chairs, posters or buildings - but design is also a process. Most people design, whether they realise it or not. We are designing every time we ask 'what ought to be' or consider what kind of change we might want for the future.

Design has a thousand faces. A myriad of people in many different disciplines, from science to education, engage in the activity of design as part of their practice. From designing a research method to designing a course outline. Although they may not be a professional designer they



Design With a Thousand Faces

are one of the faces of design. The activity of design is shared across all these manifestations and hence this design-led methodology shares this aptitude for a design approach to research.

A design approach is playful. It places the designer's personality as central to the process. It is iterative. It moves from the general to the specific. It works within ambiguity and fluidity of meaning. It is open to unforeseen circumstances. It engages with the messiness of everyday life. Design outcomes aim to facilitate our everyday practices, helping to create and recreate our culture of living. It is an activity that we all do. Now, we all need to be part of designing a more sustainable future.

Emerging research in the design discipline has been exploring forms of research *through* design. These approaches are project-based and practice-based research, which imbed the research in a design project. The Bigamatics methodology is one form of research *through* design. The development of this methodology took the practice of design as a process of constructing knowledge for an artefact and remoulded it into a process that constructs knowledge for socially oriented research outcomes. The resulting Bigamatics methodology is a compilation of design practice, research and sustainability to provide a creative approach to formulating practical socially oriented research outcomes.

Bigamatics

The Bigamatics design-led methodology uses a design approach to socially oriented research which defines a process of designing proposals for positive social change. The methodology lies within a constructionist epistemology, under a post-industrial design perspective and utilises participatory design methods.

The name Bigamatics describes the process of designing good ideas for action. Bigamatics is based on the word 'biga' which is an Italian baking term. A Biga is a starter culture used in making bread, which is made by retaining a portion of the days dough to be used in the next day's bread, to improve its texture and flavour. Before the development of commercial yeasts bread was leavened with a 'mother', a batter of flour and water hosting a live culture of wild yeasts, which is still used in the production of sourdough bread. Although commercial yeasts improve the speed of fermentation and make bakeries more efficient, it produce bread with less flavour and a poorer texture. The use of biga adapts an old method of bread making (i.e. the mother culture used in sough dough) to make a new method work better (i.e. the use of commercial yeast).

Like the biga in bread making, Bigamatics proposes a design-led methodology which takes an 'old method' from creative practice (specifically design) and applies it to a 'new method', research. In this case 'work better' is defined as more creatively. Bigamatics is constructed specifically for each use and is not a universal methodology. It is like a starter culture for generating proposals for positive social change. The Bigamatic methodology outlines how to collaboratively construct

the sagacity needed to achieve serendipitous discoveries. However, Bigamatics goes further than just coming up with a good idea; it moulds the idea into a proposition for implementation. In this Bigamatic context a good idea is sustainable, supports the system of everyday life and in so doing improves our culture of living. Bigamatics proposes a way to design good ideas which can act as a catalyst for positive social change.

Bigamatics is a collaborative methodology which enables all participants to be part of the design process. It is a methodology that is self-generating with each step in the process designing the next step until a design outcome is reached. This self generating attribute allows for the research approach to be designed specifically for the context of each study. These key features include:

1. Maximising involvement
2. Enabling design
3. Self generating
4. Context specific

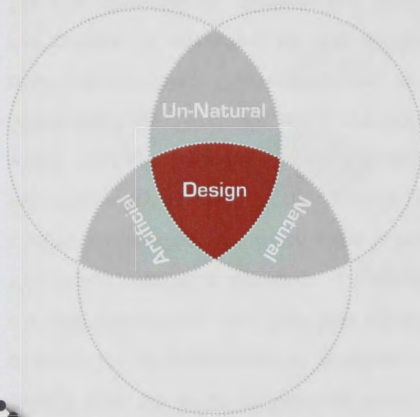
The Bigamatics methodology is like forming an open studio for research, where the researcher becomes the facilitator of the design process – a process which engages participants in designing the research outcomes.

The Context

Bigamatics enables design from within the system of the everyday. The system of everyday life is the complex interconnected networks involved in people living their day to day lives in a community within a natural and cultural environment. Enabling design is about engaging participants collaboratively in a design process. The methodology aims to maximise involvement in designing proposals for possible futures. This collaboration is formed from representatives of the system of the everyday being studied. The aim of this collaboration is to design outcomes which are well suited to that system. The three following diagrams describe this context for the Bigamatics design-led methodology.

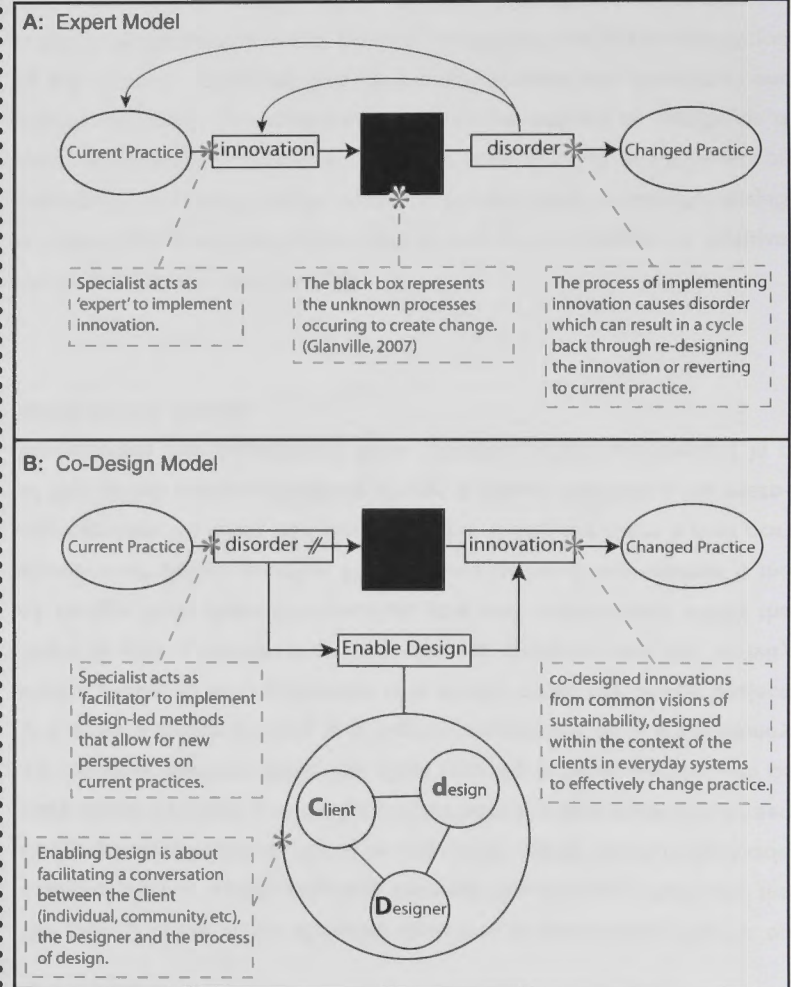
The Three-Bodied Design Sketch-Model

This model is derived from the physics term 'three bodied problem'. The interaction of two bodies is predictable but more than two becomes unpredictable. The three bodies in this design model are the natural, un-natural and artificial. The natural refers to the physical world around us. The artificial is the aspect of the physical world created by us and the un-natural is non-material; the realm of thought, theory and ideas. Design lies within the intersection of the three. These are the interconnecting network of systems that make up the system of the everyday.



The Expert v's Co-Design Sketch-Model

This sketch-model conceptualises a move from the expert to a collaborative model of design. The Expert sketch-model (A) is describing the use of design to move current practice towards changed practice.



The use of 'change practice' is a very general way of considering what design can do in all its various forms. Whether the design outcome is a material or non-material artefact the intended purpose is to come up with something new that has an effect on the way we do things. In this Expert model a designer is brought into a situation as an expert to create innovation. The innovation is implemented into the complexity of the everyday context and interacts with that context in unpredictable ways through undefinable processes, represented by the black box (described by Glanville as a symbol of all that is uncertain, unknown and unknowable). This eventuates in varying degrees of disorder as the context is affected by the design outcome. The desired result is for this disorder to change the practice. However, often due to the unpredictable nature of implementing the design outcome in the everyday context the disorder can turn into discomfort that requires amendments to the innovation or which causes the process to revert back to its current practice.

Then, in swapping the order of innovation and disorder morphs the Expert sketch-model (A) into a Co-design sketch-model (B). In the Co-design model the participants are enabled to design and the designer becomes the facilitator of the design process. Disorder is used to make a break with current practice to imagine change and allow for new perspectives and ideas to be generated. This break allows the designer to act as a facilitator of a conversation between the participant (client), the design process and the designer to enable the design of innovation to change practice. This sketch-model proposes that this innovation should be better suited to changing practice since it has been designed in collaboration with participants from that particular context. This co-design approach attempts to more effectively immerse the process in the complexity the black box represents. The idea this sketch-model

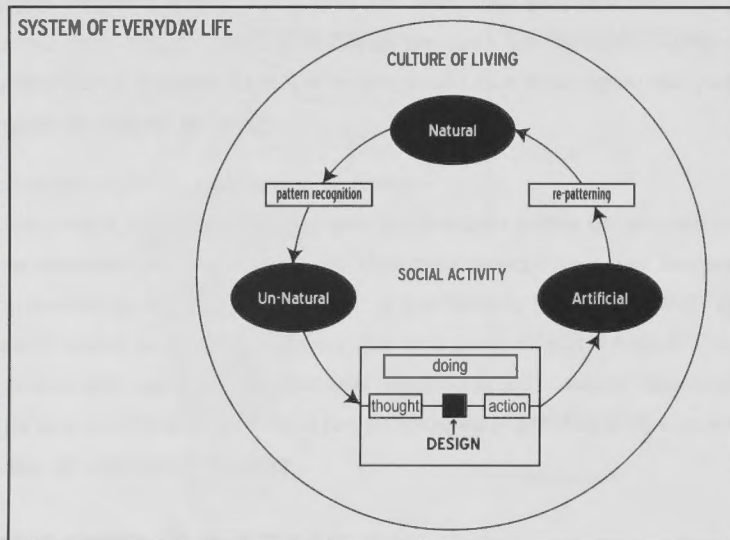
illustrates is to consider the use of a collaborative approach to design more appropriate outcomes.

The central circle in the diagram describes a conversation that is an essential part of design practice; between the designer, client and the design process. However, this is an interaction which needs to be made more collaborative. In any design project there is a conversation between the designer and the client. The client may be a single person such as in a private design project, a group of people such as in a community design project or an organisation such as in a corporate design project. There is also a conversation between the designer and the activity of design. Both these conversations are well represented within the discourse of design practice. The conversation least represented is the one between the client and design. That is to say, the client is also part of the design process. Enabling design is about facilitating the meta-conversation that engages all three (designer, client and design) in a collaborative process.

Culture of Living Sketch-Model

This Culture of Living sketch model describes a systems approach to design. Here 'culture' is used as the metaphor for a network of interconnecting systems that forms patterns inherent in the practices of everyday life and 'living' is at the core of the systems 'purposiveness'. The 'culture of living' then implies a network of interconnecting systems that characterise a way of life in any one time and place. This systems metaphor describes the interplay of natural, artificial and un-natural systems enacted to form our everyday lives. Putting this phrase, 'culture of living', into action: our western consumerist culture of living has proven to be detrimental to the world and hence we need to find a sustainable culture of living.

This sketch-model is used as an aid to conceptualising design's place in the system. The diagram describes a cyclic process where we understand and act in our 'natural' world through pattern recognition; this forms



our 'un-natural' world of thought, theory and concept. We utilise our 'un-natural' world for doing, designing and making, which forms our 'artificial' world which in turn re-patterns our 'natural' world. Here the 'culture of living' is both the context of 'social activity' and facilitated by 'social activity'. The design act of 'doing' is represented as an element in the cyclic process of 'social activity' acting as a link in the integration of the 'natural', 'artificial' and 'un-natural' systems that generates our 'culture of living'. This diagram highlights the activity of design as a vital link in creating and recreating our 'culture of living' in the system of everyday life. Placing design within this system assists in conceptualising a context for how design can play a role in contributing to positive social change, like sustainability.

Getting Started

How to initiate a project

The first components that need to be identified is the system of everyday life and then the research question relevant to that context. Alternately the question could be identified first and then an appropriate system of everyday life could be found. If the project is commissioned then the question will arise from the specified directions. If the project is constructed by the researchers then the question should be derived from an exploration of their areas of interest.

What question to ask?

Appropriate questions for this methodology are ones about the future, about what could, should or ought to be. They are questions which are linked to the present, which look for responses that are possible but focused on the future and explore outcomes which are fictional. These are questions which seek responses in the form of fictional possibilities. That is, they ask about the formulation of 'good ideas' to imagine positive change – what might be better or how to improve – which relate to social contexts within everyday systems of life.

Finding the best question is not necessary. As long as it is the appropriate kind of question (ie. about what could/should or ought to be) and it is generally focusing on the area of interest then it should be good enough. The question that is initially asked should reflect an understanding of the issues involved. However, whatever question is identified needs to be viewed with a high degree of uncertainty. Since, there is no way to be sure that the stated question is the right question to be asking.

An understanding will arise as the project proceeds so the question needs to be open enough to accommodate these changes. This can be addressed by making the question very general, slightly ambiguous and highly interpretive.

For example, in a project I conducted in the rural town of Tumut I asked a question about imagining sustainable wellbeing for the town's future. This is a question about change for the better that can persist. Both sustainability and wellbeing are both ambiguous terms, having different connotations to different people. This ambiguity allows the question to be highly interpretive. The question focused on my area of interest in positive social change- socially focused sustainability – and was open enough to explore what kind of change the community would identify.

It is also important that the question does not intend to generate responses for what is true or false, right or wrong instead the question should intend to find out what can be subjectively assessed as good or bad. Even though the outcomes are proposals for action which would be possible to implement, they are still restricted to fictional possibilities. By its nature fiction is not true or false only subjectively good or bad.

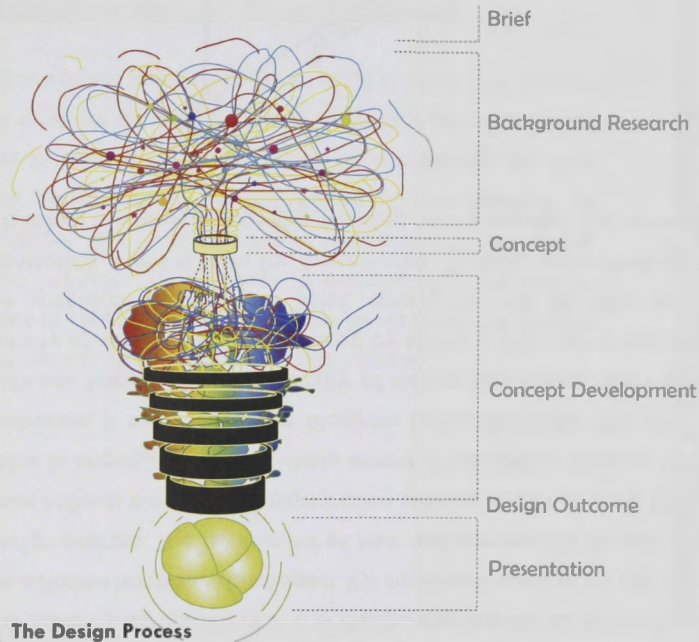
Where to Start

The initial phase of background research should find a large diversity of ideas and possibilities. Do not just look for the relevant. Things that are seemingly irrelevant could also be important. The community chosen can also help uncover interesting background information. Be open and explore widely.

Approach

The Bigamatics methodology requires a designerly approach. It is a process about play, looking around, collecting, selecting, distilling ideas, entering into conversations, transforming idea into action and giving them form. Sources of ideas and inspiration can come from anywhere: a book, pictures, objects, movies, walks, and so on. Be open to possibilities. The researcher's personality should not be hidden; instead it should be a core part of the project and visible through the aesthetics and intentions.

The diagram below describes the rhythm of the design process. It starts with nothingness; this is where the brief initiates the project. The mess



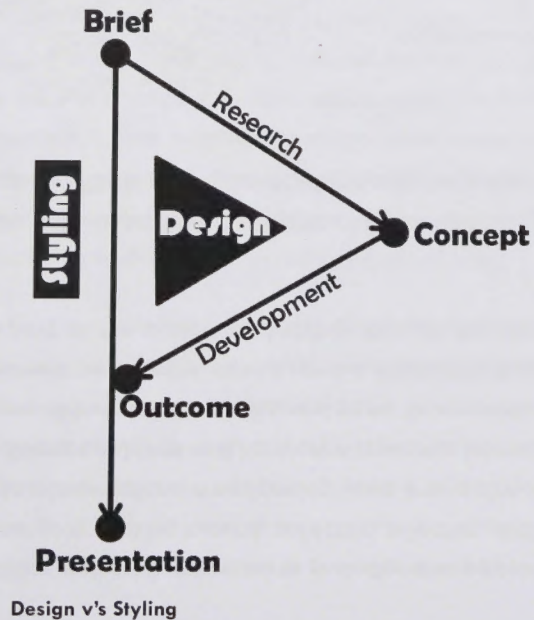
of chaotic multi coloured lines then draws a wide and entangled path. This represents the scope of the background research where everything relevant and irrelevant is explored. Then this large unwieldy mass is distilled into a concept, a single idea that encapsulates the project. This concept will drive the rest of the project. The lines then pull out to form globules of multi-coloured masses to represent the many ideas that are developed from the concept. The black rings represent the specifications for the project which start to mould the concept development into the appropriate form until a design outcome is achieved. The design outcome is then packaged for the presentation. The presentation using a variety of possible communication techniques to express what the outcome should look like, how it could work and why it ought to be of value.

The design approach is a process of thinking by doing. Illustrated in the drawing below, the approach is a playful interaction between the imagination, cognitive process, the eye's observations, the hand's touch and action and the formation being constructed. This approach is conversation like. It is iterative; imagining, doing, observing, reflecting and doing some more. The person in the drawing is immersed in the activity. The object in their hands represents the construction which need not have a physical form. With this approach it is important to try different things; different actions, different configurations, random juxtapositions. The rigour comes from the breadth of experimentation and the project will benefit by the diversification from the first idea.



Well Considered

The notion 'well considered' is a design studio term for how effectively the outcome has been developed. It is a notion related to the rigour of the design process. The assessment of how well considered an outcome has been reflects the depth of exploration and the extent of play. There is a value in engaging with the whole extent of the design process, however elaborate it may seem. The diagram below illustrates the difference between immersion in the activity of design and taking short cuts. The activity of design can be bypassed by taking a short cut of interpreting the specifications from the brief, coming up with an idea and then translating it into a form for presentation. Though, more often than not this leads to superficial styling. Nothing new is created, just a repetition

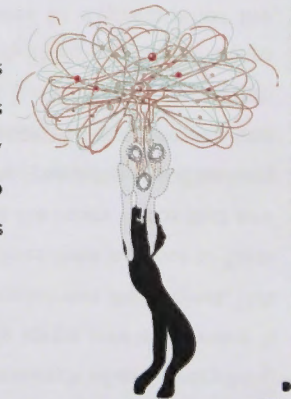


and minor variation on existing forms. To form a well considered project that generates innovative outcomes requires an engagement with the full design process. This is a process that takes direction from the brief to explore a wide range of research towards the generation of a concept. A concept that will hold everything together, from which each component is considered and which directs the development of the outcome. Then the concept is developed towards a design outcome conforming to the specifications of the brief. The outcome is then presented.

Dare to fail

Designing can create a disorienting feeling. The illustration below represents the disorientation caused by a messy confusion of ambiguous possibilities surrounded by nothingness. Designing requires an engagement with ambiguity, uncertainty, a fluidity of meaning, the unknown and unknowable. The design approach requires a 'leap of faith' and to dare to fail. Creative practitioners often quote the Samuel Becket sentiment from *Worstward Ho* of 'Ever tried. Ever failed. No matter. Try again, Fail again, Fail better'. When introducing non-designers to the design approach I suggest that this is a normal feeling and is something that designers and other creative practitioners learn to manage.

The collaborative aspect of Bigamatics seeks to maximise involvement. Hence, participants also need to be engaged in this designerly approach. This means the project needs to build creative capacity and support this feeling of disorientation expressed above.



Structure & Process

The Bigamatics structure moves from the general to the specific. There is no sense in pre-empting the outcome so it starts with an open and slightly ambiguous research question and then the structure becomes more defined and specific as the process continues until a design outcome is achieved.

The Bigamatics structure follows the design process. This process could be defined in different ways however the following phases represent a generally accepted outline: Brief, Background Research, Concept, Concept Development, Design Outcome, Presentation.

These phases form a self generating process. This means, the purpose of each phase is to design the next phase until a number of design outcomes are established and then the outcomes can be refined for presentation. In addition, this process uses a collaborative approach which enables participants to engage with the design process. Hence, participatory design methods are slotted into the phases to facilitate collaboration.



1. Brief

Comprises of the specifications derived from the project details and include area of interest, question and chosen system of the everyday.

2. Background Research

Includes a wide ranging exploration of ideas and possibilities initiated by the brief, then collected and synthesised for distilling into a concept in the next phase

3. Concept

The concept is generated from translating the background research into a core idea.

4. Concept Development

The core idea generated in the previous phase is developed towards a variety of possible design ideas for the next phase.

5. Design Outcome

The design ideas in the previous phase are transformed into possible design outcomes which are then consolidated into the main ideas for a design proposal in the next phase

6. Presentation

The outcome is communicated as a design proposal: to present what this outcome could look like, how it should work and why it ought to be of value.

Operationalise

Operationalising a Bigamtics project requires choosing appropriate methods for each phase so that it enables a collaborative design approach. These methods need to facilitate the phases of the design process and build the creative capacity of participants to aid their engagement with the design-led approach.

Choosing Methods

Different methods will be appropriate for different phases. The choice will be determined by the nature of the research project, its context and the characteristics of the researcher and collaborators.

Phase 1 - brief:

The method for this phase should be designed to generate a conversation around the question or in order to develop a question which suggests an area of investigation.

Phase 2 - background research

The method for this phase should be designed to collect a wide range of ideas, concepts, information and imagery. It is also a chance to try out different creative techniques and see which ones are most appropriate for participants from the chosen system of everyday life.

Phase 3 – concept

The method for this phase should aid in forming a pattern out of the background research. The method should allow

for the distillation of a complex generalisation into a single idea that encapsulates the project.

Phase 4 - concept development

The method for this phase needs to be designed to enable participants to play with the concept. It needs to allow for an exploration of all the different hopes, dreams and aspirations held by participants and moulding these into different kinds of possibilities.

Phase 5 - design outcome

The method for this phase should be designed to consolidate the concept development into a number of different fictional possibilities and allow them to be discussed. The method should allow for a variety of possible ways of consolidating the outcome. Perhaps one outcome can be chosen or a number of outcomes could be merged or a set of outcomes could be selected.

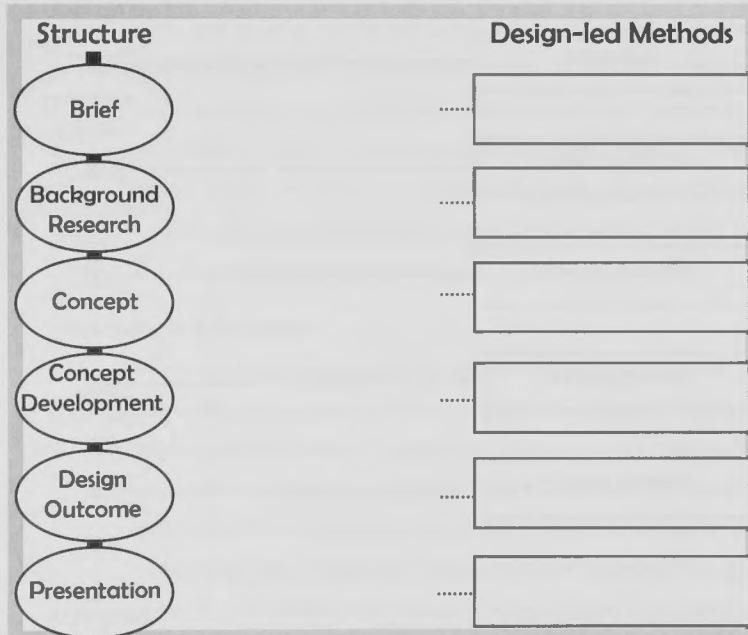
Phase 6 – presentation

The method for this phase should help communicate the outcomes generated, what it looks like, how it works and why it is of value for implementation. The method should also help generate discussion on the outcome.

Identify in the research design which part of the process is collaborative, what kind of collaboration this is and which parts will be conducted by the researcher or research team.

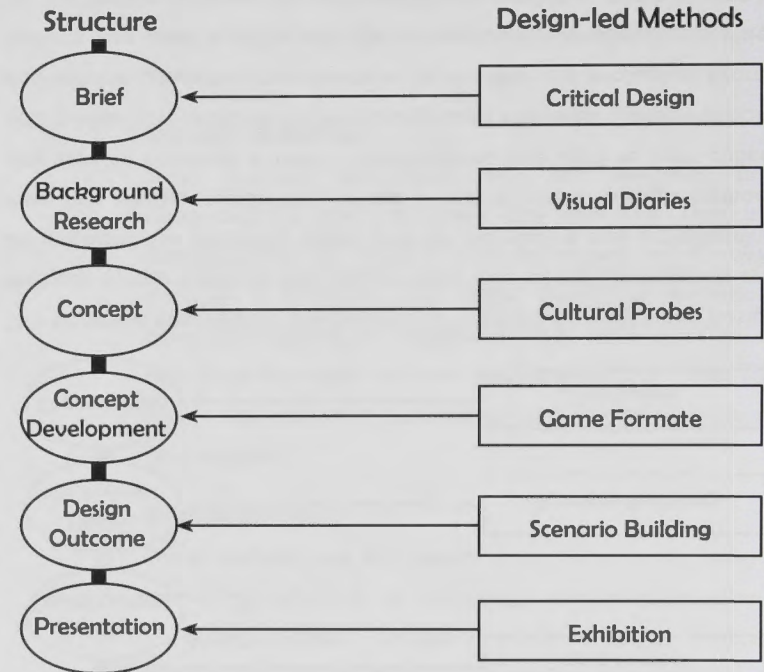
Research Design

There are many different ways a Bigamatics design-led research project could be designed. Here are a few possibilities. First start with the design structure: brief, background research, concept, concept development, design outcome, presentation. This design structure could be seen as establishing six phases of the project or twelve if you count the transitions. Then you need to choose design methods to slot into each of the phases. These methods could go in or between the phases and they could be collaborative or researcher specific. In the diagram below consider which methods you would add in each empty box of the design-led research methods column and where you would put the arrows from the methods to the structure column.



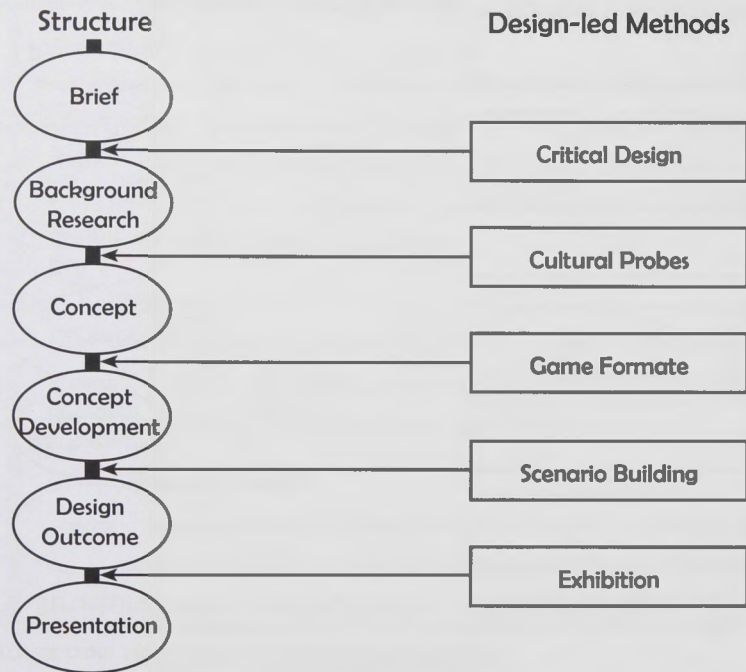
Here are a number of different possibilities:

Example A



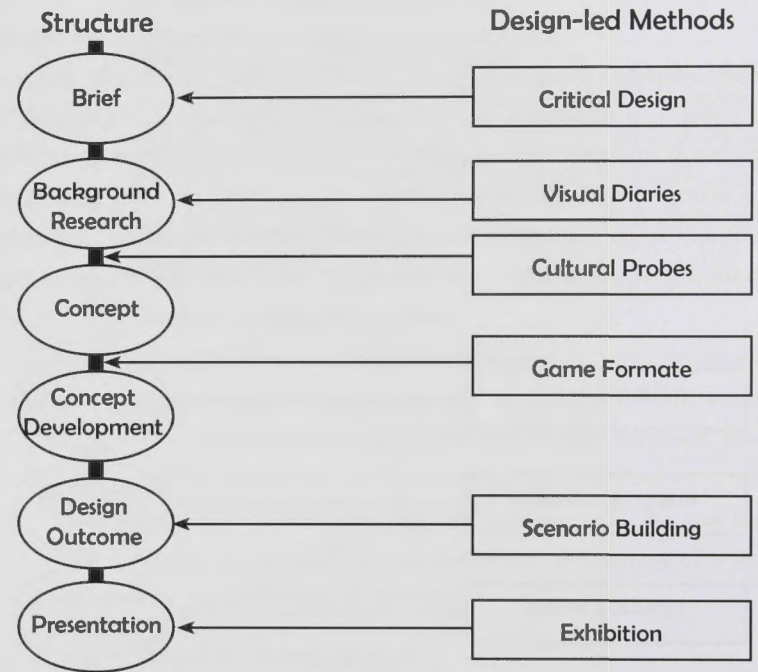
This example describes a set of participatory design methods slotted into each step of the design process. This means that the critical design method is used to construct the brief. The use of visual diaries is employed to collect the background research. Cultural probes are used to generate the concept. Game formats are applied to develop the concept. Scenario building is engaged to construct design outcomes and an exhibition is produced to deliver the presentation.

Example B



In this example participatory design methods are slotted in the transition between the steps in the design process. This means that the research team conducts the translation and transformation parts of the step and the participatory methods provide the components. Critical design is used to interpret the brief and generate the scope of the background research. Cultural probes are used to generate the components to be distilled in the concept step. A Game format is used to play with the concept and uncover possibilities to be developed into design ideas in the concept development step. Scenario building is used to develop these ideas into possible design outcomes. A studio workshop is used to consolidate these ideas into a presentation of the final design proposal.

Example C



This example describes a combination of uses for participatory design methods in and between the design steps. This means participants can be engaged for collecting ideas and for translating and transforming them into design possibilities. In this example critical design methods are used to construct a brief. Visual diaries are used to both collect and synthesis information for the background research. Cultural probes are used to generate components to be distilled into a concept. Game formats are used to play with the concept and develop possibilities for the design outcome. Scenario building is used in a studio format to construct and consolidate design outcomes. Finally an exhibition is used to present the design proposal.

Methods

Choosing a method is dependent on which phase it is for and the results from the previous phase. An existing method could be chosen for the first phase and developed for the specific context. Whereas, later phases may allow more opportunities for designing the methods more thoroughly.

Applying a Design-led Method

There are a number of existing and emerging participatory design-led methods that can be adapted for use. Design education tools could also be utilised. Examples of useful methods are:

Cultural Probes

They are usually packs consisting of a number of different creative activities. This method makes use of disordering techniques to enable participants to see their everyday lives from a new perspective and imagine change. These packs might include a camera with a set of instructions, a mapping exercise, a voice recorder as well as a set of visual prompts and questions.

Game Formats

These methods use game play to engage participants in exploring ideas and concepts. One form of game requires participants to interact within a predetermined framework, like in most popular card or board games. This means that variations are compiled rather than the creation of something new. However, there are other games like role play or simulation that open games up to constructing

new ideas. Traditional and popular games can also be remoulded into forms that facilitate more creativity. Game formats aim to give structure to a creative interaction. This orients participants within popular themes that they have experienced like comic book heroes or mythological stories.

Scenario Building

These methods use visual ways of designing and communicating ideas on every day practices. They use storyboarding or comic book techniques to visualise changes to everyday life. These visualising techniques allow participants to imagine what a different kind of everyday life might look like and how it could work. This allows the scenario's possibilities and potential value to be assessed.

Critical Design

These methods use the design of provocative or thought provoking artefacts to encourage conversations about imagining change. This looks mainly at physical three dimensional objects that allow participants to imagine its disruptive influence on everyday life. This disruption could be good or bad. These need not be possible or plausible objects the aim is to provoke reactions, responses and engage participants in concepts and possibilities.

Studio workshops

The research team can also use Studio methods to collaboratively engage in the project phases. This includes sketching, constructing sketch-models, mock-ups and constructing colour coded maps and diagrams using coloured paper and pens. These are all techniques used in design studios for education and practice.

Examples of existing projects using these methods are given in the 'Finding Out More' chapter, p.42.

Designing Your Own Method:

The methods chosen need to be re-designed and applied in such a way as to build the participants creative capacity in order to enable them to engage with the design approach. New methods can also be designed; below is one example, of how to develop new ideas for design-led methods, which comes from a workshop I developed for participatory resource management students.

Step 1: Write a list of participatory methods from social research and then a list of cultural activities. For example:

Participatory Methods	Cultural Activity
Unstructured Interview	Cleo Quiz
Focus Group	Tarrot Cards
Survey	Board Game

Step 2: Then choose (at random or on purpose) one from each column. Consider the similarities and differences between the two activities. Consider the intersection between the two and what kind of method this might suggest.

Step 3: Construct a mock-up of a method from the ideas generated in step 2

Step 4: Try out your mock-up on someone else to refine the design of your method

Example Method:

One of the students from the participatory resource management workshop chose 'tarot card' and 'unstructured interview'. The student formed an idea for asking people questions that they would answer by randomly selecting cards with images and interpreting the images to formulate a response. The student created a mock-up by drawing a variety of different images on cards. The student then tried out the method by asking fellow students to choose five cards and tell the fortune of Kosciusko National Park. This generated conversations about people's personal understanding about this particular park, the implications of change and what they imagine the future could hold. The student then refined the method by asking fellow students to create their own images on cards and then ask another student to tell the fortune for a particular subject.

This kind of method could be useful for the early phases of the project, such as the brief or the background research phase, when the methods need to uncover general ideas about the system of everyday life being investigated.

Collaborative Potential

In a Bigamatics project there are a number of different kinds of collaboration that could be used such as: the collaboration within the research team, the collaboration amongst participants and the collaboration between participants and the research team. However, in the Bigamatic approach there is no real distinction between these collaborators apart from level of responsibility.

Theorist Val Brown (2008) explores collective forms of knowledge construction. Brown identifies five western knowledge cultures: individual, local, specialist, strategic and holistic. She suggests for social change there is a need to synthesise these into a nested knowledge system, which she calls 'collective knowledge': where each knowledge culture is networked together.

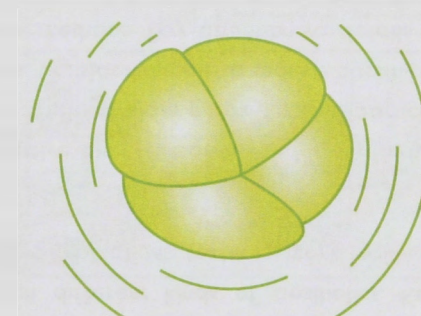
Brown's list forms different kinds of collaboration that can be formed through a project and ideally a Bigamatics project would use different combinations of all these approaches. The project team could form a collaboration of specialist knowledge. The participatory methods could form a collaboration between local, specialist and strategic knowledge. There could be parts that rely on individual knowledge, like when the researcher works in isolation to form segments of the project. There could be other collaborative events to form holistic knowledge that uses participants spanning a number of different knowledge groups. Refer to the previous 'Research Design' chapter on p.24, for examples of the different ways these collaborations could be included into the design process.

The Outcome

The outcome of a Bigamatics project is a design proposal for a fictional possibility. These outcomes do not explain what exists in the world but proposes potential change for the future. Therefore, the outcomes need to be subjectively assessed in positive or negative terms. They do not provide right/wrong or true/false answers.

The Bigamatics outcomes should be possible and plausible and should outline how they would be applied to the system of the everyday they were designed for. However, the process of implementing these outcomes goes beyond the scope of this Bigamatics methodology in its current form.

There are a number of possible paths that the outcome could take. The proposal could initiate a wider research project to generate further new ideas. The outcome could be taken up by the community to implement themselves, or a new project like an action research project could be generated to implement the proposal. Additionally, a Bigamatics project could extend the methodology to include a process of implementation.



Outcome as design proposal

Tricks & Tips

How to improve your creativity

Play and experiment with different techniques and different compositions. Try lots of different things. Doodling and sketching can be useful for generating playful ideas.

Explore a diversity of ideas. Sketching can help this exploration or daydream, observations or collect images and other examples. Find interesting juxtapositions. Seek ideas where ever you go – from movies to fine dining to walking through the streets to flicking through magazines – all can be a source of inspiration.

Work on developing a concept. This is a good skill to have and uses collection, synthesis and distillation to form an 'idea in a nutshell'.

Keep notes of your progress. Process journals are also helpful for developing creativity and building design skills. These are also known as visual diary and can aid in developing the design approach and process for the project. Many of the above suggestions can be documented in this journal. See the Process Journal section on pp.35-38

Aesthetics

Aesthetics is the overall look and feel; it is not just about beauty. Different kinds of aesthetics are hard to describe in words, however, such descriptions might include: hard-edge, rustic, childlike, earthy, grotesque, naive or elegant. The communication and interaction with the project will be aided by a consideration of aesthetics. This is an important consideration for the production of the participatory design methods to be used in the project.

You can improve your aesthetics by looking at exemplars and by identifying what you like. Make a mental note of the different effects achieved through different kinds of aesthetics. Keep a record of examples: colour combinations, textures, mark making and so on.

Interaction

Make the interactive elements of the project playful and encourage creativity. For example consider process of how participants will engage with the methods. Consider the performative qualities of events to host the collaborative methods. Pay attention to details and their cultural significance. For example how is the furniture arranged and does this suggest a hierarchy or a mode of interaction. These interactions should be designed to expect the unexpected. They should be open, allowing for serendipity and emerging opportunities.

You can improve your interaction design by looking at exemplars and analysing how different interactive objects work. Make a mental note of the experience different interactions generate and the cultural significance they invoke.

Process Journal

A process journal is an extremely useful part of any design or research process. Many designers have well developed ways of keeping a process journal (also called a visual diary). I have included some tips for how to get started for those that are new to process journals.

Keeping a process journal is a way of keeping track of your ideas, inspirations and observations. It is a way of documenting how you have generated the project. It should be a personal and aesthetic piece of communication that you can easily flick back through and quickly get an overview of the kinds of ideas you where exploring. This becomes

Headings: If you are starting out or wanting to improve your journaling for research purposes it is a good idea to establish a set of headings to help guide you through the process. Some suggestions: Searching for..., Ideas for..., To Do, Reading, Aside. You can also make headings that ask questions what...?, how...?, why...?. These headings will help guide you and make sure there is a breadth to your journal. After a while you will not need these heading and will make up appropriate ones for each entry as you go. Keeping the date of the entry next to the heading is also useful for when you are trying to find something.

Structure: I now keep my journals in chronological order. Although, in the past I used to do my journals on loose leaf paper and reconstruct them into plastic leaf display books for each small project. I recommend chronological order since it takes less time to maintain and is only intended for your personal use.

Choosing a Notebook: Find a book that enables you to generate your aesthetic approach. I recommend starting with grid or blank pages. Lined pages can also be used as long as you do not feel like you have to stay between the lines. For my journal I keep both an A4 notebook and a smaller notebook that will fit in my bag. I use the large notebook for studio or study work and use the small notebook for ideas that appear over coffee or walking to the shops.

It is important to find your own style of keeping a process journal so explore, experiment and play.

Potential Hazards

Methodological Hazards

Researchers should be aware of four obstacles to applying the Bigamatics design-led methodology authentically. Firstly, avoid translating the Bigamatic approach into more traditional research terms like 'testing' or 'data'. The Bigamatics methodology follows a design approach derived from creative practice and not the scientific method. Hence, it is misleading to use scientific terms and the methodology does not provide an approach that can fulfil traditional research processes.

Secondly, resist seeking 'true or false' or 'right or wrong' information. It is not appropriate to use the information gained to prove the existence of something or to describe a current phenomena. For example, the methodology should not be used for questions about 'what is' or 'why it is', instead Bigamatics addresses questions about what could, should or ought to be.

Thirdly, avoid looking for a problem to define the initial research question. The focus of Bigamatics is on improvement rather than problem solving. A problem does not need to be identified or even present for there to be a desire or need to improve. Rittel (1972) identifies the complication of choosing a problem within a wicked context (a complex context such as Bigamatics operates in) as all problems are symptoms of other problems. As recommended earlier finding an open question avoids this obstacle.

Finally, the successfulness of the outcome should remain uncertain despite gaining collective support through the process. The outcome remains as Baudrillard (1968) would term a 'techneme'. A techneme

is the technical specifications for an artefact. The design proposal can only communicate the techneme since when the proposal is implemented into the system from which it was constructed it will continue to morph its form and role. Hence, the Bigamatics outcome is not the solution to the problem, instead is a proposal for change.

Operational Hazards

Here are some obstacles to applying the methodology and collaborating with participants.

Avoid asking questions which have direct answers. It is better to ask questions which are open ended, that is they do not require a specific answer. Participants can interpret the question in their own way which encourages imaginative responses. These responses are not meant to be accurate depictions of reality rather they should engage the participant's imagination.

There is no need to be too exact or too serious. The collaborative design approach should be playful, to encourage imagination and creativity it helps to create a fun atmosphere. It is important not to hide your personality. The researchers and collaborators personalities are central to the project, so this should be expressed through what it looks like and how it works. It is also useful to encourage people to engage their whole identity, public, private, work, individual, subjective and objective selves. It is advisable to avoid pre-empting the responses or outcomes. It will be more successful to staying open to unforeseen results. This way the project can gather information that was not thought of and develop in ways that were not imagined.

If you do not have experience in community participation it is a good idea to develop your communication skills. Talking to other disciplines

can help you explain yourself more clearly to others. If the project is focused on a local community then there will probably be a wide variety of education and confidence levels. Keep the language simple but respectful. Attending something like a science communication course can help develop the communicative style for the collaborative approach. Remember the Bigamatics approach means there is no need to present yourself as the expert. In addition, finding a member of the research team or a member of the community with community participation skills can also be productive.



Community participation: This image was taken at the Coeee Cottage in Tumut. Participants are playing a game to develop the concept of diversifying cohesively.

Finding Out More

Here is a list of some suggestions on where to get more information, ideas and inspiration.

Participatory Design Methods

There are many papers written about the development and use of different kinds of participatory methods. These are also known as co-creation and co-design. Maase and Dorst gives an overview of co-creation approaches.

Maase, S., & Dorst, K. (2006, 20th-21st April). Co-creation: A way to reach sustainable social innovation? Paper presented at the Perspectives on Radical Changes to Sustainable Consumption and Production, Copenhagen.

Cultural Probes

Gaver and his research team instigated cultural probes and here are two papers as a starting point.

Gaver, W. W., Boucher, A., Pennington, S., & Walker, B. (2004). Cultural Probes and Value of Uncertainty. *Interactions*, September + October, 53-56.

Gaver, W. W., Dunne, T., & Pacenti, E. (1999). Cultural Probes. *Interactions*, January + February, 21-29.

Here are some more recent uses of culture probes in other design projects

Hielscher, S., Fisher, T., & Cooper, T. (2007, April 11-13). How Often do you Wash your Hair? Design as Disordering: Everyday Routines, Human Object Theories, Probes and Sustainability. Paper presented at the 'Dancing with Disorder' European Academy of Design Conference, Izmir.

Ivey, M., Saunders, E. B. N., Li, Y., Kirk, E., Ricketts, I., Stevenson, L., O'Connor, M. & Chang, Y. (2007). Giving Voice to Equitable Collaboration in Participatory Design Research. Paper presented at the 'Dancing with Disorder' European Academy of Design Conference.

Examples from my own work of Cultural probe like activity packs



Tumut Project Pack

This pack is an example of my take on cultural probes. It is made out of coloured and plain A4 paper which is cut and folded to size. It was intended to look like a small gift which ask participants to respond to the activities inside and return. The pack contained details about the project and a series of activities for particepants to engage with, document their responcees and return by mail.

Playbeing play this with groups or as a board!

Opposite is a set of 6 cards

Step 1: Remove cards

Step 2: Place the cards in a row, picture side up

Discuss what each card could mean and write it down

Step 3: Shuffle the cards and place them in a pile

Step 4: Open this stack and try to be accurate

Step 5: I hope you have a lot of fun!

Cultivating Connections

Rules:

- Take it in turns to take a card from the pile.
- Look at the chosen card and decide what it means to you.
- Give the card a position on the diagram by writing down the name of the chosen card and decide what it means to you.
- The cards are connected to each other by lines. If you position a card in a circle that is connected to cards positioned in other circles you need to make a justification for this connection.
- Each move needs to be reasonable, including the justification for the connections made for creation and how built.

Row	Card letter	In Circle no.	Notes to card letters	Justification of connection
1				
2				
3				
4				
5				



Project Tumut activity: an example of one activity in the Project Tumut packs. On the right are six cards that are used as prompts in exploring ideas about everyday life in Tumut. I created this activity out of ideas from Cultural Probes and Game Formats like the Hipbone game by Charles Cameron (see <http://home.earthlink.net/~hipbone/>).

Game Format

The Underdogs and Superheroes project from the Interactive Institute in Sweden is a good example of the use of game formats.

This project is well documented on the Interactive Institute website <http://www.tii.se/reform/projects/pps/us/index.html>

Members of this research team have also written papers about this project

Mazé, R., & Jacobs, M. (2003). Underdogs & Superheroes: designing for new players in public space. Paper presented at the User Aspects of ICTs conference (CAST).

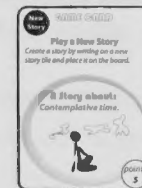
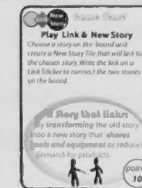
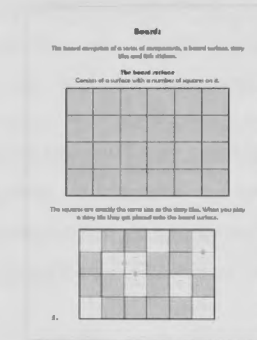
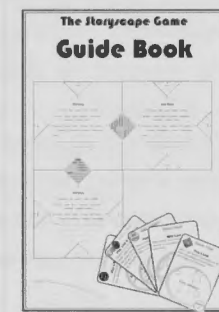
Examples from my own work of Games

The Storyscape game had two parts. One was an interaction with a three dimensional object, Larry the story tree creature. Participants were given leaf packs and asked to write a sentence about their everyday lives on each leaf.



Larry the story tree creature

The other part was a card and board game which used the stories on the leaves and asked participants to create future stories which were combined and linked on a board.



Storyscape game

Scenario Building

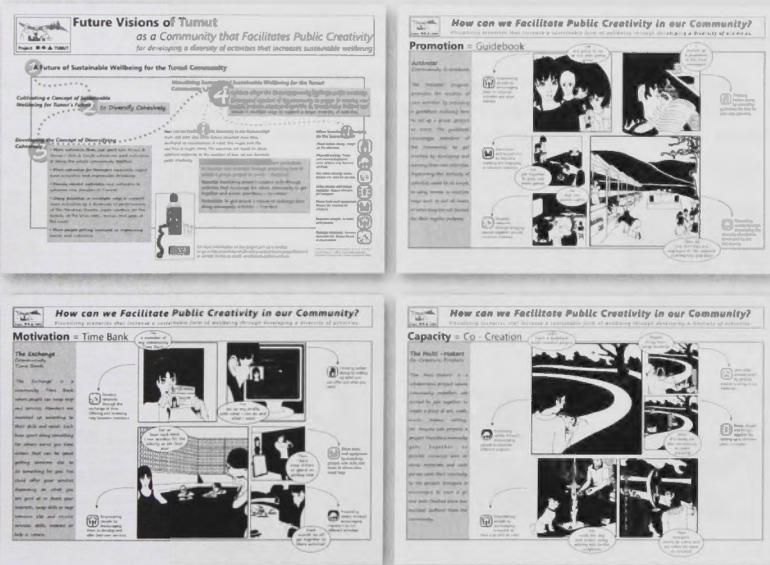
Manzini and Jégou's book from the exhibition in Milan gives a good overview of the scenario building method.

Manzini, E., & Jégou, F. (2003). *Sustainable Everyday: Scenarios of Urban Life*. Milan: Edizione Ambiente.

There is also a website containing some information about this project

Sustainable Everyday website –
<http://www.sustainable-everyday.net>

Examples from my own work of visualising Scenarios



Visualising scenarios of sustainable wellbeing for Tumut's future.

Critical Design

Raby and Dunne initiated the critical design method.

Dunne and Raby's website –
<http://www.dunneandraby.co.uk/content/projects>

Bowen's papers and thesis are another good source of information about critical design

Bowen, S. (2007, April 11-13). Crazy Ideas of Creative Probes?: Presenting Critical Artefacts to Stakeholders to Develop Innovative Product Ideas. Paper presented at the European Academy of Design Conference *Dancing with Disorder*, Izmir.

Bowen, S. (2009). *A Critical Artefact Methodology: Using Provocative Conceptual Designs to Foster Human-centred Innovation*. Sheffield Hallam University, Sheffield.

Design Research

To get involved with the wider design community and to find out what others are doing join the following internet communities:

Design Research News: To Join the e-newsletter click on 'Join or Leave Design Research' <https://www.jiscmail.ac.uk/cgi-bin/webadmin?A0=DESIGN-RESEARCH>

PhD Design List: To Join click on 'Join or Leave PHD-Design' <https://www.jiscmail.ac.uk/cgi-bin/webadmin?A0=PHD-DESIGN>

The term research-through-design was initiated by Frayling and also attributed to Archer. There are also more recent explorations of this perspective on design research by Findeli et. al.

Frayling, C. (1993). Research in Art and Design. *Royal College of Art Research Papers Series*, 1(1), 1-5.

Archer, B. (1995). The nature of research. *Co-design* (2), 6-13.

Findelli, A., Brouillet, D., Martin, S., Molneau, C., & Tarrago, R. (2008). Research Through Design and Transdisciplinary: A Tentative Contribution to the Methodology of Design Research. Paper presented at the 'Focused', *Swiss Design Network Symposium*. from http://5-10-20.ch/~sdn/SDN08_pdf_conference%20papers/04_Findeli.pdf [accessed 13/06/09]

Other useful papers include Cross's papers on design thinking, Glanville's and Manzini's perspectives on design research

Cross, N. (2001). Designerly Ways of Knowing: Design Discipline Versus Design Science. *Design Issues*, 17(3), 49-55.

Glanville, R. (1999). Re-Searching Design and Designing Research. *Design Issues*, 15(2), 80-91.

Manzini, E. (2000). Design Research: Reasons and Possibilities; The Production of a Design Knowledge taking time in the age of real-time. Paper presented at the *Politecnico di Milano Conference*.

Also, Rittel's initial paper on wicked problems outlines recommendations for more collaborative forms of design that maximise involvement.

Rittel, H. W. J. (1972). On the Planning Crisis: Systems Analysis of the 'First and Second Generations'. *Bedriftsøkonomen* (8), 390-396.

For more information on post industrial design see Moles paper

Moles, A. A. (1988). Design and Immateriality: What of it in a Post Industrial Society? *Design Issues*, 4(1), 25-32.

Sustainable Design

Manzini's work is a good place to start for getting information on sustainable design approaches

Manzini, E. (1992). Prometheus of the Everyday: The Ecology of the Artificial and the Designer's Responsibility. *Design Issues*, 9(1), 5-20.

Manzini, E., Walker, S., & Wylant, B. (2008). *Enabling Solutions for Sustainable Living: A Workshop*. Calgary: University of Calgary Press.

Other recent sustainable design projects include:

Attainable Utopias online: Set up by John Wood and others
<http://attainable-utopias.org/tiki/tiki-index.php>

Changing the Change: 2008 conference website and proceedings
<http://emma.polimi.it/emma/showEvent.do?idEvent=23>

Glossary

Artifact: is what the design discipline uses as the physical outcome from design. It is the man-made, the object, product and physical manifestation of culture.

Artificial realm: is the aspect of our world constructed by humanity. It is the physical outcome of human endeavours. It is part of a trilogy – artificial, natural and un-natural – that makes up our system of everyday life.

Constructivism: this term is used interchangeably with constructionism. It is an epistemological approach to the construction of knowledge. Constructivism suggests that there is a real world out there but that we construct meaning out of that world through our interactions and experiences with it and each other.

Culture of Living: is the systems approach to design. It describes design's role in the system of everyday life as a vital link in the creation and re-creation of our culture of living. This term is used to suggest that our present culture of living is unsustainable and we need to change towards a more sustainable culture of living.

Design: is an activity that everyone does, a discipline of study and a practice which may include graphic, industrial, architecture, interior, landscape, and so on.

Designerly: is a term used in the design discipline to describe the design approach to thinking a doing, as a design way.

Epistemology: is the study of knowledge. Different epistemologies include objectivism, constructionism, and subjectivism (Crotty, 1998).

Method: is the activity used to gather information for research. Methods include sampling, questionnaire, observation, focus group, comparative analysis and so on (Crotty, 1998). Design-led methods include cultural probes, game formats and scenario building.

Methodology: is the approach to research which determines which methods to use and how to use them. Methodologies include experimental research, survey research, ethnography, grounded theory, heuristic inquiry, action research and so on (Crotty, 1998).

Mock-up: is a design term for putting together a physical representation of a design outcome.

Natural realm: is the aspect of our world that exists despite the activities of humanity and includes humans. It is the physical outcome of natural processes. It is part of a trilogy – artificial, natural and un-natural – that makes up our system of everyday life.

Non-Object Oriented: is the dematerialisation of design. Is the refocusing of design away from the artefact and towards the culture of living that design facilitates.

Post Industrial Design: this includes a dematerialisation of design, a focus on complex systems, cybernetics and ecological models. It establishes social and environmental limits. It reassesses the role, methods and application of design in a broader sense; as an interface between technology and society, as an integrative social science, and as facilitating behavioural change.

Sketch-Model: is a design term for quick small physical representations of design ideas, usually made from cheap materials like cardboard or foam core and PVA glue. I have used it as a conceptual model, a visualisation of an idea which is not an empirical representation and should not be read as a depiction of a truth existing in reality.

Socially Oriented Research: includes all disciplines conducting studies about society. These disciplines include creative practices like design as well as humanities, social science and other sciences.

System of the Everyday: Is the complex network of systems – natural, artificial and un-natural – that make up everyday life.

Theoretical Perspective: defines the philosophical approach to research. Theoretical perspectives include positivism, phenomenology, hermeneutics, Feminism, postmodernism and so on (Crotty, 1998). The Bigamatics methodology uses a post-industrial design perspective.

Un-Natural realm: is the aspect of our world that exists in our minds and communicated through our artifacts. It is the virtual realm with no physicality of thought theory and ideas. It is part of a trilogy – artificial, natural and un-natural – that makes up our system of everyday life.

References

- Crotty, M. (1998). *The Foundations of Social Research: Meaning and Perspective in the Research Process*. Sydney: Allen and Unwin.
- Baudrillard, J. (1968). *The System of Objects*. London: (reprinted in English in 1996) Verso.
- Brown, V. (2008). *Leonardo's Vision: A Guide to Collective Thinking and Action*. Rotterdam: Sense Publishers.
- Glanville, R. (2007). A (Cybernetic) Musing: Ashby and the Black Box. *Cybernetics & Human Knowing*, 14(2-3), 189-196.
- Glanville, R. (2008). Conversation and Design. In R. Luppigini (Ed.), *Handbook of Conversation Design for Instructional Applications* (pp. 59-79). Hershey: Information Science Reference.
- Rittel, H. W. J. (1972). On the Planning Crisis: Systems Analysis of the 'First and Second Generations'. *Bedriftsøkonomen* (8), 390-396.

About the Author



Viveka Turnbull Hocking describes herself as a design practitioner who just happens to practice design through theory. She constructed the Bigamatics design-led methodology for her PhD thesis and hopes that the methodology will now take on a life of its own. Viveka encourages readers to develop the methodology further and hopes, herself, to continue working on the design approach to research.

Author's Website

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Papers by the Author

- Hocking, V. T. (2007, April 11-13). An UnNatural World: Designer as Tourist. Paper presented at the 'Dancing with Disorder' European Academy of Design Conference, Izmir.
- Hocking, V. T. (2008). Co-Designing a Sustainable Culture of Life: designing research methods for sustainable change. Paper presented at the Change the Change. from <http://www.allemandi.com/cp/ctc/book.php?id=54>
- Hocking, V. T. (2008). Designing a Travel Guide to the Un-Natural World: Exploring a Design-led Methodology. Paper presented at the Undisciplined a Design Research Society Conference. from <http://www3.shu.ac.uk/Conferences/DRS/>
- Hocking, V. T. (2009). Design With a Thousand Faces: Design-Led Methods for the Social Science Research Community. *The International Journal of Interdisciplinary Social Sciences*, 4(3), 1-16.
- Hocking, V. T. (2009). An Ecology for Design: From the Natural, Through the Artificial, To the Un-Natural. *Design Principles and Practices: An International Journal*, 3(1), 41-54.
- Hocking, V. T. (2009). Enabling Design for Sustainable Futures: Design-led research and research-led design. Paper presented at the Cumulus.

Bitamatics is a Design-Led Research Methodology.

Bigamatics outlines a design-led methodology which gives researchers access to a creative approach to socially oriented research. It is of particular value to the research of complex social issues like sustainability. The methodology takes the characteristics of design; its playfulness, its engagement with ambiguity, a fluidity of meaning, open to unforeseen opportunities and its use of the logic of discovery to generate fictional possibilities. It uses a design process and design skills of translation and transformation. It applies design-led methods like cultural probes, game formats and scenario building. Bigamatics is built out of sustainable design principles. It maximises involvement and empowers people by applying a co-design approach. The outcomes from Bigamatics form proposals for sustainable futures.



Why?

Do we as a society have the creative capacity to dream of, and subsequently create, a better future? Growing global acceptance of the need to change towards a more sustainable manner of human development means a fundamental change in how we design our future. This requires an open conversation on what to do; a conversation which requires approaches to very messy and uncertain issues. This Bigamatics design-led methodology articulates one path for opening up such a conversation across the socially oriented research community. This design-led approach has the potential to build social imagination, creativity and innovation across all parts of society: academic, local, entrepreneurial, political and so on. In so doing, this methodology could contribute to better linking knowledge cultures in an open conversation on designing our future.

Bigamatics is an approach that responds to Manzini's (1992) appeal for more complex approaches to dealing with the irreducible complexity of everyday life and the growing necessity of the sustainability 'crisis'. As Manzini suggests, creative approaches like design are a vital part of restoring a balance in forms of knowledge construction, especially when dealing with complexity. Creative fields like design are often peripheral to research and undervalued in favour of more traditional forms of research. Often these approaches are overlooked or devalued because they are seen as not having 'theory and method' in a manner comparable to other disciplines. In Australia, the design discipline still faces many obstacles in research. It is often difficult for creative practices, such as design, to win grants for research or find collaborative cross-disciplinary projects to be involved in. These obstacles are often due to the discrepancy between creative practices and traditional forms of research as well as a lack of awareness about practices like design and their potential value to research. However, socially oriented research theorists such as Law are providing extra impetus for considering creative approaches to be of significant value. Approaches like design can provide methodologies for exploring many of the things Law (2004) sees as outside current social research practices:

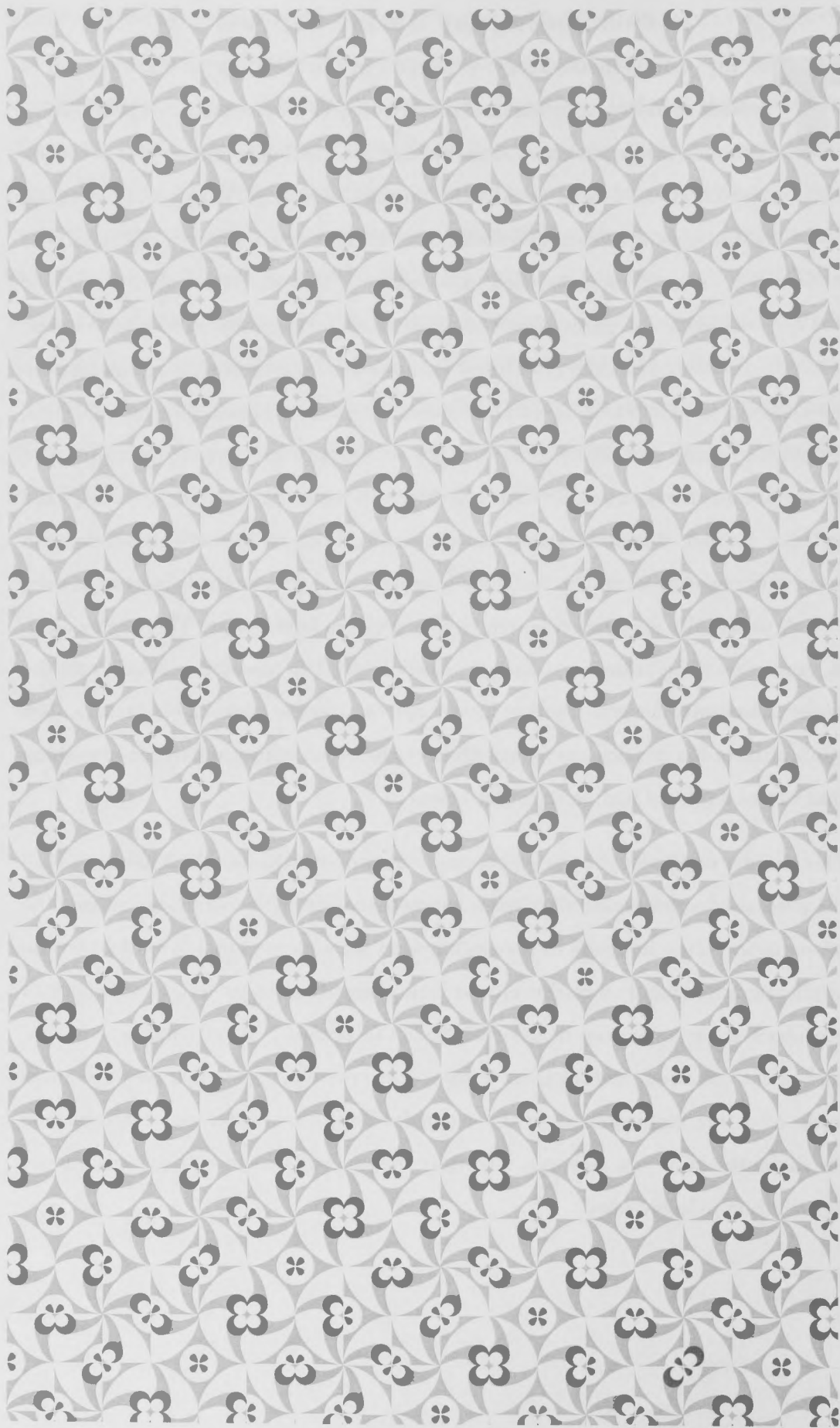
Pains and pleasures, hopes and horrors, intuitions and apprehensions, losses and redemptions, mundanities and visions, angels and demons, things that slip and slide, or appear and disappear, change shape or don't have much form at all, unpredictabilities, these are just a few of the phenomena that are hardly caught by social science methods. (Law, 2004, p. 2)

Bigamatics communicates the attributes of a design-led methodology as a creative approach able to explore many of the areas Law (2004) highlights, in a way that other disciplines can interpret according to research conventions. Defining Bigamatics as simultaneously *design-led research* and *research-led design* attempts to go some way in bridging the disciplinary divides between research in the creative practices and traditional research. This is a two way bridge that encourages the discipline of design to see its value in research beyond the object – as constructing knowledge – and in turn this knowledge can contribute to a research community grappling with the complexity of issues like sustainability. Thus, it is intended that Bigamatics can contribute to promoting design in research, which can help further the development of design research towards being perceived as of significant value in the wider socially oriented research context.

Concluding the Design Process

The Bigamatics methodology, presented in the mock-up, is not designed to provide certainty, only fictional possibilities. However, these are possibilities for action towards positive social change. The methodology becomes part of an ongoing conversation of social activity that maintains change. This is a conversation which continuously moulds the dynamic form of the culture of living. Although the methodology is designed to be used in its entirety, as each part makes the whole, this does not mean the parts cannot be changed or the segments cannot be taken as ideas for alternate research projects. It is, however, important that this design-led methodology is understood as an alternative to traditional research methodologies. Hence, the nature and characteristics of the design approach need to be maintained for maximum effectiveness. The methodology will not establish right or wrong, true or false; instead, Bigamatics gives outcomes which can be subjectively assessed in positive or negative terms (eg. desirable/inappropriate). The methodology can be used to look at socially oriented research from a creative perspective. The methodology is, hopefully, of significance to design research, socially oriented research and the wider community for constructing knowledge on possible sustainable futures. The application of Bigamatics has the possibility to be wide ranging and this is something that can be explored further in future research.

This chapter concludes the design process section of this thesis, which has explained the process of constructing the design-led methodology. Within a design setting the presentation often happens in person allowing for a conversation to unfold on the implications and future directions towards implementing the project. I have chosen a guidebook mock-up to present the outcome of this project in an attempt to stimulate such a conversation. Encouraging further conversation, hopefully, allows readers to develop this methodology, further consider design methodologies and continue the discourse in design research. The next chapter will conclude the thesis and its contribution to knowledge.



Chapter 8

Conclusion



No one in the house was sure of the frontiers
& the beautiful atlas gilded and bound with blue silk
was only of antiquarian interest & quite useless
for the new questions. The whole situation
was like a painting within a painting &
that within another & so on & so on -
until everyone had lost sight of their original landmarks.
The heath melted into the sky on the horizon.
And the questions of definition & contrast
only brought on a series of fruitless searches
& examinations that made everyone irritable & exhausted.

Verse 7 of *The 'Utopia'* by Lee Harwood
(Germain, 1978, p. 299)

As Haywood's poem¹ suggests, perhaps our perception of the world we live in has become complex and chaotic. Many of our traditional maps through our understanding are 'quite useless for the new questions'. Focusing on the specifics of 'definition & contrast' only bring on 'a series of fruitless searches'. To try and examine all the details of such complexity 'made everyone irritable & exhausted'. What is needed are more holistic approaches that can dance with the disorder and find new paths through the complexity of our world. This thesis has explored how design, as a creative practice, can provide one such approach for navigating this complexity to construct knowledge and provide a catalyst for sustainable social change.

The previous two chapters have concluded the design process; what is left to conclude in this final chapter is the question posed in the introduction of *how can design be constructed as research for sustainability?* and in so doing bring to a close the aims of the thesis. Then a reflection on the outcome, its potential and requirements for further development, propels the end of this thesis into considerations of possible implications and new directions. Finally, the contributions to knowledge can be affirmed before looking to the future of what could grow from this study.

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1 A full transcription of *The 'Utopia'* by Haywood's can be found in Appendix 1

How can design be constructed as research for sustainability?

In answering the question *how can design be constructed as research for sustainability?* the purpose of this thesis has been to construct a design-led methodology for sustainability research. Each chapter has followed the design process to outline a way of remoulding design into research. In this way, the thesis becomes an example of a design approach to research and the articulation of a design-led research proposal. The Bigamatics design-led methodology proposed provides design with an opportunity to apply a designerly form of research, to share these abilities with other socially oriented researchers, to engage in the complexity of sustainability and to develop propositions for future possibilities. This outcome is not intended to be the only design-led methodology. Design as research can take many different forms hence this design-led methodology is one among a set of methodological approaches that could, will and already do exist. This outcome contributes to movements in design research exploring forms of research-through-design and approaches to ‘understand reality without losing what we have discovered about its irreducible complexity’ (Manzini, 1992, p. 12). In contrast to most design research, focused on the development of research for the purposes of constructing artefacts, this project distinguishes itself by focusing on non-object oriented outcomes to provide a design-led approach for socially oriented research. This thesis demonstrates that the design approach can construct socially relevant knowledge for change.

The first aim of this thesis has been to imagine a place for design in a wider socially oriented research context; this place is ‘make believe’, a hope or dream that does not already exist. It is a possibility established in the context for the research in the Introduction chapter. This place imagines that design research can engage in a wider research community by moving beyond the object to construct knowledge for sustainable change, where sustainability is defined as change for the better. Sustainability is chosen as part of this imagining as a common socially oriented research issue, as an example of how design can ‘perform’ in this place. That is, to perform a role focused on constructing knowledge for social change rather than knowledge for artefacts. Imagining this place envisages a role for design which is perceived by the socially oriented research community as having significant value

to knowledge construction and to collaborative forms of research. The prospect is that, in the future, design researchers and design approaches can feature more prominently in the socially oriented research community; to achieve perspectives on aspects more traditional forms of research leave out, and to restore creative forms of knowledge construction to balance the set of accepted approaches.

The second aim of this thesis has been to apply a design approach. This approach is expressed through the configuration of the thesis and the spirit in which the study was conducted. The use of a design approach for the thesis both embeds the study within a designerly form of knowledge construction and demonstrates the potential design has in delivering research outcomes. This approach mirrors the research conducted through this study: the methodology being constructed uses the same design approach. This structure and procedure shows how a design approach can operate within familiar research conventions, including those of the PhD thesis. Consequently, the thesis configuration expresses the outcome; that is, the approach used for developing and communicating the methodology is akin to the methodological outcome of Bigamatics. Hence the thesis both communicates the process of constructing a design-led methodology and demonstrates the same design approach to research.

The third aim has been to develop a designerly form of non-object oriented research. Each chapter, from Brief to Presentation, has documented the design process to construct such a methodology, to form a design approach as a catalyst for social change, researching fictional future possibilities rather than new products. This means the study's primary focus is on the intersection of design and research, and the secondary focus is on the context of sustainability. To this extent the sustainability context is limited to the idea of *change for the better*, as an example of the role a design-led approach can play; as a set of components derived from a specific section of sustainable design research, and provides a context for the dematerialising movement which this study follows in moving beyond the object. The intersection of design and research is found by juxtaposing the components of design with research conventions. These components are identified in the Background Research chapter; however, the originality of this non-object oriented research methodology is shaped by the Concept chapter which establishes the framework for which this design-

led methodology is assembled. By conceptualising design's role in society through three sketch models, the Concept chapter develops the core concept for the study as *enabling design from within the system of the everyday*. This concept directs the composition of the research approach explored through fieldwork in Tumut, as a collaborative act with members of a system of everyday life. This exploration led to the development of a design outcome.

The fourth aim has been to propose a design-led methodology appropriate for sustainability. This proposal is explained, at length, in the Design Outcome and Presentation chapters. The methodology proposed fulfils all the criteria developed through the thesis to address this aim. This design-led methodology enables design from within the system of the everyday, in order to research innovations for sustainable change. This concept is achieved through placing the designer in the role of facilitator and participants as research collaborators and representative of their system of the everyday. Consequently, the Bigamatics proposal goes some way towards bridging the disciplinary divides between research in creative practices and more traditional forms of research. This two way bridge articulates firstly a design-led approach expressed through research conventions which more traditional research disciplines can recognise, and secondly a research-led approach expressed through design conventions which designers can recognise as providing a designerly form of knowledge construction. As a proposal Bigamatics is not intended to be ready for direct implementation, but rather presented in such a way so it can prompt further discussions and explorations into design-led methodologies.

This thesis does not determine the truth. The sketch-models in the Concept chapter are not true reflections of the world and how it works. The results from project Tumut do not identify the truth about the Tumut community. The design outcome does not intend to determine the truth about design research. Conversely, the study cannot be judged as false. The thesis proposes ideas and imaginings for fictional possibilities as a proposition of what could be. Bigamatics, as the outcome of this thesis, is intended to be a good idea. However, the extent to which Bigamatics is a good or bad idea requires further consideration and discussion, to judge if Bigamatics can: act as a catalyst for social change, bridge disciplinary divides, promote design research, provide opportunities for design researchers, be used in socially oriented

research other than design, and so on. Currently, all I claim is that Bigamatics as a proposal has the potential to either be further developed into a useful methodology or simply contribute to the discourse on design's role in socially oriented research. Either way, the thesis demonstrates one way of answering the question *how can design be constructed as research for sustainability?*

Reflection: Potential and Further Development

The Bigamatics design-led methodology proposed by this thesis shows potential; however, as a proposal there is also still more work required to develop the methodology for use.

The Bigamatics proposal has the potential to provide a new approach for design research. It provides the possibility for design research to share a design-led approach with other socially oriented research disciplines, for promoting the value of design approaches and restoring a balance in the many forms of knowledge construction. The proposed methodology also offers a new approach for collaboratively engaging with the complexity of sustainability by providing a way of generating innovative proposals for possible futures. Furthermore, in the context of the wider socially oriented research community, it offers a guide for generating good ideas and providing directions for further research. Such a design-led research methodology is also potentially of use in the research community at large because the process of design is not solely practised by professional designers. It is not only the designer who designs but all who manage choice towards change². Hence, sharing the aptitude to design can aid a design-led application across disciplines. This design-led methodology gives the research community a supplementary research paradigm, which gives the researcher a different perspective aimed not at uncovering *what is* but in devising *what next*. Design-led pathways have the potential to aid the researcher in developing a more holistic project by providing ways of opening up the process to combine many different knowledge cultures. In addition a clearly articulated and accessible design methodology, as a guide, can aid researchers gain the full potential of a design approach to research.

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2 This phrase 'managing choice towards change' as an explanation of design, comes from Craig Bremner.

This design-led kind of research also shows potential for research into sustainable development; by demonstrating one way a design approach can help to facilitate the complexity of sustainability issues requiring the combining of many different knowledge cultures in order to devise what ought to be done. However, Bigamatics in its current form also shows limitations; for example, of coming up with ‘good ideas’ without defining how to implement them. This means it is missing out the part of sustainable development which effects ‘real’ change made evident in everyday life. This study has devised Bigamatics to focus on constructing knowledge in favour of defining the action. This knowledge is intended to act as a catalyst for social change and in order to do this effectively further explorations are required into how the Bigamatics methodology might be extended or work in with other methodologies to effect change.

As a proposal, there is still more work needed to assess this design-led methodology’s significance and determining the nature of implementation. In arriving at a design outcome, the study has raised additional questions which call for further exploration: what is the breadth of the specific kinds of questions within specific contexts required for this methodology?, what are the effects of including inside as well as outside system representatives?, and how does the different extent to which collaborators are engaged effect the outcome? Also, the methodology could gain from a study of how it fits into the network of methodologies which exist in the research community. Not only to expand the potential of the methodology to implement outcomes, as suggested above, but also to see how it works in with other methodologies as a supplementary role in the progression of knowledge. The methodology would benefit from others applying and refining the approach; including, exploring different ways of implementing methods within the methodology. In addition, this thesis only mentioned a small selection of projects and theorists working in the area of sustainable design research and there are many more that were not included in this study. Although encompassing the breadth of work in the area of sustainability research was outside the scope of this study, future research could benefit from their inclusion and further enrich this approach for application in sustainability projects. There could also be benefit from a more in depth comparative analysis with other research methodologies to ascertain its significance in terms of similarities and differences.

The key finding of this research project has been the need to build creative capacity, not only in the research community but throughout all sorts of communities, to enable each to develop innovative sustainable solutions for themselves. The Bigamatics methodology outlined in the previous two chapters proposes an approach to building such creative capacity by enabling design from within the system of the everyday. It is a methodology which adds to the diversity of existing research methodologies and attempts to aid cohesion between research disciplines by designing the methodology to be shared among socially oriented researchers.

The extent of the proposal's significance will be found through conversations that continue beyond this thesis both from discussions through the theoretical discourse and further applications by myself and others. The results of this thesis contribute to the knowledge for the continuation of these conversations.

Contribution to Knowledge

The outcome of this thesis, as a proposed design-led methodology, makes an original contribution to knowledge in six key ways:

1. Outlining a process for remoulding design into research
2. Presenting the form a design-led methodology can take
3. Articulating a design-led approach which can be used by design research and others as part of socially oriented research
4. Proposing a methodology for collaboratively engaging with the complexity of sustainability studies
5. Demonstrating the value of design approaches for research and knowledge construction
6. Goes some way towards bridging the disciplinary divides between research in the creative practices and traditional research

The thesis contributes to the field of design, socially oriented research and sustainability studies in providing a new approach to research. The study distinguishes itself from other design research into methodological approaches by

combining design and research in the context of sustainability to construct a non-object oriented methodology for generating socially oriented research outcomes in the form of propositions for future possibilities. The study hopes to further the field of design research by promoting the value of its approaches to socially oriented research when engaging in the complexity of sustainability studies.

Looking to the Future

Further research is required to develop the Bigamatics methodology past its current proposal form, towards implementation in design research and particularly if it is to be used in a wider socially oriented research context, as discussed above. All future implementation of the methodology will help to both further develop the design and to determine its ability to act as a catalyst for social change. Until then the outcome of this thesis remains as a proposal of what could be.

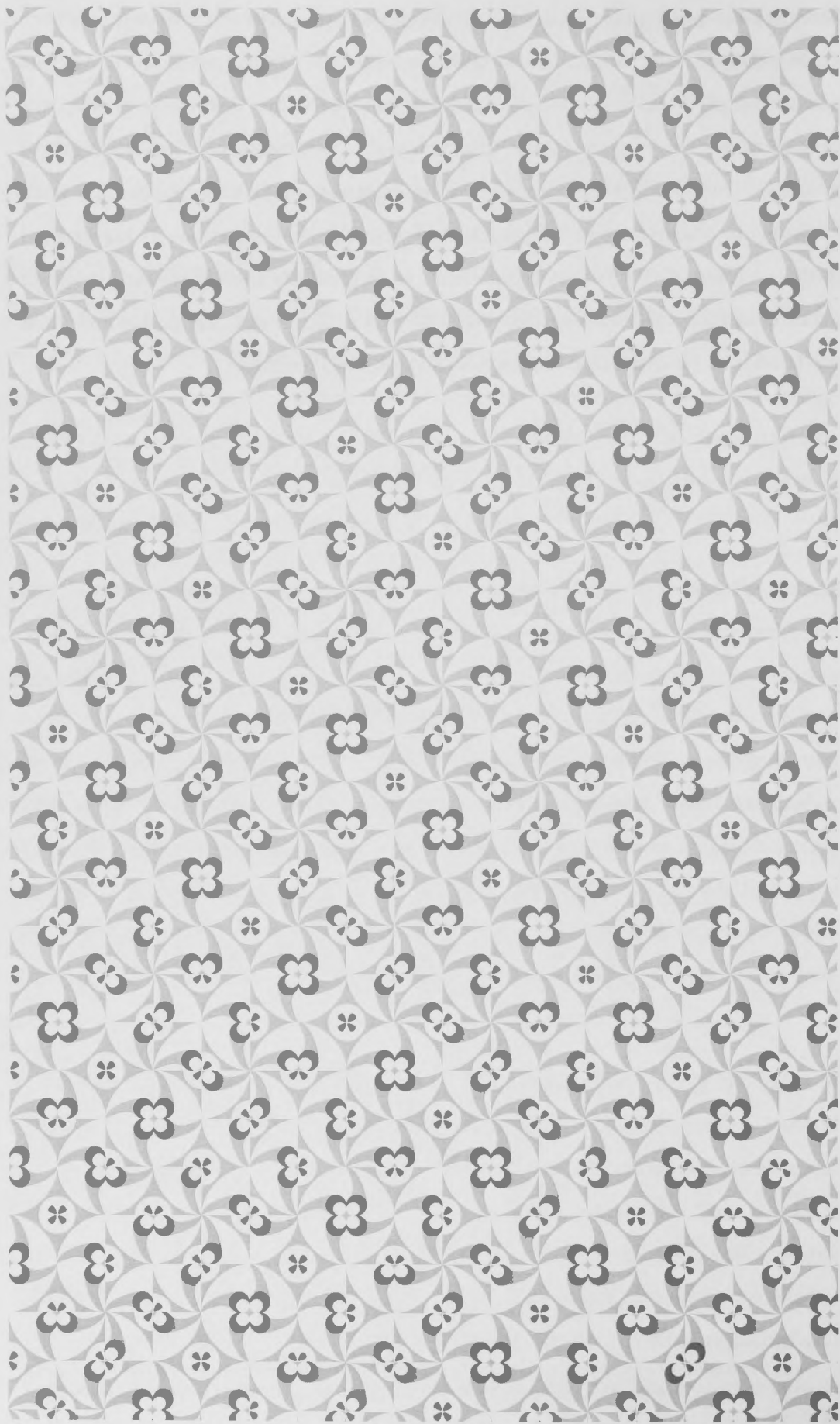
After further research, this design-led methodology could be used by design researchers to establish PhD projects and other research projects. Additionally, the methodology could be used by other socially oriented researchers to apply creative approaches to their research projects. In the long term, this kind of research has the potential to raise the profile of design research as an approach of significant value to the research community. Raising the profile of design would aid design researchers and design approaches to be employed more widely in collaborative research projects. In addition, this profile could benefit design research to find more funding opportunities (particularly in an Australian context) and increased public acceptance of design as a discipline of value for more than just making things 'look pretty'.

In the future I hope to use this thesis to continue conversations about the value of design approaches with designers and other socially oriented researchers. I would also like to develop additional projects which implement this methodology to make use of the potential of the approach and the outcomes it can achieve. That potential includes how the methodology can facilitate dreaming and creativity towards innovations for the future and its contribution to restoring a balance in knowledge construction. I would also like to further explore the cross-disciplinary potential and the different forms of collaboration that could be used in this design-led methodology.

There are far more opportunities to use design-led approaches to research now than when I started this thesis. The MAPS (Jonas, et al., 2010) and Critical Artefact methodologies (Bowen, 2009) are examples of approaches developed during this time. However, there is a need to both continue this methodological development and discourse, as well as, and perhaps most significantly, to make these approaches more accessible to researchers and research students. The challenge now, as highlighted by the attitude of the Tumut councillors³, is to continue the efforts still required before design is more widely accepted as having a significant, legitimate and valid role to offer as research that can be a catalyst for social change.

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³ Tumut councillors' perspectives can be found in the Response segment within the, Phase 4 part of Project Tumut, Developing the Methodology section in the Concept Development chapter.



Reference

List of Publications Cited in this Thesis

- Archer, B. (1995). The nature of research. *Co-design*(2), 6-13.
- Bateson, G. (1972). *Steps to an Ecology of Mind*. New York: Ballantine Books.
- Baudrillard, J. (1968). *The System of Objects*. London: (reprinted in English in 1996) Verso.
- Bayazit, N. (2004). Investigating Design: A Review of Forty Years of Design Research. *Design Issues*, 20(1), 16-29.
- Bell, D. (1973). *The Coming of Post Industrial Society*. New York: Basic Books.
- Birsel, A. (2007). *Key Note Address 'My Disorderly Mind'*. Presented at the Dancing with Disorder a European Academy of Design conference.
- Bowen, S. (2007). *Crazy Ideas of Creative Probes?: Presenting Critical Artefacts to Stakeholders to Develop Innovative Product Ideas*. Paper presented at the European Academy of Design Conference Dancing with Disorder, Izmir.
- Bowen, S. (2008). *Getting it Right: Lessons Learned in Applying a Critical Artefact Approach*. Paper presented at the Undisciplined, Design Research Society Conference.
- Bowen, S. (2009). *A Critical Artefact Methodology: Using Provocative Conceptual Designs to Foster Human-centred Innovation*. Sheffield Hallam University, Sheffield.
- Branzi, A. (1988). *Learning from Milan: Design and the Second Modernity*. Cambridge: Cambridge University Press.
- Bremner, C. (2005). Open Manifesto: An Open Letter to Design Practitioners. In K. Finn (Ed.), *Open Manifesto: Some Thoughts On Graphic Design*. Sydney: The Manifesto Group.
- Brown, N. (2000). The representation of practice. *Working Papers in Art and Design*, 1. Retrieved from <http://www.herts.ac.uk/artdes/research/papers/wpades/vol1/brown2full.html>
- Brown, V. (2008). *Leonardo's Vision: A Guide to Collective Thinking and Action*. Rotterdam: Sense Publishers.
- Brown, V., Harris, J. A., & Russell, J. Y. (Eds.). (2010). *Tackling Wicked Problems : Through the Transdisciplinary Imagination*. London: Earth Scan.
- Brundtland Commission (1987). *Our Common Future: The World Commission on Environment and Development*. New York: Oxford University Press.
- Buchanan, R. (1992). Wicked Problems in Design Thinking. *Design Issues*, 8(2), 5-21.

- Budnitz, P. (2006). *I Am Plastic: The Designer Toy Explosion*. New York: Abrams Books.
- Button, M., & Ryfe, D. M. (2005). What Can We Learn From the Practice of Deliberative Democracy? In J. Gastil & P. Levine (Eds.), *The Deliberative Democracy Handbook: Strategies for Effective Civic Engagement in the 21st Century* (pp. 20-33). San Francisco: Jossey-Bass.
- Cameron, C. (1997). Hipbone Games, from <http://home.earthlink.net/~hipbone/>
- Carson, D., Gilmore, A., Perry, C., & Gronhaug, K. (2001). *Qualitative Marketing Research*. London: Sage Publications.
- Carson, R. (1962). *Silent Spring*. Boston: Houghton Mifflin.
- Checkland, P. B. (1981). *Systems Practice Systems Thinking*. Chichester: Wiley.
- Chow, R., & Jonas, W. (2008). *Beyond Dualisms in Methodology: An Integrative Design Research Medium "MAPS" and some Reflections*. Paper presented at the 'Undisciplined' a Design Research Society Conference. from <http://www3.shu.ac.uk/Conferences/DRS/>
- Cipolla, C., & Peruccio, P. P. (Eds.). (2008). *Changing the Change Conference Proceedings*. Torino: Allumandi Conference Press, <http://www.allemandi.com/cp/ctc/>.
- Clamp (2004) *xxxHolic*, London: Tanoshimi.
- Cornwall, A., & Jewkes, R. (1995). What is Participatory Research? *Social Science & Medicine*, 41(12), 1667-1676.
- Layman, J., & Hutchison, D. (2005). New York: Alpha Books.
- Coxon, I. (2007). *Designing (Reseraching) Lived Experience*. University of Western Sydney, Sydney.
- Creighton, J. L. (2005). *The Public Participation Handbook: Making Better Decisions Through Citizen Involvement*. San Francisco: Jossey-Bass.
- Cross, N. (1990). The nature and nurture of design ability. *Design Studies*, 11(3), 127-140.
- Cross, N. (1993). Science and Design Methodology: A review. *Research in Engineering Design*, 5(2), 63-69.
- Cross, N. (1999). Natural intelligence in design. *Design Studies*, 20(1), 25-39.
- Cross, N. (2001). Designerly Ways of Knowing: Design Discipline Versus Design Science. *Design Issues*, 17(3), 49-55.
- Crotty, M. (1998). *The Foundations of Social Research: Meaning and Perspective in the Research Process*. Sydney: Allen and Unwin.
- Daniell, K. A. (2007) *Understanding the Diversity of Sustainability Viewpoints. A brief sustainability literature summary for COMMOD-ADD*, Report prepared for COMMOD-ADD (ANR Project), Montpellier, France.

- Davison, A. (2008). Contesting sustainability in theory-practice: In praise of ambivalence. *Continuum*, 22(2), 191-199.
- Dawkins, R. (1976). *The Selfish Gene*. Oxford: Oxford University Press.
- de Vaus, D. (2003). *Research Design in Social Research*. London: Sage Publications.
- Deleuze, G., & Guattari, F. (1987). *Thousand Plateaus: Capitalism and Schizophrenia* (Vol. 2). Minnesota: University of Minnesota Press.
- Diani, M. (1988). Immateriality Takes Command. *Design Issues*, 4(1/2), 6-11.
- Doordan, D. E. (1991). The Munich Design Charter. *Design Issues*, 8(1), 74-77.
- Dovers, S. (2005). *Environment and Sustainability Policy: Creation, Implementation, Evaluation*. Sydney: The Federation Press.
- Downton, P. (2004). *Design Research*. Melbourne: RMIT Press.
- Dunne, A., & Raby, F. (2001). *Design noir: The secret life of electronic objects*. Berlin: Birkhäuser.
- Eco, U. (2004). *On Beauty: A History of a Western Idea* (A. McEwen, Trans.). London: Secker & Warburg.
- Findeli, A. (1994). Ethics, Aesthetics, and Design. *Design Issues*, 10(2), 49-68.
- Findeli, A. (1999). Introduction: Design Research Special Edition. *Design Issues*, 15(2), 1-4.
- Findeli, A. (2001). Rethinking Design Education for the 21st Century: Theoretical, Methodological, and Ethical Discussion. *Design Issues*, 17(1), 5-7.
- Findeli, A., Brouillet, D., Martin, S., Molneau, C., & Tarrago, R. (2008). *Research Through Design and Transdisciplinarity: A Tentative Contribution to the Methodology of Design Research*. Paper presented at the 'Focused', Swiss Design Network Symposium. from http://5-10-20.ch/~sdn/SDN08_pdf_conference%20papers/04_Findeli.pdf
- Findeli, A. (1994). Ethics, Aesthetics, and Design. *Design Issues*, 10(2), 49-68.
- Findeli, A. (1999). Introduction: Design Research Special Edition. *Design Issues*, 15(2), 1-4.
- Fletcher, A. (1994). *The Art of Looking Sideways*. London: Phaidon.
- Flusser, V. (1995). On the Word Design: An Etymological Essay. *Design Issues*, 11(3), 50-53.
- Forlizzi, J., Stolterman, E., & Zimmerman, J. (2009). *From Design Research to Theory: Evidence of a Maturing Field*. Paper presented at the International Association of Societies of Design Research. from <http://www.iasdr2009.org/ap/index.html>
- Frayling, C. (1993). Research in Art and Design. *Royal College of Art Research Papers Series*, 1(1), 1-5.

- Gastil, J., & Keith, W. M. (2005). A Nation That (Sometimes) Likes to Talk: A Brief History of Public Deliberation in the United States. In J. Gastil & P. Levine (Eds.), *The Deliberative Democracy Handbook: Strategies for Effective Civic Engagement in the 21st Century* (pp. 3-19). San Francisco: Jossey-Bass.
- Gastil, J., & Levine, P. (Eds.). (2005). *The Deliberative Democracy Handbook: Strategies for Effective Civic Engagement in the 21st Century*. San Francisco: Jossey-Bass.
- Gaver, W. W., Boucher, A., Pennington, S., & Walker, B. (2004). Cultural Probes and Value of Uncertainty. *Interactions, September + October*, 53-56.
- Gaver, W. W., Dunne, T., & Pacenti, E. (1999). Cultural Probes. *Interactions, January + February*, 21-29.
- Germain, E. B. (Ed.). (1978). *Surrealist Poetry in English*. London: Penguin Books.
- Gibson-Graham J., K. (2005). Surplus Possibilities: postdevelopment and community economies. *Singapore Journal of Tropical Geography*, 26(1), 4-26.
- Glanville, R. (1999). Re-Searching Design and Designing Research. *Design Issues*, 15(2), 80-91.
- Glanville, R. (2006a). Construction and Design. *Constructivist Foundations*, 1(3), 61-68.
- Glanville, R. (2006b). A (Cybernetic) Musing: Invisibility and Silence. *Cybernetics And Human Knowing*, 13(1), 71-80.
- Glanville, R. (2007). A (Cybernetic) Musing: Ashby and the Black Box. *Cybernetics & Human Knowing*, 14(2-3), 189-196.
- Glanville, R. (2008). Conversation and Design. In R. Luppigini (Ed.), *Handbook of Conversation Design for Instructional Applications* (pp. 59-79). Hershey: Information Science Reference.
- Grafton, R. Q., Robin, L., & Watson, R. J. (Eds.). (2005). *Understanding the Environment: Bridging the disciplinary divides*. Sydney: UNSW Press.
- Gribbin, J. (2004). *Deep Simplicity: Chaos, Complexity and the Emergence of Life*. London.
- Hanington, B. M. (2000, May 18-20). *Innovation and Method in Design Research*. Paper presented at the Politecnico di Milano Conference, Milano.
- Hielscher, S., Fisher, T., & Cooper, T. (2007). *How Often do you Wash your Hair? Design as Disordering: Everyday Routines, Human Object Theories, Probes and Sustainability*. Paper presented at the 'Dancing with Disorder' European Academy of Design Conference, Izmir.
- Hobson, K. (2006). Bins, Bulbs, and Shower Timers: On the 'Techno-Ethics' of Sustainable Living, Ethics. *Place and Environment*, 9(3), 317-336.
- Hocking, V. T. (2007). *An UnNatural World: Designer as Tourist*. Paper presented at the 'Dancing with Disorder' European Academy of Design Conference, Izmir.

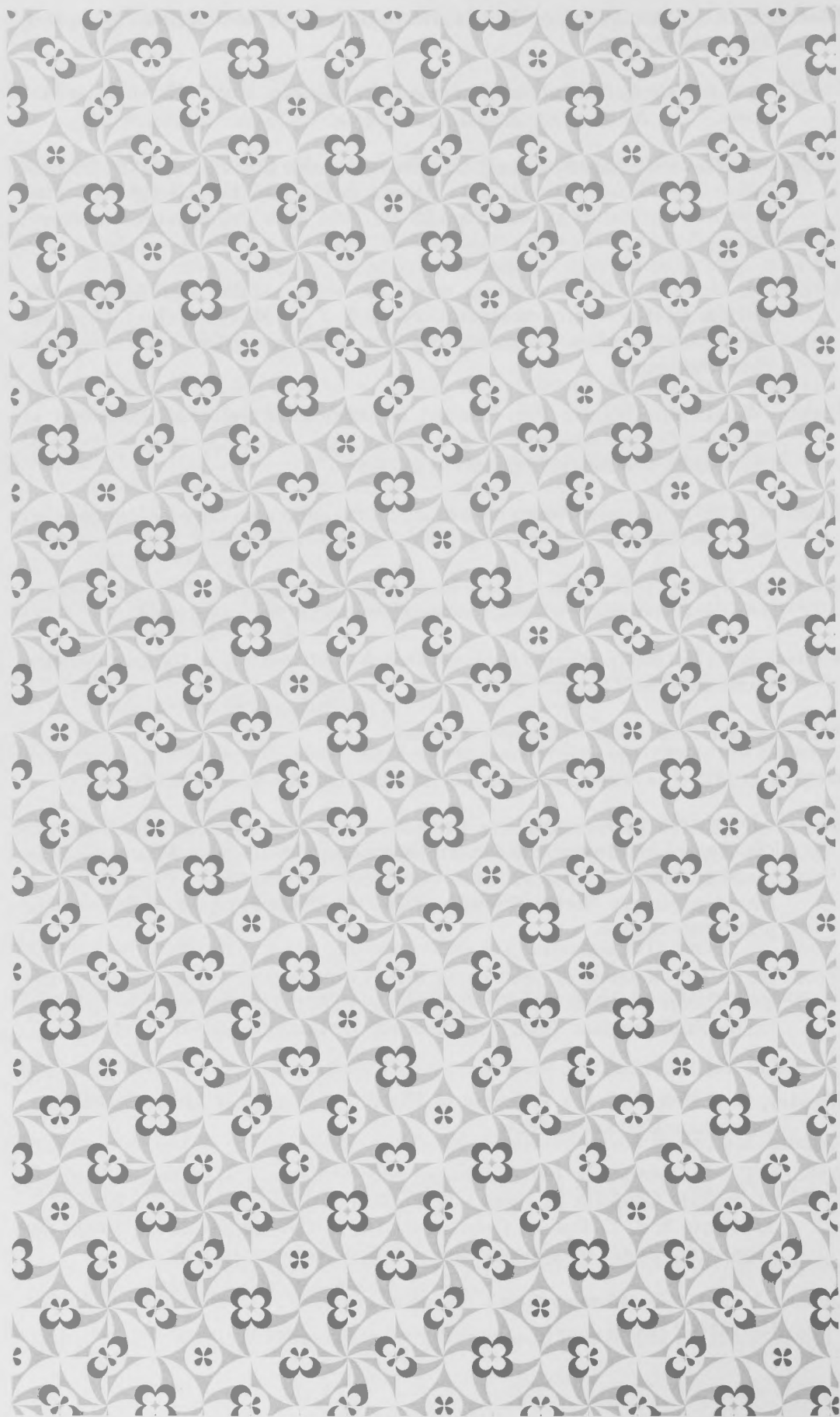
- Hocking, V. T. (2008a). *Co-Designing a Sustainable Culture of Life: designing research methods for sustainable change*. Paper presented at the Change the Change. from <http://www.allemandi.com/cp/ctc/book.php?id=54>
- Hocking, V. T. (2008b). *Designing a Travel Guide to the Un-Natural World: Exploring a Design-led Methodology*. Paper presented at the Undisciplined a Design Research Society Conference. from <http://www3.shu.ac.uk/Conferences/DRS/>
- Hocking, V. T. (2009a). Design With a Thousand Faces: Design-Led Methods for the Social Science Research Community. *The International Journal of Interdisciplinary Social Sciences*, 4(3), 1-16.
- Hocking, V. T. (2009b). An Ecology for Design: From the Natural, Through the Artificial, To the Un-Natural. *Design Principles and Practices: An International Journal*, 3(1), 41-54.
- Hocking, V. T. (2009c). *Enabling Design for Sustainable Futures: Design-led research and research-led design*. Paper presented at the Cumulus.
- Hocking, V. T. (2010). Designerly Ways of Knowing: What Does Design Have to Offer? In V. Brown, J. A. Harris & J. Y. Russell (Eds.), *Tackling Wicked Problems: Through the Transdisciplinary Imagination* (pp. 242-250). London: Earthscan.
- Honderich, T. (Ed.). (1995). *The Oxford Companion to Philosophy*. Oxford: Oxford University Press.
- Irigaray, L. (1985). Is Science Sexed? *Cultural Critique*, 2(Autumn), 73-88.
- Irigaray, L. (2002). *To Speak is Never Neutral*. London: Continuum.
- Israel, B. A., Schulz, A. J., Parker, E. A., & Becker, A. B. (1998). Review of community-based research: assessing partnership approaches to improve public health. *Annual Review of Public Health*(19), 173-202.
- Ivey, M., Saunders, E. B. N., Li, Y., Kirk, E., Ricketts, I., Stevenson, L., et al. (2007). *Giving Voice to Equitable Collaboration in Participatory Design Research*. Paper presented at the 'Dancing with Disorder' European Academy of Design Conference.
- Jacobs, M., Mazé, R., Dahlberg, A., & Götesson, A. (2005). Underdogs and Superheroes, from <http://www.tii.se/reform/projects/pps/us/>
- Jonas, W. (2001). A Scenario for Design. *Design Issues*, 17(2), 64-80.
- Jonas, W. (2007). Research through DESIGN through research: A cybernetic model of designing design foundations. *Kybernetes*, 36(9/10), 1362-1380.
- Jonas, W., & Chow, R. (2010). Maps 2.0: Theoretical Underpinning, from <http://www.designprocess.de/pdf/MAPS-theoretical-background.pdf>
- Jonas, W., Chow, R., Bredies, K., & Vent, K. (2010). *Far Beyond Dualisms in Methodology - An Integrative Design Research Medium MAPS*. Paper presented at the Design & Complexity, DRS International Conference.
- Jones, M. (1990). The Dress of Thought. *Design Issues*, September, 16-19.

- Kolb, D. (1984). *Experiential Learning: Experience as the Source of Learning and Development*. New Jersey: Prentice Hall.
- Krippendorff, K. (1989). On the Essential Context of Artifacts or on the Proposition That "Design Is Making Sense (Of Things)". *Design Issues*, 5(2), 9-39.
- Krippendorff, K. (2006). *The Semantic Turn: a new foundation for design*. Boca Raton: Taylor & Francis Group.
- Kumar, S. (2002). *Methods For Community Participation: A Complete Guide for Practitioners*. Warwickshire: Intermediate Technology Publications.
- Langrish, J. Z. (2004). Darwinian Design: The Memetic Evolution of Design Ideas. *Design Issues*, 20(4), 4-19.
- Law, J. (2004). *After Method: Mess in Social Science Research*. New York: Routledge.
- Lee, D. (2003). The Ugly Tourist. *Things Asian: Experience Asia Through the Eyes of Travellers*. Retrieved from <http://www.thingsasian.com/stories-photos/2533>
- Lopes, A. M. (2005). *Ecology of the Image*. University of Sydney, Sydney. Retrieved from <http://ses.library.usyd.edu.au/handle/2123/708>
- M.C. Escher Foundation (2000). *The Magic of M.C. Escher*. Thames & Hudson: London.
- Maase, S., & Dorst, K. (2006, 20th-21st April). *Co-creation: A way to reach sustainable social innovation?* Paper presented at the Perspectives on Radical Changes to Sustainable Consumption and Production, Copenhagen.
- Manzini, E. (1986). *The Material of Invention: Materials and Design*. Milan: Arcadia Edizioni.
- Manzini, E. (1990). Comment: On The New Frontiers. *Design*, September, 9.
- Manzini, E. (1992). Prometheus of the Everyday: The Ecology of the Artificial and the Designer's Responsibility. *Design Issues*, 9(1), 5-20.
- Manzini, E. (1994). Physis and Design. Interaction between nature and Culture. *Temes de Disseny* (10), 118-129. Retrieved from <http://www.raco.cat/index.php/Temes/article/viewFile/29402/42200>
- Manzini, E. (2000). *Design Research: Reasons and Possibilities; The Production of a Design Knowledge taking time in the age of real-time*. Paper presented at the Politecnico di Milano Conference.
- Manzini, E. (2001). *Sustainability and Scenario Building: Scenarios of Sustainable Wellbeing and Sustainable Solutions Development*. Paper presented at the Second International Symposium on EcoDesign.
- Manzini, E. (2002). Context-Based Wellbeing and the Concept of Regenerative Solution: A conceptual framework for scenario building and sustainable solutions development. *Journal of Sustainable Product Design*, 2(3-4), 141-148.
- Manzini, E. (2003). Scenarios of sustainable wellbeing. *Design Philosophy Papers*, (1). Retrieved from <http://www.changedesign.org/Resources/Manzini/Manuscripts/ManziniScenarios.pdf>

- Manzini, E. (2004) *Enabling Solutions and Sustainability: Introductory Notes*. Retrieved from <http://www.changedesign.org/Students/Changes/Enabling/Enabling%20Docs/Enabling%20solutions%20and%20sustainability%2030.1.2004.doc>.
- Manzini, E. (2007). *Design Research for Sustainable Social Innovation*. In R. Michel (Ed.), *Design Research Now: Essays and Selected Projects* (pp. 233-245). Basel: Birkhäuser.
- Manzini, E., & Jégou, F. (2003). *Sustainable Everyday: Scenarios of Urban Life*. Milan: Edizione Ambiente.
- Manzini, E., Walker, S., & Wylant, B. (2008). *Enabling Solutions for Sustainable Living: A Workshop*. Calgary: University of Calgary Press.
- Margolin, V., & Margolin, S. (2002). A Social Model of Design: Issues of Practice and Research. *Design Issues*, 18(4), 24-30.
- Mazé, R., & Jacobs, M. (2003). *Underdogs & Superheroes: designing for new players in public space*. Paper presented at the User Aspects of ICTs conference (CAST).
- Midgley, G. (2000). *Systemic Intervention: Philosophy, Methodology, and Practice*. New York: Kluwer Academic/Plenum Publishers.
- Miller, E. J. (2008). *Both borrowers and lenders: Time banks and the aged in Japan*. The Australian National University, Canberra.
- Moles, A. A. (1988). Design and Immateriality: What of it in a Post Industrial Society? *Design Issues*, 4(1), 25-32.
- Morelli, N. (2002). Designing Product/Service Systems: Methodological Exploration. *Design Issues*, 18(3), 3-17.
- Morelli, N. (2003). *Design for Social Responsibility and Market Oriented Design: Convergences and Divergences*. Paper presented at the Techné, the design wisdom.
- Morelli, N. (2006). Developing new product service systems (PSS): methodologies and operational tools. *Journal of Cleaner Production*, 14(17), 1495-1501
- Mullins, G., & Kiley, M. (2002). 'It's a PhD, not a Nobel Prize': how experienced examiners assess research theses. *Studies in Higher Education*, 27(4), 369-386.
- Murphy, P. (2009). *Writing What Cannot Be Written About: The Poetics of Things*. Paper presented at the Writing Intersections in Art, Media and Design.
- Naylor, G. (1969). *The Bauhaus*. London: Studio Vista.
- Nietzsche, F. (1887). *On the Genealogy of Morals* (published in 1985). In A. Nehamas (Ed.), *Nietzsche, Life as Literature*. Cambridge: Harvard University Press.
- Pain, R., & Francis, P. (2003). Reflections on participatory research. *Area*, 35(1), 46-54.

- Panek, R. (1999). Art and Science: A universe apart? *New York Times*(February 14), 1-39.
- Pantzar, M. (1997). Domestication of Everyday Life Technology: dynamic views on the social histories of artifacts. *Design Issues*, 13(3), 52-65.
- Papanek, V. (1971). *Design for the Real World: Human Ecology and Social Change*. New York: Pantheon.
- Park, P. (2001). Knowledge and Participatory Reserach. In P. Reason & H. Bradbury (Eds.), *Action Research: Participative Inquiry and Practice* (pp. 81-90). London: Sage.
- Quine, W. V. O. (1951). Two Dogmas of Empiricism. *Philosophical Review*, 60(20-43).
- Rapport, N., & Overing, J. (2000). *Social and Cultural Anthropology The Key Concepts*. London: Routledge.
- Rittel, H. W. J. (1972). On the Planning Crisis: Systems Analysis of the 'First and Second Generations'. *Bedriftsøkonomien*(8), 390-396.
- Rittel, H. W. J., & Webber, M. M. (1973). Dilemmas in a General Theory of Planning. *Policy Sciences*, 4, 155-169.
- Schön, D. (1983). *The Reflective Practitioner: How Professionals Think in Action*. New York: Basic Books.
- Schutkowski, H. (2006). *Human Ecology: Biocultural Adaptations in Human Communities*. Berlin: Springer.
- Sessions, G. (1987). The Deep Ecology Movement: A Review. *Environmental Review*, 11(2), 105-125.
- Sherren, K., Klovdahl, A. S., Robin, L., Butler, L., & Dovers, S. (2009). Collaborative Research on Sustainability: Myths and Conundrums of Interdisciplinary Departments *Journal of Research Practice*, 5(1), 1-29. Retrieved from <http://jrp.icaap.org/index.php/jrp/article/view/163/168>
- Simon, H. A. (1969). *The Sciences of the Artificial*. Cambridge: MIT Press.
- Snow, C., P. (1964). The Two Cultures: and A Second Look, An Expanded Version of the Two Cultures and the Scientific Revolution
- Stewart, I. (2001). *Nature's Numbers: Discovering Order and Pattern in the Universe*. London: Phoenix.
- Stringer, E. T. (2007). *Action Reserach: Third Edition*. California: Sage Publications.
- Sullivan, G. (2005). *Art Practice as Research: Inquiry in the Visual Arts*. Thousand Oaks: Sage Publications.
- Suzuki, D., & McConnell, A. (1997). *The Sacred Balance: Rediscovering Our Place in Nature*. Sydney: Allen and Unwin.
- Swann, C. (2002). Action Research and the Practice of Design *Design Issues*, 18(1), 49-61.

- Thackara, J. (1990). Profile: Italy's New Dialectical Materialist. *Blueprint*, September(70), 20.
- Thackara, J. (2006). *In the Bubble: Designing in a Complex World*. Cambridge: MIT Press.
- Tonkinwise, C. (2010). Weeding the City of Unsustainable Cooling, or, Many Designs rather than Massive Design. In L. Tilder & B. Blostein (Ed.), *Design Ecologies: Essays on the Nature of Design* (pp.26-39). New York: Princeton Architectural Press.
- Torgerson, D. (1995). The uncertain quest for sustainability: Public discourse and the politics of environmentalism. In F. F. A. M. Black (Ed.), *Greening environmental policy: The politics of a sustainable future* (pp. 3-20). Liverpool: Paul Chapman.
- Ulrich, W. (1983). Chapter Six: Toward a "Purposeful Systems" Paradigm of Planning *Critical Heuristics of Social Planning: A New Approach to Practical Philosophy*. Chichester: John Wiley & Sons.
- Weber, R. (1987). Toward a Theory of Artifacts: A Paradigmatic Base for Information Systems Research. *Journal of Information Systems*, Spring, 3-19.
- Westwood, V. (2007). Manifesto: Active Resistance to Propaganda, Active Resistance Available from <http://www.activeresistance.co.uk/Manifesto.html>
- Whiteside, K., H. (2002). *Divided Natures: French Contributions to Political Ecology*. Cambridge: MIT Press.
- Williams, R. (1983). *Culture*. London: Fontana.
- Wolff, J. (1981). *The Social Production of Art*. London: The Macmillan Press.
- Wood, M. (2008). *Dismantling the Quantitative-Qualitative Divide: Comments On Hypothesis Testing, Induction, Statistics, Fiction And Epistemological Anarchy*. Paper presented at the Third International Conference on Interdisciplinary Social Sciences. from <http://userweb.port.ac.uk/~woodm/presentations.htm>
- Wood, M. (2010). *Methods of researching things that haven't happened: especially good things and bad things*. Paper presented at the Portsmouth Business School Staff Seminar. from <http://userweb.port.ac.uk/~woodm/NotHappened.ppt>
- Worster, D. (1994). *Nature's Economy: A History of Ecological Ideas*. Cambridge: Cambridge University Press.
- Wyborn, C., & Cleland, D. (2010). Fences and Windows: Using Visual Methods to Explore Conflicts in Land and Seascape Management. In V. Brown, J. A. Harris & J. Y. Russell (Eds.), *Tackling Wicked Problems : Through the Transdisciplinary Imagination* (pp. 161-170). London: Earthscan.
- Zolberg, V. L. (1990). *Constructing a Sociology of the Arts*. Cambridge: Cambridge University Press.



Appendix I

Poem



Below is a full version of the poem *The 'Utopia'* by Lee Haywood (Germain, 1978, pp. 297-299). The last verse of this poem is used to introduce the thesis and the 7th verse is used in the conclusion. I chose this poem to give perspective to sustainable design research and to frame the thesis. It is a long poem, building up the many objects, the stories that surround them and the environment they exist in to talk about people and society. Too long to quote, however, the significance of the two verses is even more apparent in the context of the whole poem; which I hope you will read in its entirety below.

I found this poem in an anthology of Surrealist Poetry (Germain, 1978, pp. 297-299) which I bought as a teenager whilst visiting the Surrealist exhibition at the Art Gallery of New South Wales. I have been carrying this book around with me ever since. I have always enjoyed the cryptic nature of surrealism, the viewer or reader has to let go of being able to consciously or rationally know what is being conveyed. The un-rational nature of surrealism together with the ability of a poem to impart to the reader an understanding of the world made it an appropriate choice for introducing and concluding this thesis.

The 'Utopia'

Lee Haywood

The table was filled with many objects

The wild tribesmen in the hills,
whose very robes were decorated with designs
of a strangeness & upsetting beauty
that went much further than the richly coloured silks
embroidered there could ever suggest; . . .

There were piles of books, yet each one
was of a different size and binding.
The leathers were so finely dyed. The blues
& purples, contrasting with the deceptive simplicity
of the 'natural' tans.

And this prism & arrangement of colours
cannot be set down - the fresh arrangements
& angles possible can only point through a door
to the word 'infinite' made of white puffy clouds
floating high in a blue summer sky;
this has been written there by a small airplane
that is now returning to its green landing field.

The table is very old & made of fine mahogany
polished by generations of servants.
And through the windows the summer blue skies
& white clouds spelling a puffy word.
And on the table the books & examples
of embroidery of the wild hill tribesmen
& many large & small objects - all of which
could not help but rouse a curiosity.

There are at times people in this room
- some go to the table - things are moved -
but the atmosphere here is always that of quiet & calm
- no one could disturb this.

And though the people are the only real threat,
they are all too well trained and aware
to ever introduce the least clumsiness
or disturbing element into the room.

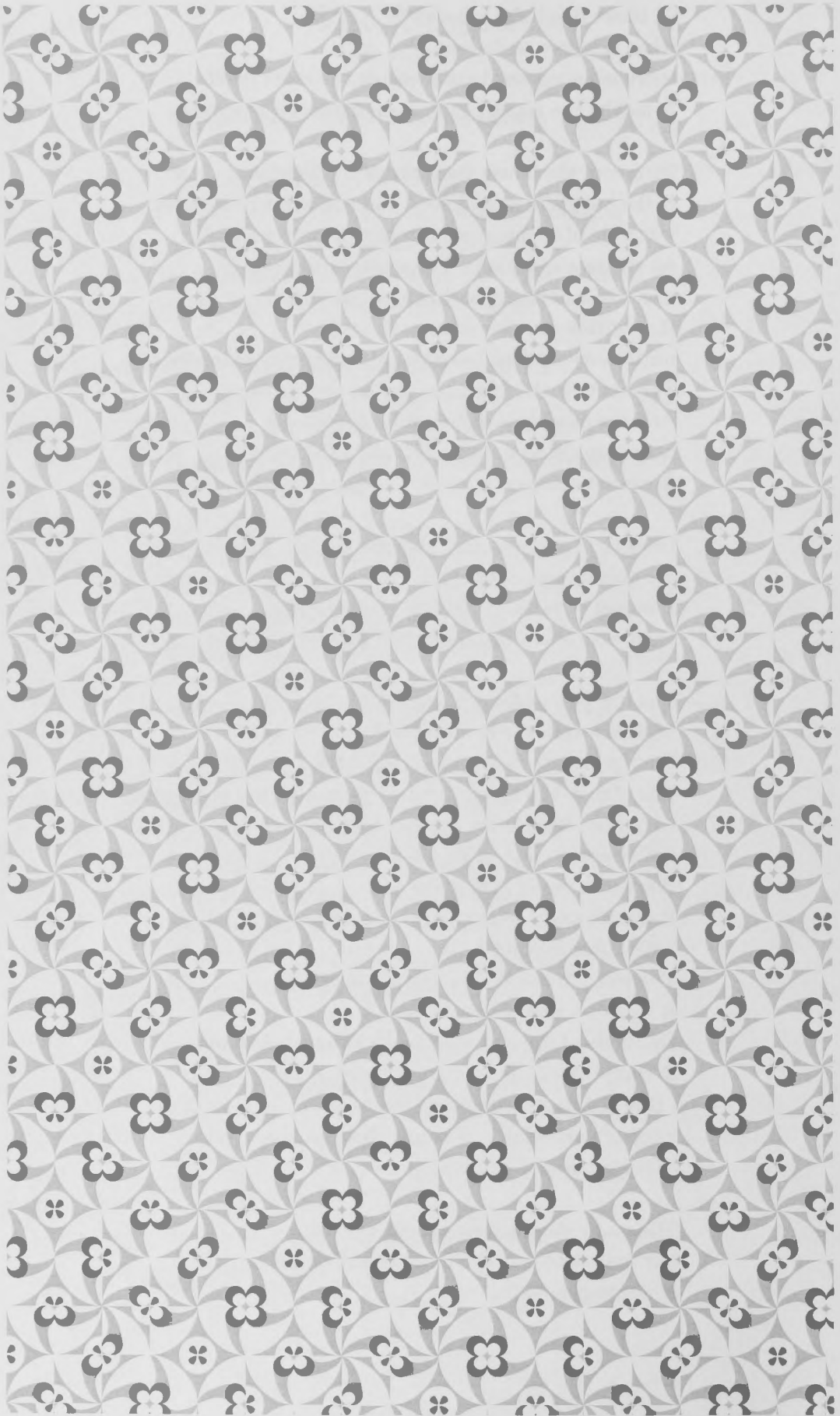
At times it is hard to believe
what is before one's eyes -
there is no answer to this except the room itself,
& maybe the white clouds seen through the window.

No one in the house was sure of the frontiers
& the beautiful atlas gilded and bound with blue silk
was only of antiquarian interest & quite useless
for the new questions. The whole situation
was like a painting within a painting &
that within another & so on & so on -
until everyone had lost sight of their original landmarks.
The heath melted into the sky on the horizon.
And the questions of definition & contrast
only brought on a series of fruitless searches
& examinations that made everyone irritable & exhausted.

Once the surveyors had abandoned their project
the objects once more took over.
It would be false to deny the sigh of relief
there was when this happened & calm returned.

The bus bumped down the avenue
& ahead were the mountains & the woods
that burst into flower as spring settled.
The plan & the heavy revolver were all quite in keeping
with this, despite the apparent superficial
difference & clash of worlds -
there was really only one world.
It wasn't easy - admittedly - & someone
had to stay behind & ...
The word in the sky had slowly dissolved
& was now nowhere to be seen.
But instead the sun was flooding the whole room
& everything took on a golden aura
- this meant we were even aware of the
band of horsemen now riding through the forest
that surrounded the valley.

The many details may appear evasive
but the purpose of the total was obvious
& uncompromising



Appendix 2

Profile of Tumut

The town of Tumut was the central location for the fieldwork component of this study. Tumut is approximately 2 hours drive from Canberra (194km). It has a maximum temperature of 29°C in summer, a minimum of 2°C in winter, an elevation of 290m and an average rainfall of 907mm. Tumut is the largest town in the shire and could be described as a medium sized country town, not as big as Wagga Wagga to the west but bigger than all the surrounding towns.



Map of Tumut and the Surrounding Region. Highlighting Towns in the Tumut Shire
modified from Google Maps

Tumut Shire

The following details are obtained from the “Welcome to Tumut Shire” information pack published by the Tumut Shire Council. The Shire includes the towns of Tumut, Adelong, Batlow, Talbingo, Cabramurra, Brindabella and Brungle; with a combined population of 11700 people. The core industries in the region include:

- Batlow Fruit Co-Operative Ltd (apple orchards)
- Weyerhaeuser Australia Pty Ltd (timber processing)
- Carter Holt & Harvey (timber processing)
- CJ Dean Transport Pty Ltd
- National Parks and Wildlife Service
- Snowy Hydro (hydro electricity scheme)
- State Forests of NSW
- Visy Pulp and Paper Mill (timber processing)
- Valmar Support Services (disability services provider southern NSW)
- Tumut Shire Council
- Agricultural industries
- Horticultural industries
- Timber industries

The most prominent industry in the region is forestry (including timber and timber processing) and features the largest softwood plantation in New South Wales.

Indigenous Community

The indigenous community primarily lives in Brungle, which historically had been an Aboriginal Reserve established by the Aborigines Protection Board¹. Although the indigenous people I talked to conveyed a sense of ownership and belonging, Brungle was also a sight of painful memories. Cooe Cottage, which became a central location for the study, was an indigenous community centre located in Tumut. This centre was run by Rhonda and Stan. Cooe Cottage is used as a community centre in Tumut for the indigenous community. Rhonda ran women’s groups and Stan Men’s groups; they also helped run Kurri kids camps. I didn’t ask specific questions about the function of the centre, instead I let Rhonda volunteer as much information as she wanted. I knew, as an outsider, I would only be exposed to a limited amounts of indigenous information; anymore information was, after all, not integral to my research.

.....
1 For more information see <http://www.environment.nsw.gov.au/resources/cultureheritage/womensHeritageBrungleTumut1.pdf>

Appendix 3

Phase 1 of Project Tumut

Appendix 3a gives details and documents the methods used in Phase 1 of the Tumut fieldwork. Appendix 3b documents the responses from participants to Phase 1. This appendix is referred to in the Concept Development Chapter under: Developing the Methodology section, Project Tumut, Phase 1.

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3b Responses

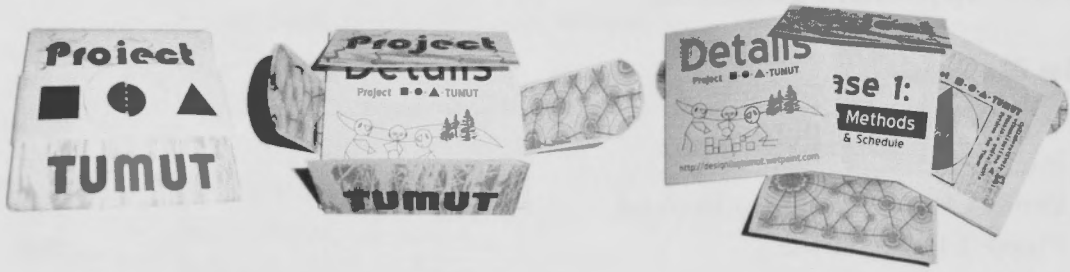
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Project Tumut: Phase 1

3a Methods

Project Tumut Packs

The Project Tumut Pack (see Figure 1) contained: a packaging cover (see 1.1 Packaging), fold-up details about Project Tumut (see 1.2 Project Details Fold-up Booklet), fold-up information about phase 1 (see 1.3 Phase 1 information), and D-zine booklet including creative questionnaire (see 1.4 D-zine).

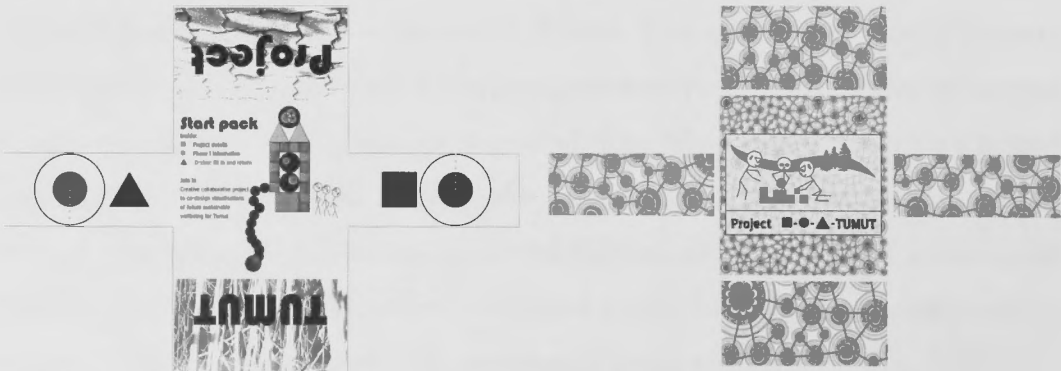


Project Tumut Pack

Packaging



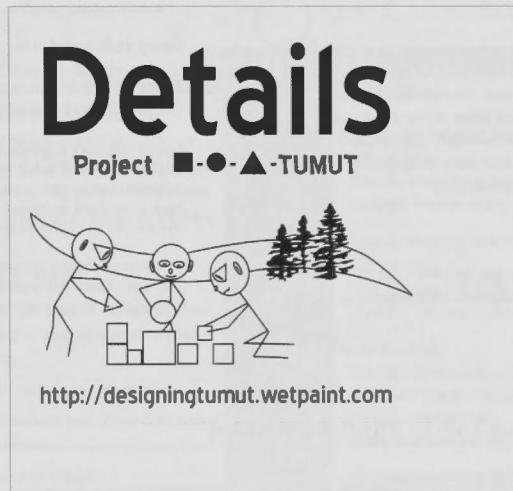
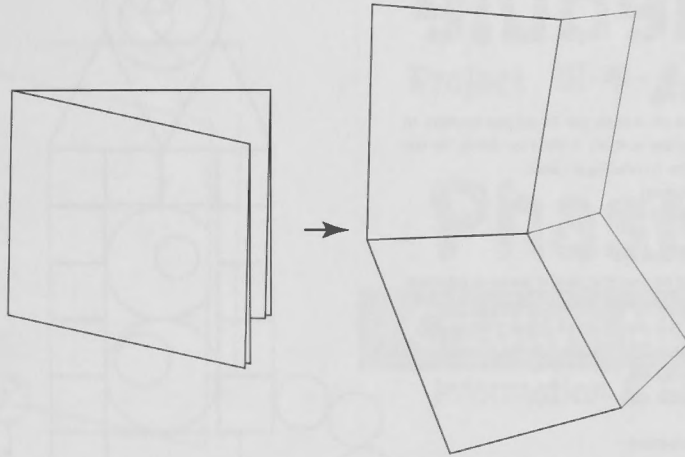
Folded packaging Cover




Unfolded Outside Cover

Unfolded Inside Cover

Project Details Fold-up Booklet



Project Details: Front Cover

<p>Hi I'm Viveka Turnbull Hocking</p>  <p>I am a creative practitioner doing my PhD on Design-led methods for developing sustainable wellbeing.</p> <p>It is exciting to visualise possible sustainable futures... but we need to do it together.</p> <p>Join in my project and help in the process of developing creative methods for enabling communities to collaboratively design visualisations of sustainable futures for their town.</p> <p>I will be coming to Tumut a number of times with a variety of different creative activities to engage with interested community members. Those who choose to participate will be immersed within a creative process of designing visualisations of possible sustainable futures for Tumut.</p> <p>The project will culminate in an Exhibition. The co-designed visualisation of sustainable futures for Tumut will be displayed in the Engaging Visions exhibition... and you are all invited</p>	<h2>Join in</h2> <p>There will be 5 phases to this project. You can join in on as many of the phases as you wish (P.T.O to see the Schedule).</p> <p>To start just fill in the D-zine 'Join in' booklet and post it or give it to me. Then come to an information session and/or workshop... see if you like it and participate if you are interested.</p> <p>Your personal details will be kept confidential. In the D-Zine you can create an alias for staying anonymous... you can also request to be named as the creator of your responses. [IMPORTANT] Just make sure that any information you put in your creative responses you are happy to share with others.</p> <p>The responses made by participants, the progress of the project and it's results will be put up on a members only section of the project website http://designingtumut.wetpaint.com</p> <p style="text-align: right;">Schedule -></p>
--	--

Project Details: First Inside Spread

Schedule

Phase 1: Creative Methods

This phase is intended to get to know you. To get your feedback on the different kinds of creative methods so that I can design the next phase... tailor made for the community of Tumut.

(1hr info session, 1hr workshop)

Dates: Wed 12th - Sun 16th of March

Phase 2: Cultivating a Concept

This phase is intended to harness your creative energy in dreaming up ideas for sustainable wellbeing. You will get a package of creative activities which will ask you to look at your everyday happenings in a new way... and hopefully you will have some fun!

(1hr info session, 2hrs workshop)

Dates: Wed 2nd - Sun 6th of April

Phase 3 : All Fun and Games

This phase is about engaging in game play. It is about playing with the ideas that have come out of phase 2 and developing them into possible sustainable scenarios.

(1hr info session, 2hrs workshop)

Dates: Wed 7th - Sun 11th of May

Phase 4: Visualising Futures

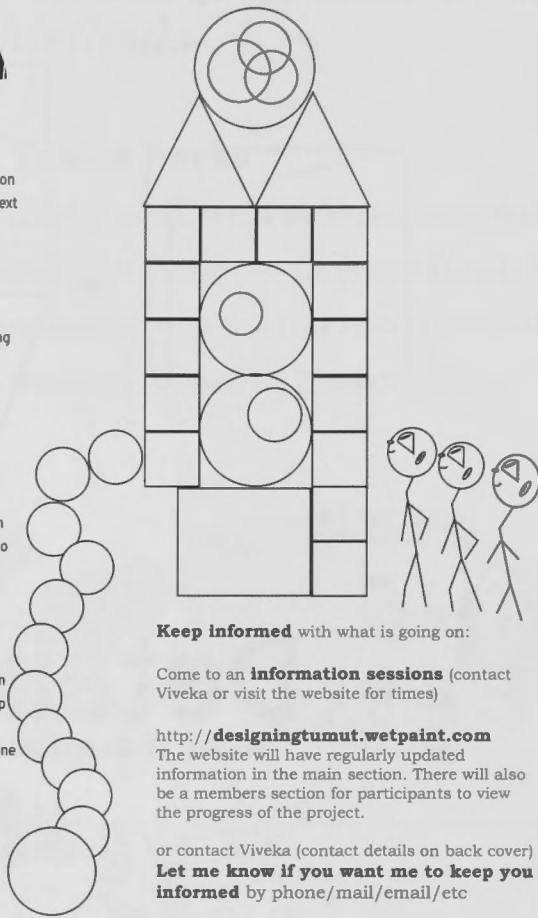
This phase will show the fruits of our work. The different ideas on possible sustainable futures from the last phase will be worked up into visualisations to be displayed in the exhibition. You can give your feedback on these visualisations. From these visualisations one viable vision will be developed up into a final work.

Dates: TBA

Phase 5: Our Future Vision

This phase presents the final work and gets the community of Tumut to assess the viability of this sustainable visualisation of a future Tumut.

Dates: TBA



Keep informed with what is going on:

Come to an **information sessions** (contact Viveka or visit the website for times)

<http://designingtumut.wetpaint.com>

The website will have regularly updated information in the main section. There will also be a members section for participants to view the progress of the project.

or contact Viveka (contact details on back cover)

Let me know if you want me to keep you informed by phone/mail/email/etc

Project Details: Second Inside Spread Unfolded

Contact Details:

Feel free to contact me if you have any questions or issues about the project:

Viveka Turnbull Hocking
PO Box 1066, Jindabyne, NSW, 2627
(T) 02 6456 7439, (M) 0431 945 252
viveka.hocking@anu.edu.au

If you have any concerns with the project you can also contact my ANU supervisors:

John Reid, 0416 249 090, 0428 319 424,
john.reid@anu.edu.au

Rob Dyball, 02 6125 3704,
rob.dyball@anu.edu.au

or contact the **ANU Human Ethics Committee**

Research Office, Chancery 10B

The Australian National University, ACT 0200

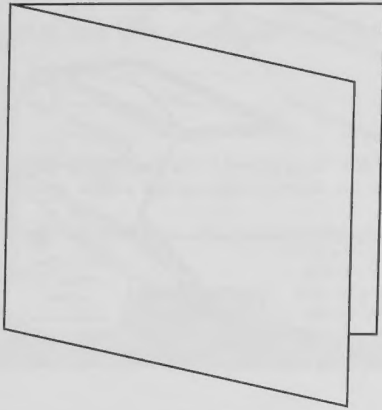
Tel: 6125-7945 Fax: 6125-4807

Email: Human.Ethics.Officer@anu.edu.au



Project Details: Back Cover

Phase 1 Information



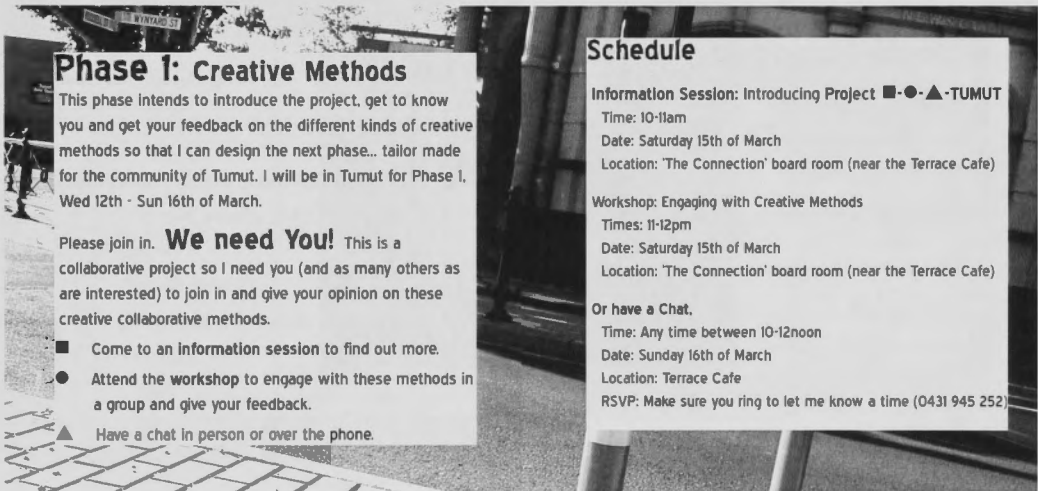
Project ■-●-▲-TUMUT

Phase 1:

Creative Methods

Information & Schedule

Phase 1 Infomation: Front Cover



Phase 1 Infomation: Inside Spread

Contact Viveka:

Email: viveka.hocking@anu.edu.au

Phone: (T) 02 6456 7439, (M) 0431 945 252

Address: Viveka Turnbull Hocking

PO Box 1066

Jindabyne

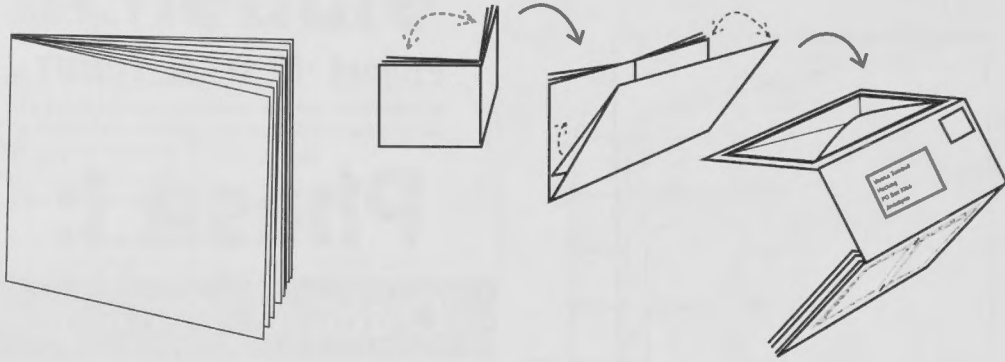
NSW. 2627

Website: designingtumut.wetpaint.com

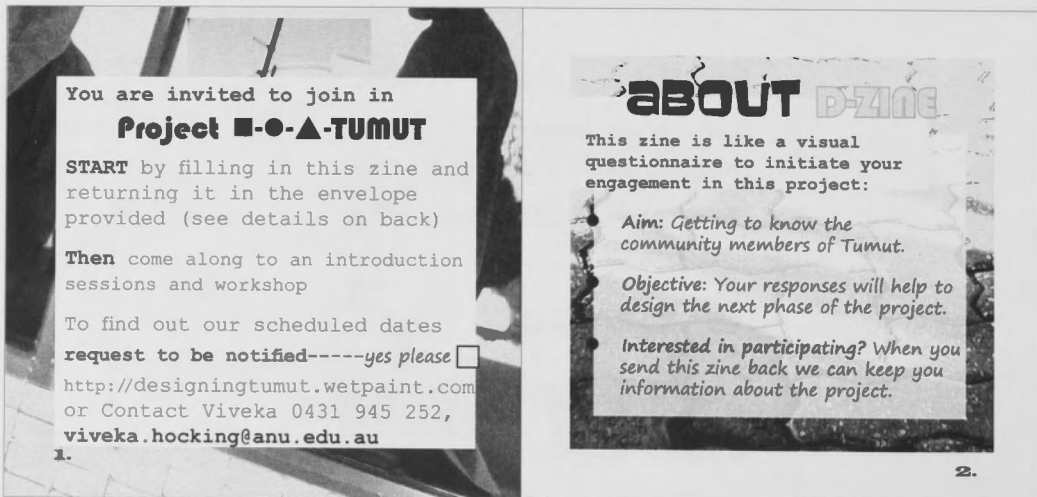


Phase 1 Infomation: Back Cover

D-zine



D-zine: Front Cover



D-zine: First Inside Spread

My Creative Side

Everyone has a creative side. Different people are creative at different things.

When does your creative side come out?

What place does art have in your life?
On the scale below where would you be?

◀-----▶

I enjoy being artistic

I don't have an artistic bone in my body

3.

Draw your oldest possession

No I don't Like drawing

I would prefer to describe it in words

I'll give it a go

4.

D-zine: Second Spread

Play

What do you do just for fun?

What games do you like to play?

I'm not really into games

Cards

Board games

Computer/console games

Sports

Other: _____

5.

Something about Tumut

What is special to you about Tumut?:

What would you change about Tumut?:

6.

D-zine: Third Spread

MAPPING

Mark on the map:

- 1 Where is your favourite place?
- 2 What route do you take when you have some time to spare?
- 3 What place do you avoid going?

7.

8.

D-zine: Middle Spread

Everyday Practices

What is your favourite everyday activity?

What activity do you dislike the most?

9.

Sustainability

There is a lot of talk about sustainability. It can mean many different things to different people.

What does sustainability mean to you?:

10.

D-zine: Fifth Spread

How would you describe yourself....

I am... _____

I'm good at... _____

I like... _____

I want to... _____

11.

My Alias

In all future activities you will be asked for your alias instead of your name so we can keep your responses anonymous (unless request otherwise).

Make a fictional character alias for yourself:

What kind of character?
(superhero, evilgenious, mythical, historical, etc.)

Any special talents? _____

What is your Alias called? _____

(I will send you project details & your alias name for future reference)

12.

D-zine: Sixth Spread

You are invited to join in
Project ■-●-▲-TUMUT
If you would like to Participate
please fill in the details below
and return to Viveka (see details
on back)

Name: _____

Alias: _____

Email: _____
and/or

Preferred Contact: _____

(This information will be kept confidential)

Follow the progress
of the project & see
how your responses are
being used, go to:
designingtumut.wetpaint.com

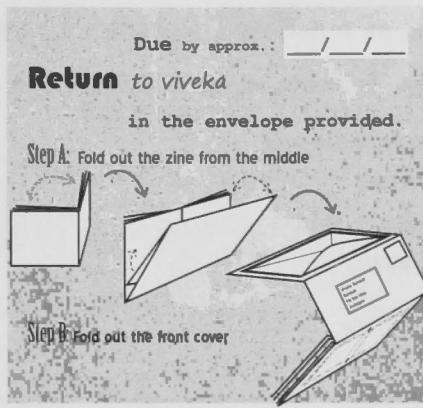
I understand that my responses may be
published as part of the project-----
If so: yes no

I would like to remain anonymous-----
yes no

I would like to be named as the author---
yes no

Sign: _____

D-zine: Seventh Spread



D-zine: Back Cover

Contact Viveka:

Email: viveka.hocking@anu.edu.au

Phone: (T) 02 6456 7439, (M) 0431 945 252

Address: Viveka Turnbull Hocking
PO Box 1066
Jindabyne
NSW. 2627

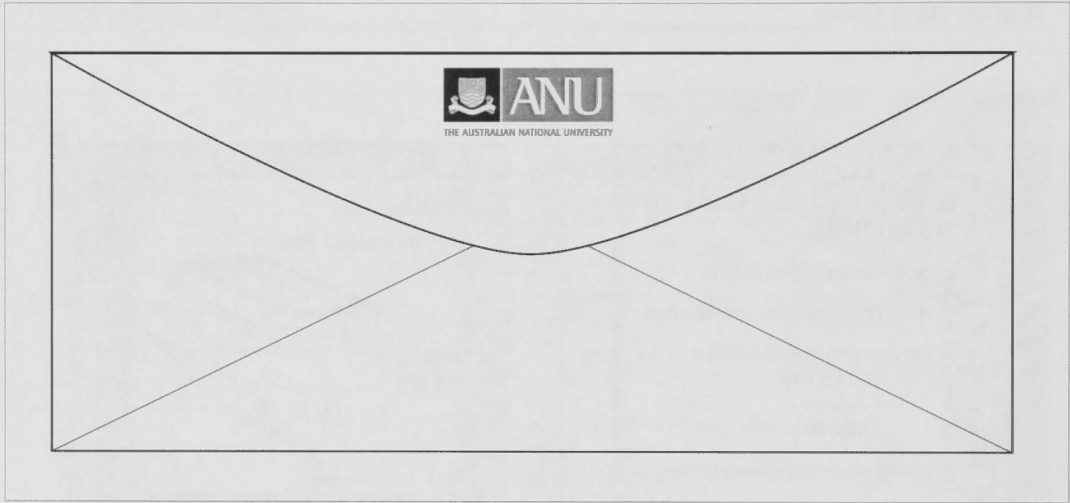
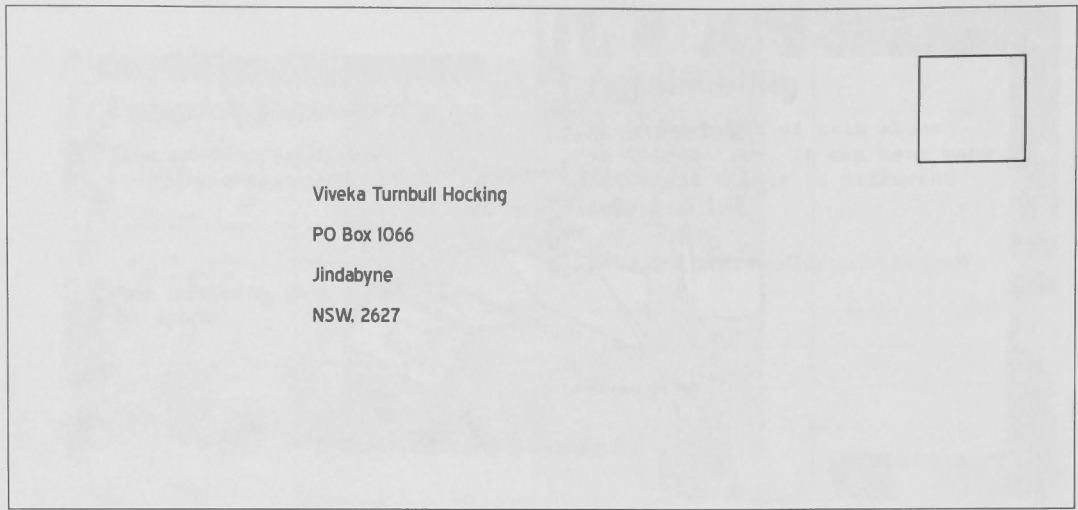
Website: designingtumut.wetpaint.com

Return to Viveka:

Step C: Re-folding the sheet

Step D: Put in the post

D-zine: Inside of Fold-up Cover



D-zine: Cover Unfolded into a Return Envelope

Other Components

Other components for phase 1 included a small poster which could also be used as a flyer and a sign-up sheet to collect details of interested participants.

Poster/Flyer

Project ■-●-▲-TUMUT

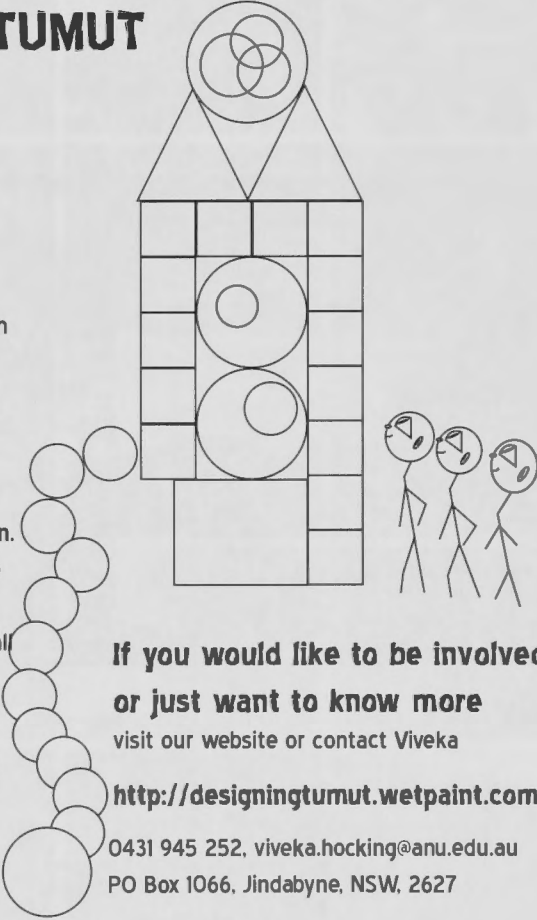

Join in

This is a ANU PhD project on **creative methods** for enabling communities to collaboratively design visualisations of sustainable futures for their town.

There will be 5 phases to this project. Each phase engage participants in a **creative process of developing visualisations of possible futures**. You can join in on as many of the phases as you wish.

The project will culminate in an **Exhibition**. The co-created visualisation of sustainable futures for Tumut will be displayed in the Engaging Visions exhibition... and you are all invited.

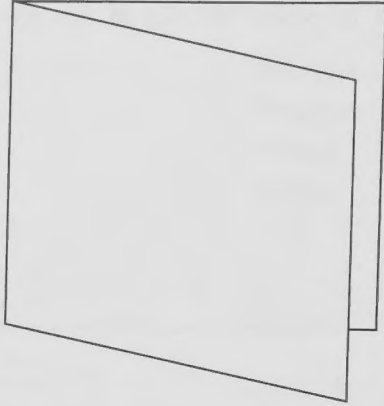
Contact Viveka or visit our website to receive our information pack and details on the schedule.



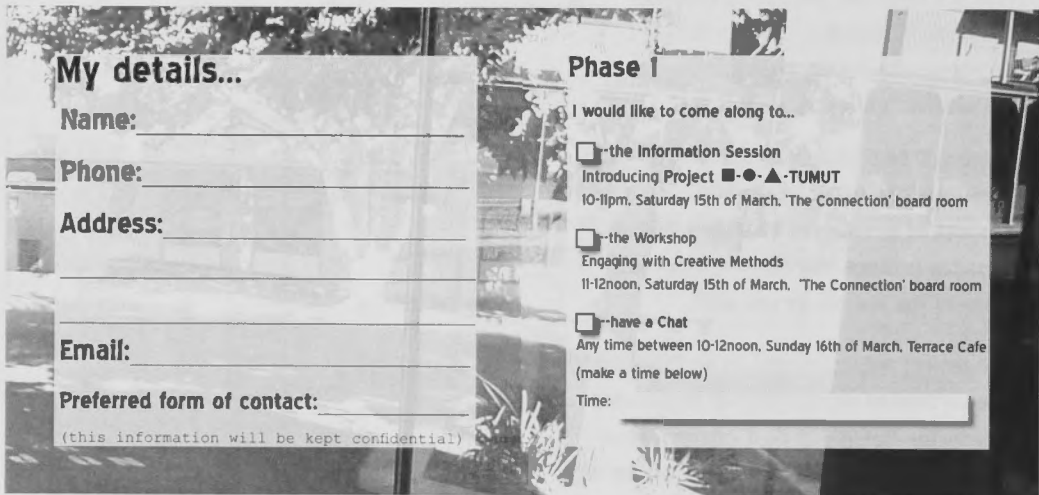
If you would like to be involved or just want to know more
visit our website or contact Viveka
<http://designingtumut.wetpaint.com>
0431 945 252, viveka.hocking@anu.edu.au
PO Box 1066, Jindabyne, NSW, 2627

Poster design which can also be used as a Flyer

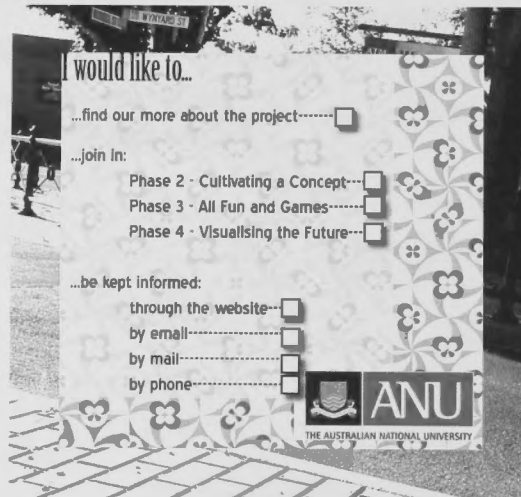
Signup sheet



Signup Sheet: Front Cover



Signup Sheet: Inside Spread



Signup Sheet: Back Cover

Project Tumut: Phase 1

3b Responses

Three responses to the D-zine were returned by post. All three participants were women; one was on the younger side of middle aged and the other two were elderly.



Photos from A Walk Around the Town of Tumut During Phase 1

Responses to Phase 1: D-zine

Participant 1

My Creative Side

Everyone has a creative side. Different people are creative at different things.

When does your creative side come out?
ALL THE TIME -
WORK & HOME

What place does art have in your life?
 On the scale below where would you be?

I enjoy being artistic

I don't have an artistic bone in my body

Draw your oldest possession

No I don't Like drawing

I would prefer to describe it in words

A SMALL CARVED CHAIR
I RESTORED

I'll give it a go

I WOULD HAVE BUT
MISSSED THE PAGE
& RAN OUT OF
TIME

4.

Play

What do you do just for fun?
PACING, BUSHWALKING, SOCIALISING

What games do you like to play?

I'm not really into games

Cards

Board games

Computer/console games

Sports

Other: _____

5.

Something about Tumut

What is special to you about Tumut?:

FOUR SEASONS -

What would you change about Tumut?:

ENHANCED CULTURAL
ASPECTS - INSTALLATIONS,
SCULPTURE ETC

6.

MAPPING

Mark on the map:

- Where is your favourite place?
- What route do you take when you have some time to spare?
- What place do you avoid going?

7.

8.

Everyday Practices

What is your favourite everyday activity?
GARDENING / ART /
SPORT

What activity do you dislike the most?
WORKING FULL TIME

9.

Sustainability

There is a lot of talk about sustainability. It can mean many different things to different people.

What does sustainability mean to you?:
ALLOWING THE REGION TO
CONTINUE TO GROW &
DEVELOP BUT NOT AT THE
COST OF DEGRADATION TO
OUR ENVIRONMENT - A BALANCE

10

How would you describe yourself....

I am... A VIRGO (ENOUGH
SAY)

I'm good at... HAVING A
GO & TRYING NEW THINGS

I like... (THE OUTDOORS, GOOD
FOOD, BEING CREATIVE

I want to... RETIRE TO
FOCUS ON ART

11.

My Alias

In all future activities you will be asked for your alias instead of your name so we can keep your responses anonymous (unless request otherwise).

Make a fictional character alias for yourself:

What kind of character? CARTOON
(superhero, evilgenious, mythical, historical, etc.)

Any special talents? _____

What is your Alias called? MINNIE
(I will send you project details & your alias name for future reference)

12

You are invited to join in **Project ■-●-▲-TUMUT**

If you would like to Participate please fill in the details below and return to Viveka (see details on back)

Name: _____

Alias: MINNIE

Email: _____
 and/or
 Preferred Contact: _____

... information will be kept confidential

follow the progress of the project & see how your responses are being used, go to:
designingtumut.wetpaint.com

I understand that my responses may be published as part of the project-----
 If so: yes no

I would like to remain anonymous-----
 yes no

I would like to be named as the author---
 yes no

Sign: _____

My Creative Side

Everyone has a creative side. Different people are creative at different things.

When does your creative side come out?
When hand painting fabrics, making jewellery, raising, gardening taking flora photos.

What place does art have in your life?
 On the scale below where would you be?

1 I enjoy being artistic 10 I don't have an artistic bone in my body

Draw your oldest possession

No I don't Like drawing

I would prefer to describe it in words

Photo of me about 2 months old.



I'll give it a go
I seemed to be a pleasant child - I like to look at it some times to connect with myself.

4.

Play

What do you do just for fun?
Walk and photography plants.

What games do you like to play?

- I'm not really into games
- Cards
- Board games
- Computer/console games
- Sports/walking -
- Her Herald Crosswords.

5.

Something about Tumut

What is special to you about Tumut?:

Small town community

I've lived here since 1970 -

Changes of scenery - Seasons

What would you change about Tumut?:

Council removing trees

around town and replacing them with shrubs

More shade = less air con

MAPPING

Mark on the map:

- Where is your favourite place?
My Home
- What route do you take when you have some time to spare?
Morning walk via town
- What place do you avoid going?
My love site

8.

Everyday Practices

What is your favourite everyday activity?
Repairs on house, work in garden

What activity do you dislike the most?
Sometimes has above, depends on the weather

9.

Sustainability

There is a lot of talk about sustainability. It can mean many different things to different people.

What does sustainability mean to you?
Not wasting water, i.e. using bathroom water for toilet system. Turning off standby ^{power} lights / light bulb at a time, walk instead of driving etc. Handwriting most of the time

10

How would you describe yourself....

I am... *62, slightly overweight and arthritic, optimistic, alone.*

I'm good at... *making silver/gemstone jewellery, taking photos (sometimes)*

I like... *gardening, hiking, crafts, photography, helping my family*

I want to... *Restore and save my 150yr old Georgian worker cottage.*

11.

My Alias

In all future activities you will be asked for your alias instead of your name so we can keep your responses anonymous (unless request otherwise).

Make a fictional character alias for yourself:

What kind of character? *historical*
 (superhero, evilgenius, mythical, historical, etc.)

Any special talents? _____

What is your Alias called? *Kate W.*

(I will send you project details & your alias name for future reference)

12.

You are invited to join in **Project ■-●-▲-TUMUT**

If you would like to Participate please fill in the details below and return to Viveka (see details on back)

Name: _____

Alias: *Kate W.*

Email: _____

and/or Preferred Contact: _____

(This information will be kept confidential)

Follow the progress of the project & see how your responses are being used, go to:
designingtumut.wetpaint.com

I understand that my responses may be published as part of the project -----
 If so: yes no

I would like to remain anonymous-----
 yes no

I would like to be named as the author---
 yes no

Sign: _____

My Creative Side

Everyone has a creative side. Different people are creative at different things.

When does your creative side come out?
Photography
Gardening

What place does art have in your life?
 On the scale below where would you be?

I enjoy being artistic

I don't have an artistic bone in my body

Draw your oldest possession

No I don't like drawing

I would prefer to describe it in words

An antique clock
clock

I'll give it a go

Play

What do you do just for fun?
Cycling *gardening*
photo *groping*

What games do you like to play?

- I'm not really into games
- Cards
- Board games
- Computer/console games
- Sports
- Other: _____

Something about Tumut

What is special to you about Tumut?:
4 distinct seasons
Natural beauty

What would you change about Tumut?:
~~keep the into~~
No pulp mill.

MAPPING

Mark on the map:

- Where is your favourite place?
- What route do you take when you have some time to spare?
- What place do you avoid going?

Everyday Practices

What is your favourite everyday activity?
Cycling with my dogs

What activity do you dislike the most?
Bookwork.

9.

Sustainability

There is a lot of talk about sustainability. It can mean many different things to different people.

What does sustainability mean to you?:

- a perpetuity*
- Contributing to lasting long term.*

10.

How would you describe yourself....

I am... *Self motivated.*

Keen to know & independent

I'm good at... *working hard*

on my own

I like... *being in natural surroundings*

I want to... *stay the same*

11.

My Alias

In all future activities you will be asked for your alias instead of your name so we can keep your responses anonymous (unless request otherwise).

Make a fictional character alias for yourself:

What kind of character? *Musical*
(superhero, evilgenious, mythical, historical, etc.)

Any special talents? *Soprano*

What is your Alias called? *Aria*
ESTHER

(I will send you project details & your alias name for future reference)

12.

You are invited to join in*

Project ■-●-▲-TUMUT

If you would like to Participate please fill in the details below and return to Viveka (see details on back)

Name: _____

Alias: _____

Email: _____

and/or Preferred Contact: _____

Information will be kept confidential

Follow the progress of the project & see how your responses are being used, go to:
designingtumut.wetpaint.com

I understand that my responses may be published as part of the project-----

If so: yes no

I would like to remain anonymous-----

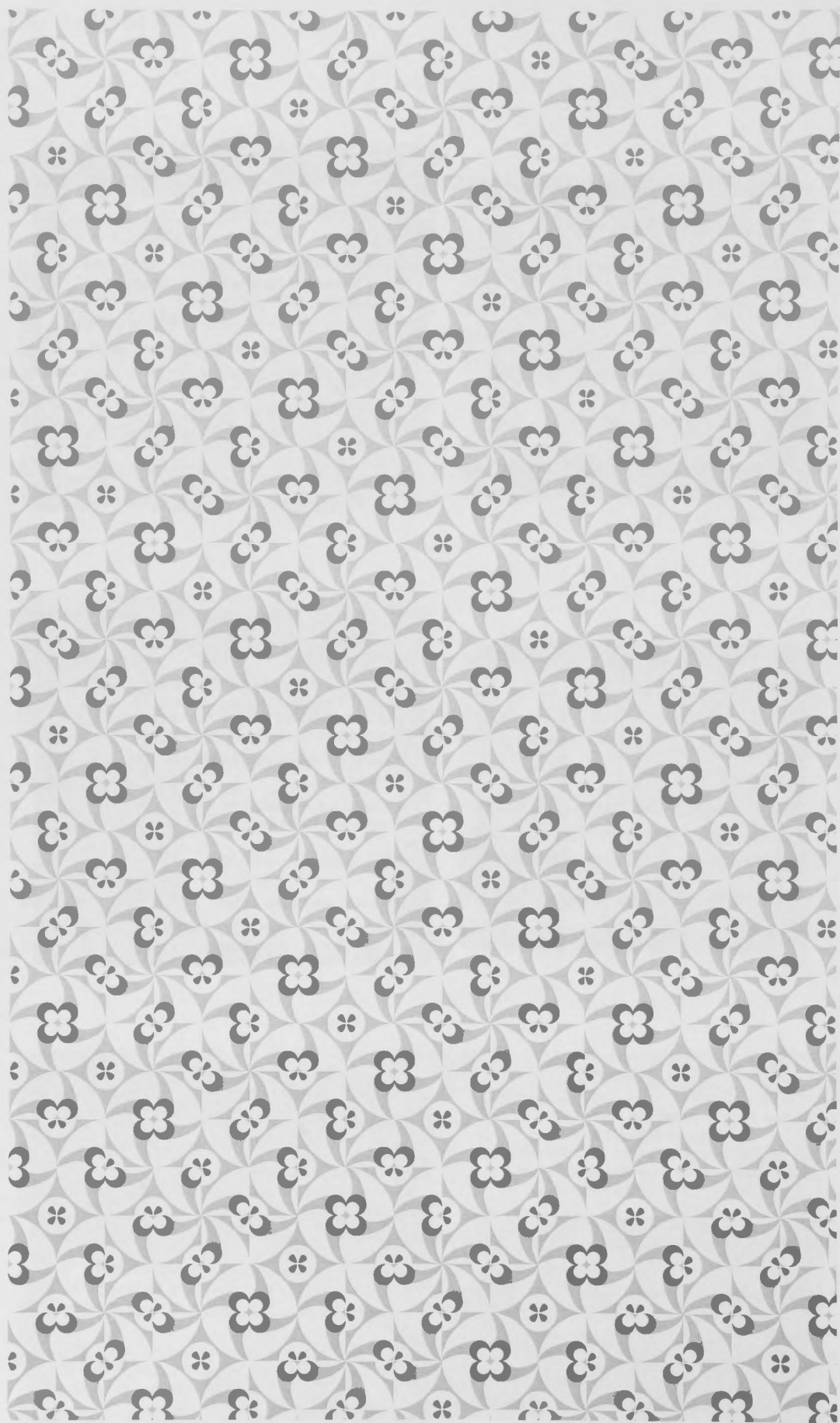
yes no

I would like to be named as the author---

yes no

Sign: _____

14.



Appendix 4

Phase 2 of Project Tumut

Appendix 4a gives details and documents the methods used in Phase 2 of the Tumut fieldwork. Appendix 4b documents the responses from participants to Phase 2. This appendix is referred to in the Concept Development Chapter under: Developing the Methodology section, Project Tumut, Phase 2.

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Project Tumut: Phase 2

4a Methods

Tumut Project Packs

The Project Tumut Pack (see image below) contained: a packaging cover (see Packaging), fold-up details about Project Tumut (See Project Details Fold-up Booklet), fold-up information about phase 2 (See Phase 1 information), A sheet for participants to add their details (see Participant Sign-up sheet), four different activity sheets (see As Time Goes By, Everyday Wellbeing, Sustainable Everyday, Industrial Culture Jam!), an updated D-zine booklet (see D-zine) and an information sheet about the next Phase 3 (see Phase 3 Information Sheet)

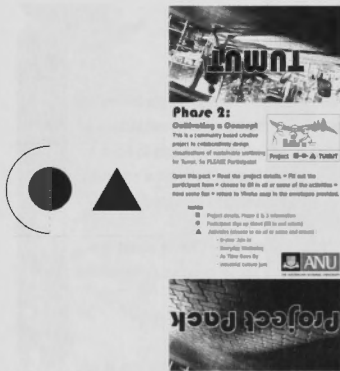


Project Tumut Pack

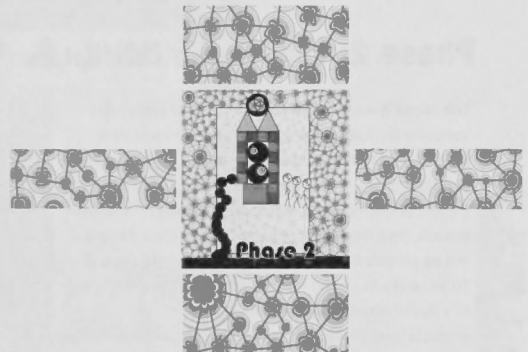
Packaging



Folded packaging Cover



Unfolded Outside Cover



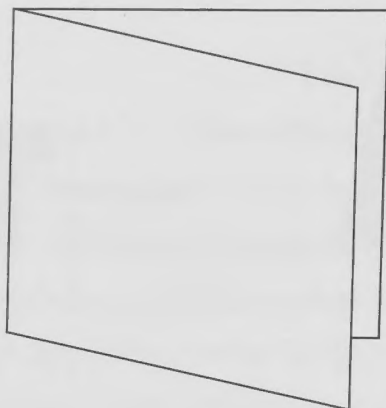
Unfolded Inside Cover

Project Details Fold-up Booklet

This Project Details Fold-up Sheet is the same as for phase 1. See Appendix 2a:

1. Project Tumut Packs, Project Details Fold-up Sheet

Phase 2 Information



Project ■-●-▲-TUMUT

Phase 2:

Cultivating a Concept

Information & Schedule

Phase 2 Information: Front Cover

Phase 2: Cultivating a Concept

This phase is working towards a concept of sustainable wellbeing for Tumut. The activities in the Project Pack are designed to extract ideas in a creative way such that participants engaging in the activities can contribute to the process of cultivating a concept for the next phase of the process. From these concepts playful interactive designs will be produced for phase 3. This will be in the form of 3D installations around tumut that people can engage with in a playful way. These playful designs will develop up the concepts from phase 2 into visualisations for the exhibition in phase 4.

I will be in Tumut for Phase 2: Wed 2nd - Sun 6th of April.

Please join in. **We need You!**

This project is designed to enable community members to engage in a creative process of developing visualisations of sustainable wellbeing for Tumut's future. So join in have a go at the project pack activities in your own time and return the ones you complete in the envelopes provided.

Information Session: have a chat with Viveka about the project and give your opinion on these creative collaborative methods.

10 am Saturday 5th April at the Terrace Cafe

Encourage your friends and family to have a go too. If you want more project packs contact Viveka (see back) with the name and address you want the packs sent to.

Phase 2 Information: Inside Spread

Contact Viveka:

Email: viveka.hocking@anu.edu.au

Phone: (T) 02 6456 7439, (M) 0431 945 252

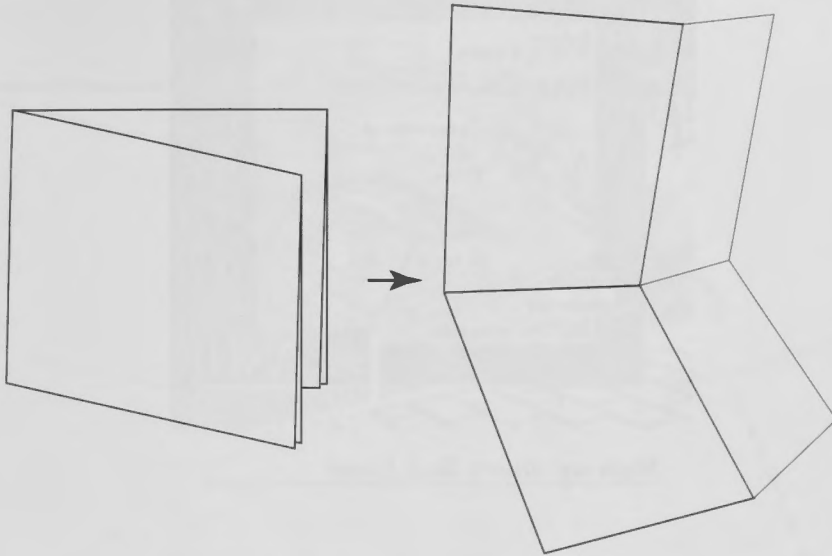
Address: Viveka Turnbull Hocking
PO Box 1066
Jindabyne
NSW, 2627

Website: designingtumut.wetpaint.com



Phase 2 Information: Back Cover

Sign-up sheet

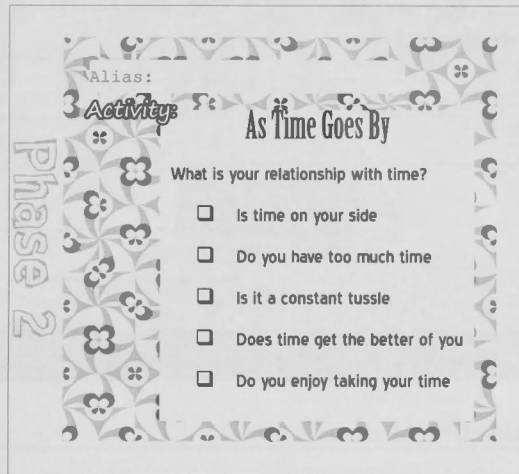
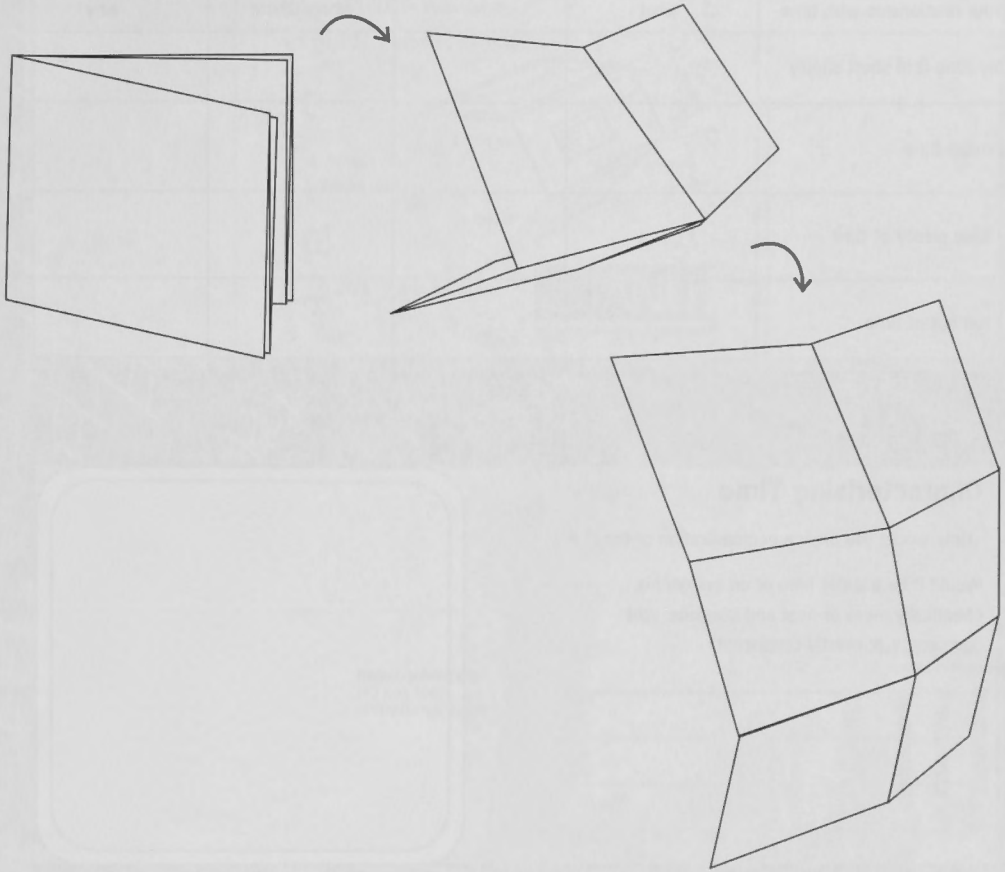


Sign-up Sheet: Front Cover

<p>My details...</p> <p>Name: _____</p> <p>Phone: _____</p> <p>Address: _____</p> <p>_____</p> <p>Email: _____</p> <p>Preferred form of contact: _____</p> <p><small>(this information will be kept confidential)</small></p>	<p>Follow the progress of the project & see how your responses are being used, go to:</p> <p>designingtumut.wetpaint.com</p> <p>I understand that my responses may be published as part of the project----- If so: <input type="checkbox"/> yes <input type="checkbox"/> no</p> <p>I would like to remain anonymous----- <input type="checkbox"/> yes <input type="checkbox"/> no</p> <p>I would like to be named as the author--- <input type="checkbox"/> yes <input type="checkbox"/> no</p> <p>Sign: _____</p>
---	--

Sign-up Sheet: Inside Spread

As Time Goes By Activity Sheet



As Time Goes By: Front Cover

Time mapping

Your relationship with time	what	how	when/where	why
My time is in short supply				
I make time				
I have plenty of time				
I run out of time				

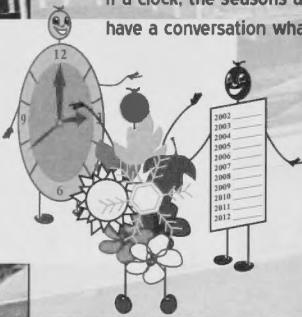
Characterising Time

How would you draw a personification of time? →

Would it be a super hero or an evil genius, chaotically mess or neat and studious, split personality or overtly consistent?

A Timely Conversation

If a clock, the seasons and the years could have a conversation what would they say →

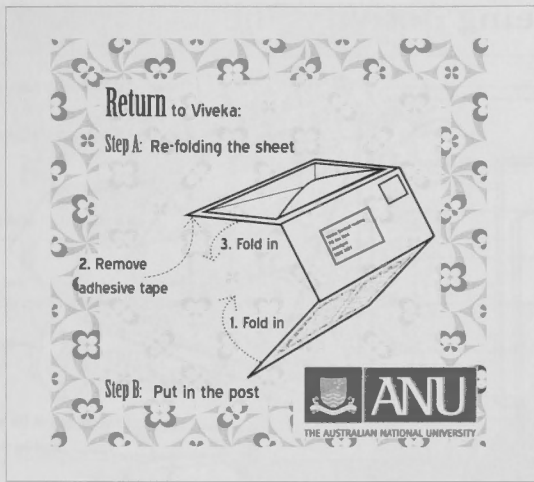


Clock: _____

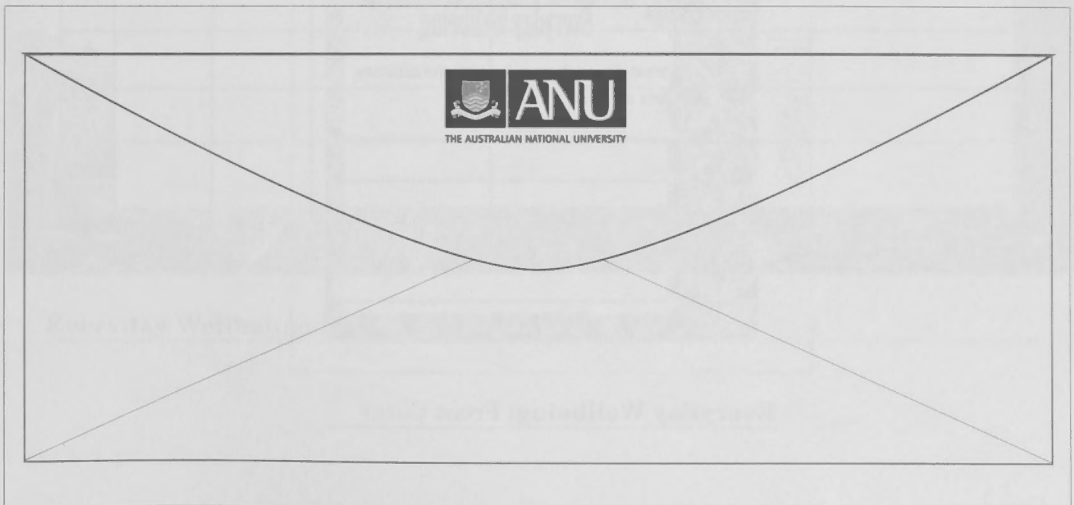
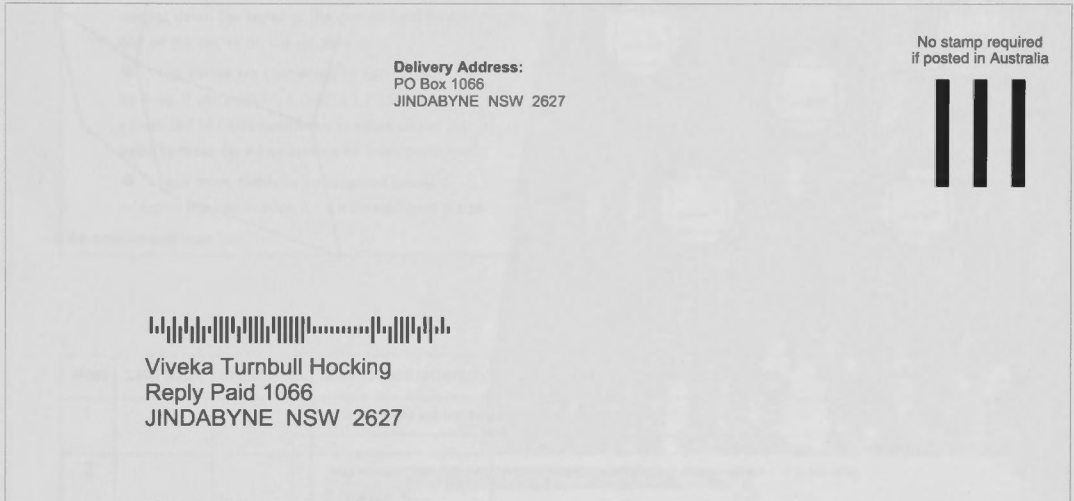
Seasons: _____

Years: _____

As Time Goes By: Inside Unfolded

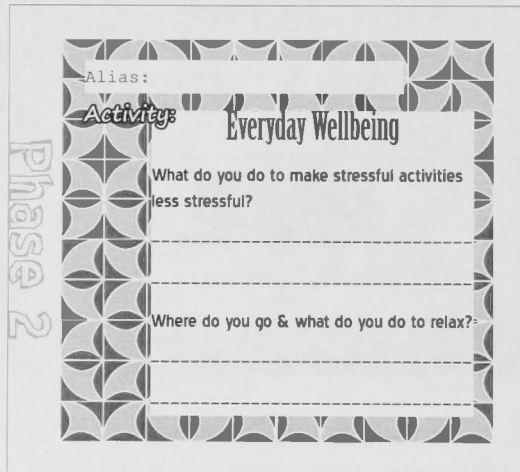
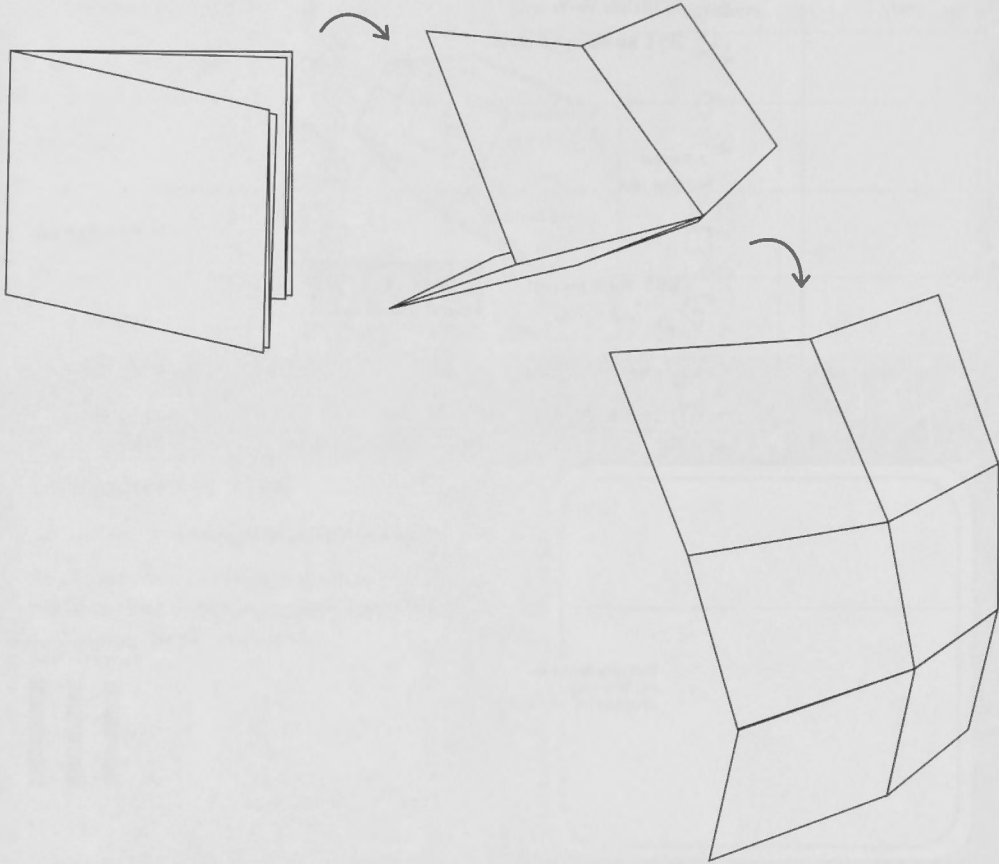


As Time Goes By: Back Cover



As Time Goes By: Cover Unfolded into a Return Envelope

Everyday Wellbeing Activity Sheet

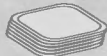


Everyday Wellbeing: Front Cover

Playbeing play this with others or by yourself

Opposite is a set of 6 cards →

Step 1: Remove cards

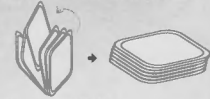


Step 3: Place the cards in a row, picture face up



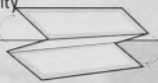
Discuss what each card could mean and write it down →

Step 2: Shuffle the cards and place them in a pile



Step 4: Open this sheet and fill in the activity

Step 5: I hope you have a bit of fun!

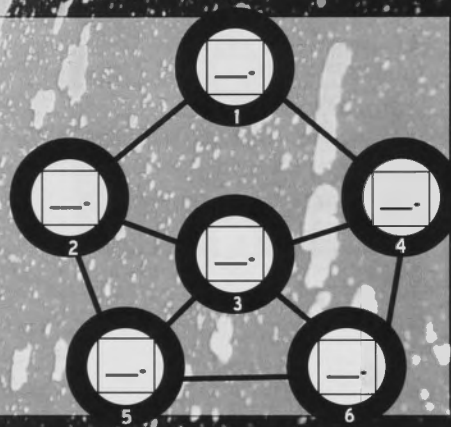


t.	_____
i.	_____
m.	_____
e.	_____
l.	_____
y.	_____

Cultivating Connections

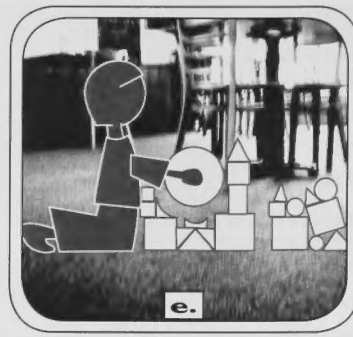
- Rules:
- Take it in turns to take a card from the pile.
 - Look at the chosen card and decide what it means to you.
 - Give the card a position on the diagram by writing down the letter of the chosen card on any one of the circles on the diagram →
 - The circles are connected to each other by lines. If you position a card in a circle that is connected to cards positioned in other circles you need to make up a justification for this connection.
 - Each move needs to be recorded below including the justification for the connections made.

Be creative and have fun!

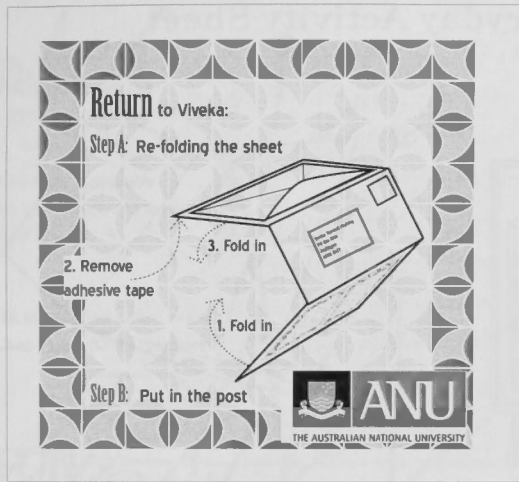


Move	Card letter	In Circle no.	links to card letters	Justification of connection
1			(the first move will not have anything to connect to yet)	
2			(the second move may or may not have a connection depending on where it is positioned)	
3				
4				
5				
6				

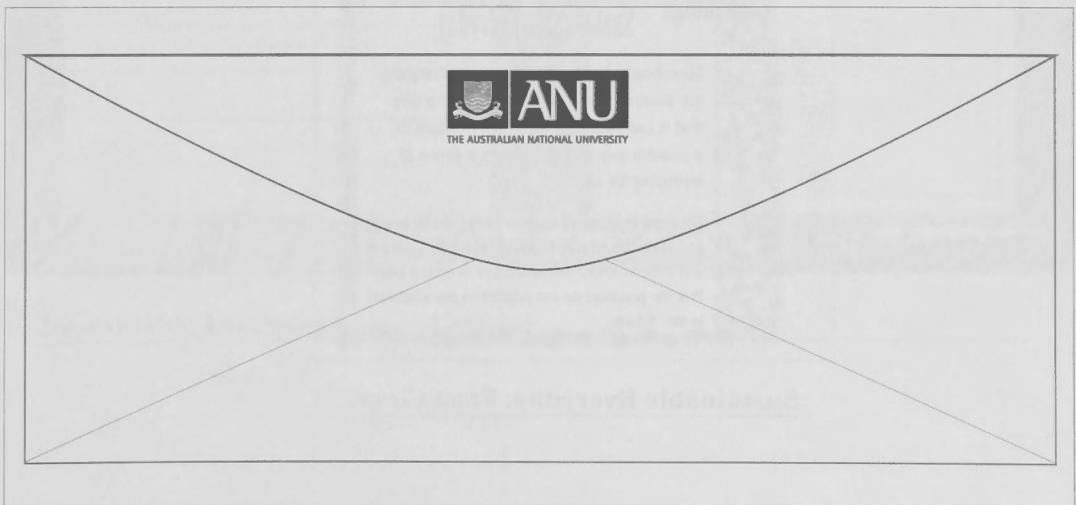
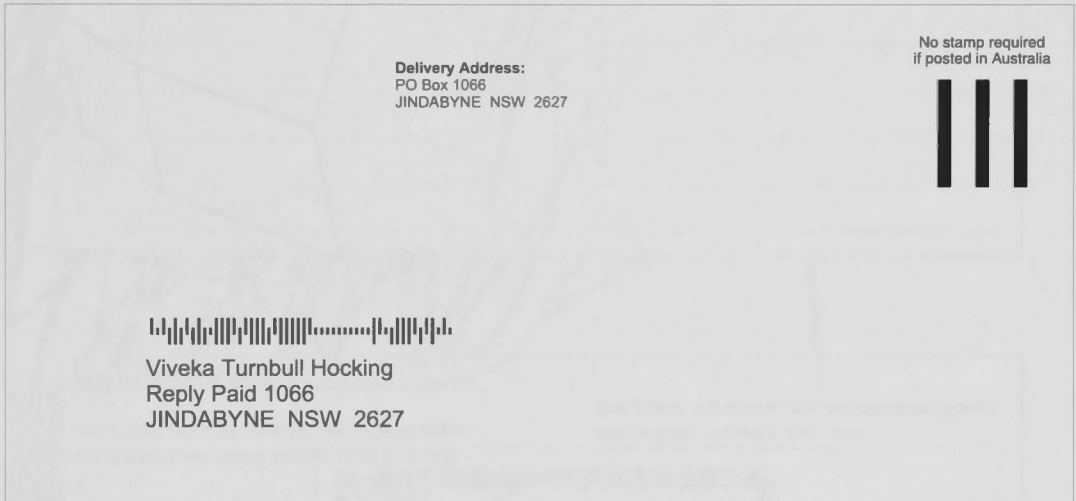
Everyday Wellbeing: Inside Unfolded



Everyday Wellbeing: Set of Six Cards

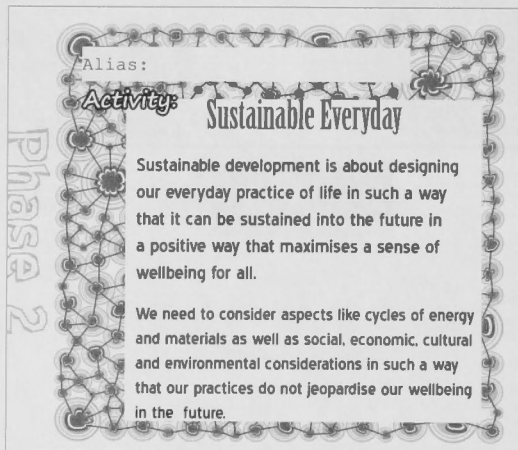
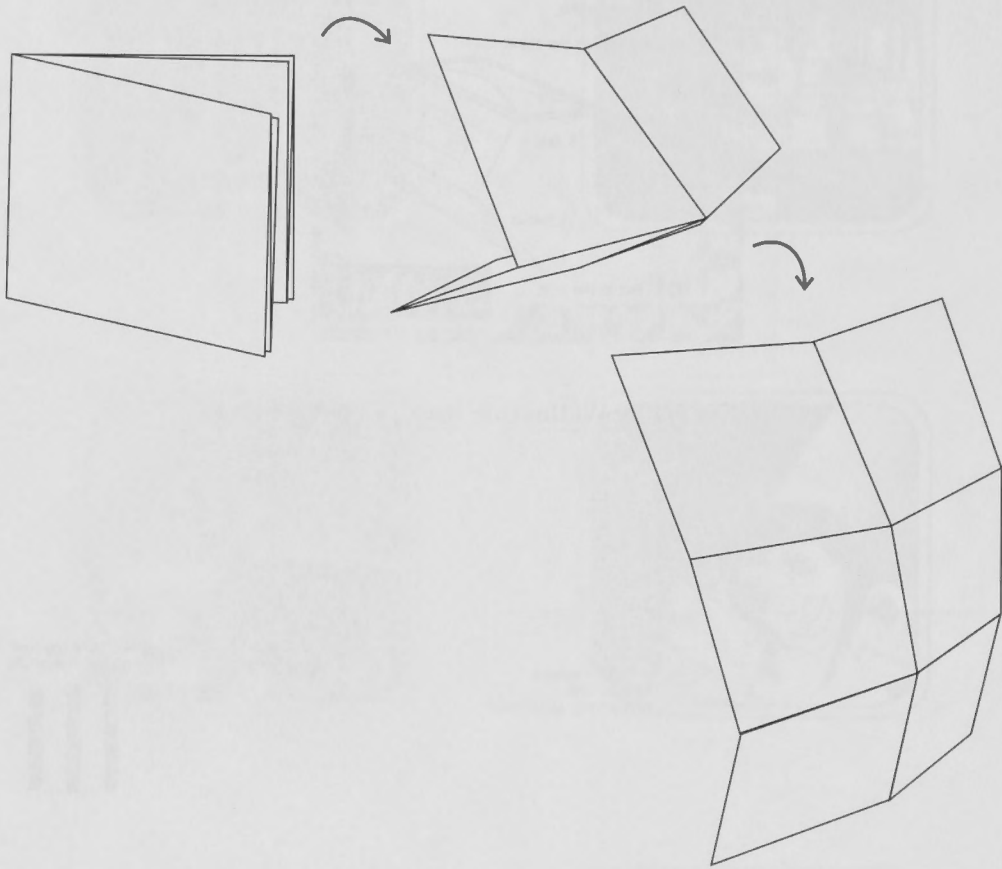


Everyday Wellbeing: Back Cover



Everyday Wellbeing: Cover Unfolded into a Return Envelope

Sustainable Everyday Activity Sheet



Sustainable Everyday: Front Cover

Sustainable Principles

you can complete these activities by yourself or with help from family and friends.

Step 1: Try and come up with as many sustainable principles you can think of. Ask your friends and family for more ideas. Make the longest list you can. ➔

Step 2: Open this sheet and fill in the activity. Then re-fold it into the envelop and send it to Viveka (see instructions on back).



1
2
3
4
5
6
7
8
9
10

Sustainable Diary

Step 3: Take this with you through the course of 1 day.

Step 4: Write down all the sustainable things you see and do

1
2
3
4
5

Step 5: Write down all the un-sustainable things you see and do.

1
2
3
4
5

Sustainable Ideas

can you do 6 and/or 7 ?

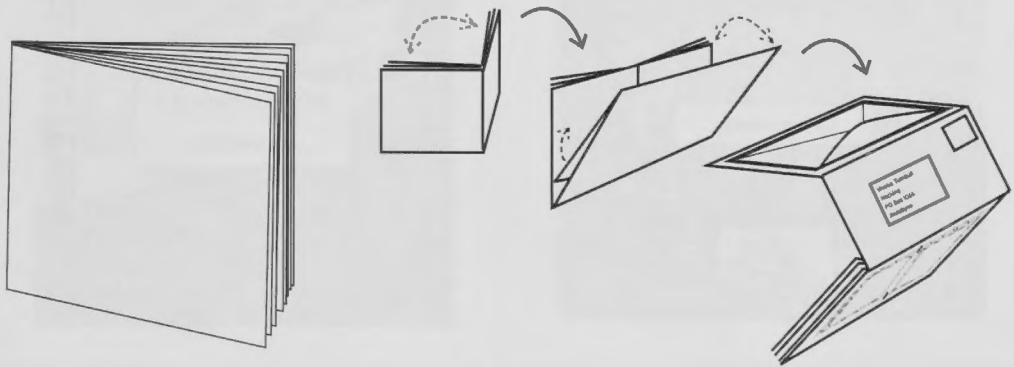
Step 6: Write down any ideas you have come up with of how to make your everyday activities more sustainable.

Step 7: Draw a diagram of what your sustainable activity might look like and how it might work.

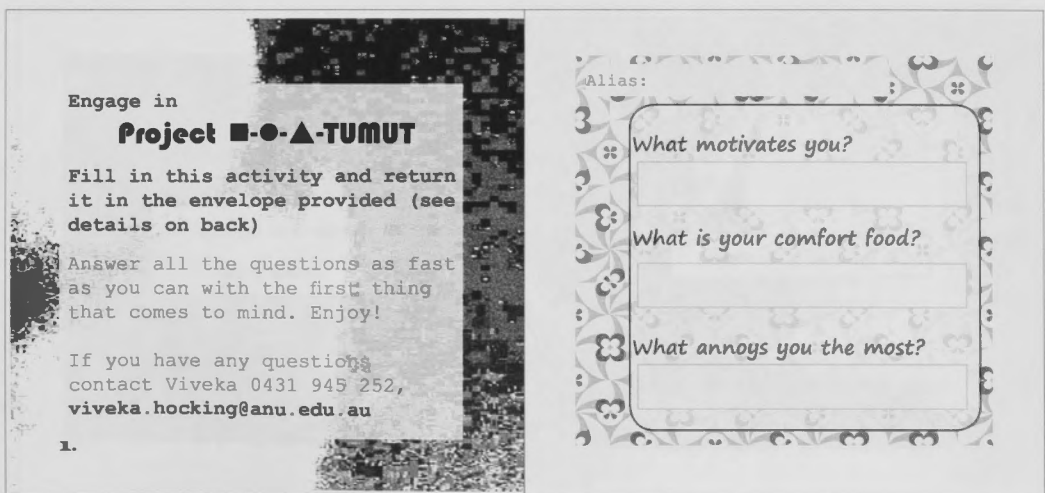
A large, empty rectangular box with a thin border, intended for drawing a diagram of a sustainable activity.

Sustainable Everyday: Inside Unfolded

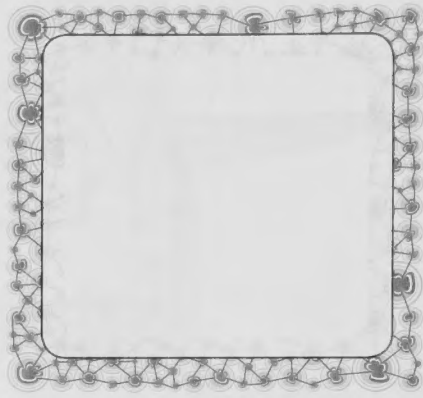
Industrial Culture Jam! Activity Booklet



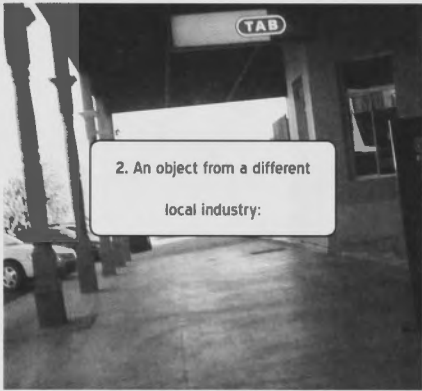
Industrial Culture Jam!: Front Cover



Industrial Culture Jam!: First Inside Spread



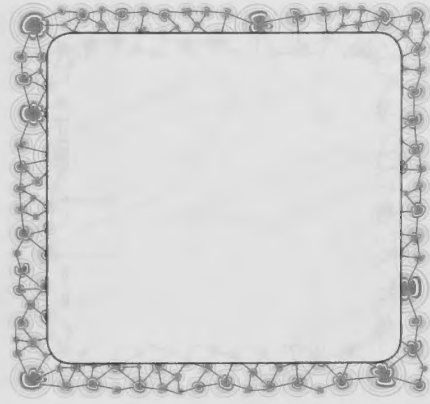
Industrial Culture Jam!: Second Spread



Industrial Culture Jam!: Third Spread



Industrial Culture Jam!: Middle Spread



Industrial Culture Jam!: Fifth Spread

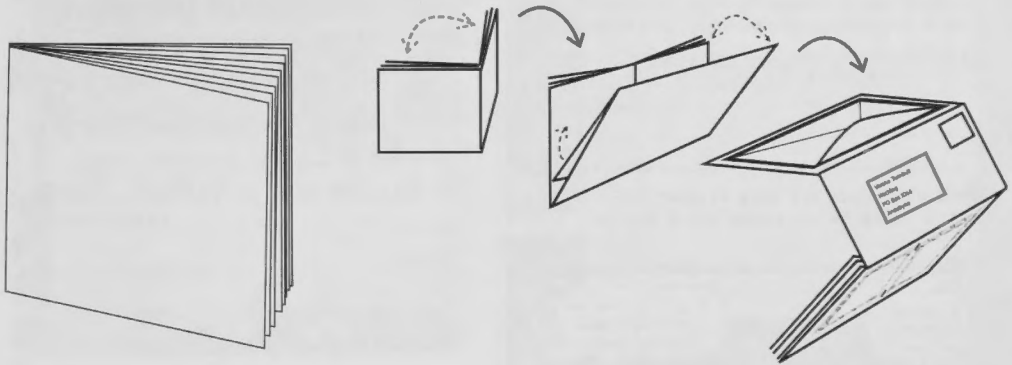


Industrial Culture Jam!: Sixth Spread

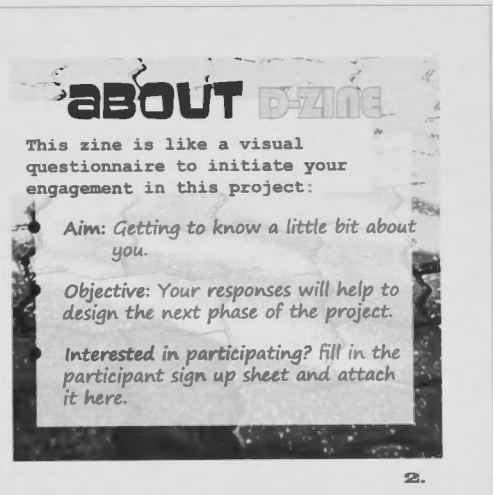
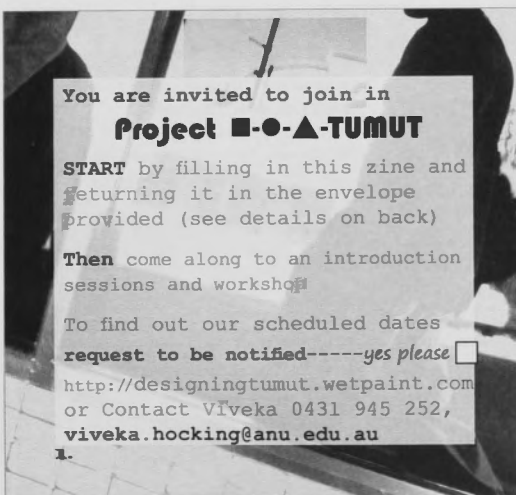


Industrial Culture Jam!: Seventh Spread

Updated D-zine



D-zine: Front Cover



D-zine: First Inside Spread

My Creative Side

Everyone has a creative side. Different people are creative at different things.

When does your creative side come out?

What place does art have in your life?
On the scale below where would you be?

I enjoy being artistic

I don't have an artistic bone in my body

3.

Draw your oldest possession

No I don't Like drawing

I would prefer to describe it in words

I'll give it a go

4.

D-zine: Second Spread

My Creative Side

Everyone has a creative side. Different people are creative at different things.

When does your creative side come out?

What place does art have in your life?
On the scale below where would you be?

I enjoy being artistic

I don't have an artistic bone in my body

3.

Something about home

What is special about where you live?

What would you change about your local area?:

6.

D-zine: Third Spread

MAPPING

Draw a map of your local area and include:

- 1 Where is your favourite place?
- 2 What route do you take when you have some time to spare?
- 3 What place do you avoid going?

7.

8.

D-zine: Middle Spread

Everyday Practices

What is your favourite everyday activity?

What activity do you dislike the most?

9.

Sustainability

There is a lot of talk about sustainability. It can mean many different things to different people.

What does sustainability mean to you?:

10.

D-zine: Fifth Spread

How would you describe yourself....

I am... _____

I'm good at... _____

I like... _____

I want to... _____

11.

My Alias

In all future activities you will be asked for your alias instead of your name so we can keep your responses anonymous (unless request otherwise).

Make a fictional character alias for yourself:

What kind of character?
(superhero, evilgenious, mythical, historical, etc.)

Any special talents? _____

What is your Alias called? _____

(Use this alias name for all the other activities in this project pack)

12.

D-zine: Sixth Spread

Thank you for participating in **Project ■-●-▲-TUMUT**

If you would like to join in the next phase please contact Viveka (see details on back) or fill in the participant sign up sheet.

My Home Town is: _____

Now I live in: _____

Name & Contact Details: _____
(Optional and will be kept confidential)

Follow the progress of the project & see how your responses are being used, go to:
designingtumut.wetpaint.com

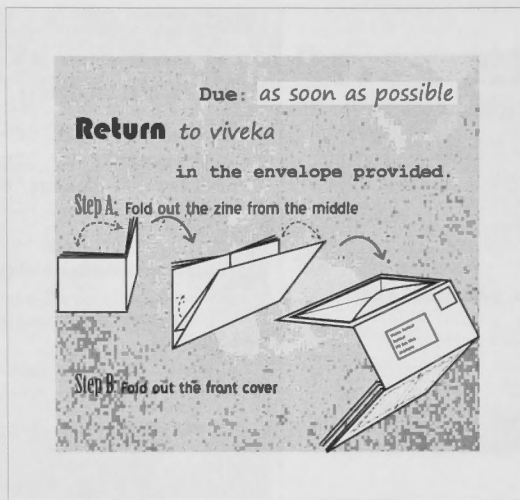
I understand that my responses may be published as part of the project----- yes no

I would like to remain anonymous----- yes no

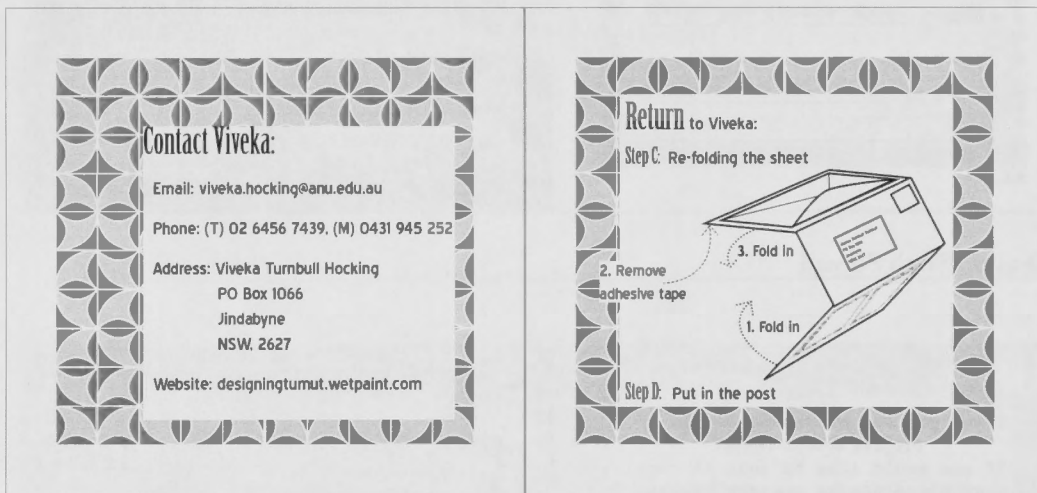
I would like to be named as the author--- yes no

Sign: _____

D-zine: Seventh Spread



D-zine: Back Cover



D-zine: Inside of Fold-up Cover

Contact Viveka:

Email: viveka.hocking@anu.edu.au

Phone: (T) 02 6456 7439, (M) 0431 945 252

Address: Viveka Turnbull Hocking
PO Box 1066
Jindabyne
NSW. 2627

Website: designingtumut.wetpaint.com

Return to Viveka:

Step C: Re-folding the sheet

Step D: Put in the post

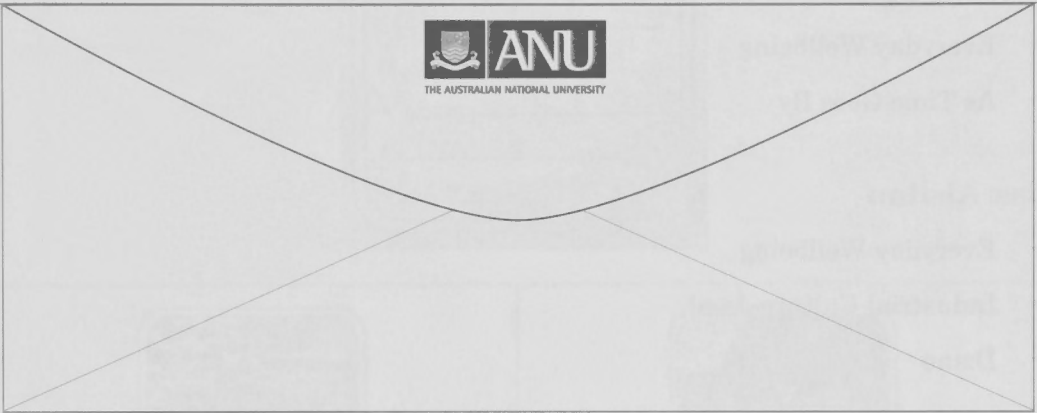
1. Fold in
2. Remove adhesive tape
3. Fold in

Delivery Address:
PO Box 1066
JINDABYNE NSW 2627

No stamp required
if posted in Australia



Viveka Turnbull Hocking
Reply Paid 1066
JINDABYNE NSW 2627



D-zine: Cover Unfolded into a Return Envelope

Project Tumut: Phase 2

4b Responses

received, by post, six responses to a range of activities in the Project Packs. Judging from the aliases and the handwriting there were approximately three participants. The alias was left blank on two responses, although the handwriting looks similar on both. Three responses had the alias Aislinn and one response had the alias Anon. Below is the list of activities each of the aliases responded to:

Alias: left blank

- Everyday Wellbeing
- As Time Goes By

Alias: Aislinn

- Everyday Wellbeing
- Industrial Culture Jam!
- Dzine

Alias: Anon

- Industrial Culture Jam!

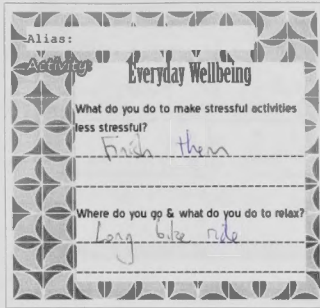
The following pages documents the responses to each activity:

1. Two responses to Everyday Wellbeing
2. Two responses to Industrial Culture Jam!
3. One response to the updated Dzine
4. One response to As Time Goes By

Everyday Wellbeing

Response 1

Alias: blank



What do you do to make stressful activities less stressful?

= **Finish them**

Where do you go and what do you do to relax?

= **Long bike ride**



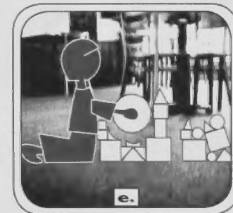
t. Life on the land is great, just ask Mao



i. Angry young thing at the pub



m. Building in the forest



e. Young children playing in cafe



l. Tourists at Snowy Hydro

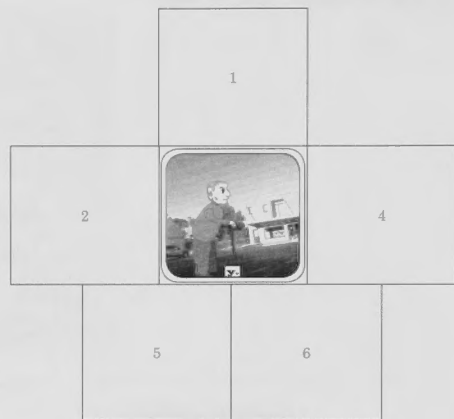


y. Old man struggling

Move	Card letter	In Circle no.	links to card letters	Justification of connection
1	y	3	(the first move will not have anything to connect to yet)	
2	l	1	(the second move may or may not have a connection depending on where it is positioned)	
3	t	2		natural landscape - farm reason for tourism (1), skills of old people and life on farm & grandchild
4	m	4		outdoors importance of plantations for future and economy of town
5	e	6		children connected to family & region but not work
6	i	5		future of children dependant on economy & family

1. Placing card y in position 3.

No links are made.



2. Placing card l in position 1.

No Links are made.



3. Placing card t in position 2.

Card t now links to cards l and y.

Justification of Connection:

Natural landscape – farm reason for tourism (1), skills of old people and life on farm and grandchildren



4. Placing card m in position 4.

Card m now links to cards y and l

Justification of Connection:

Outdoors, importance of plantations for future and economy of town



5. Placing card e in position 6.

Card e now links to cards y and m

Justification of Connection:

Children connected to family and region but not work



6. Placing card i in position 5.

Card i now links to cards t, y and e.

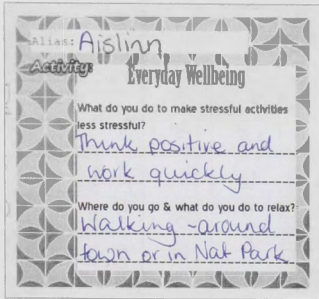
Justification of Connection:

Future of children dependent on economy and family



Response 2

Alias: Aislinn

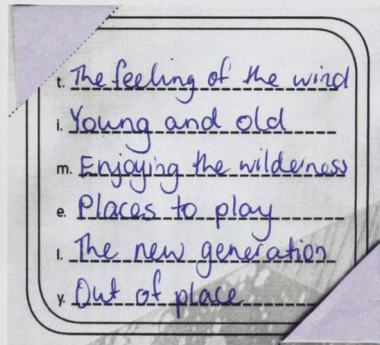


What do you do to make stressful activities less stressful?

= Think positive and work quickly

Where do you go and what do you do to relax?

= Walking - around town or in the Nat[ional] Park



t. The feeling of the wind



i. Young and old



m. Enjoying the wilderness



e. Places to play



l. The new generation

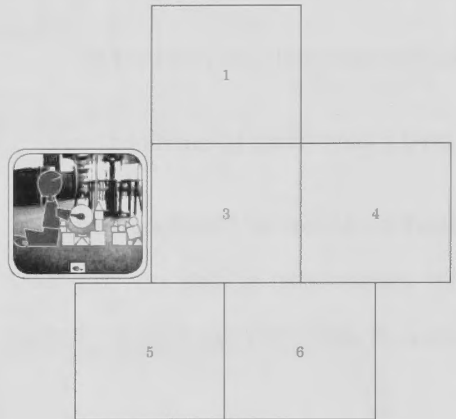


y. Out of place

Move	Card letter	In Circle no.	links to card letters	Justification of connection
1	E	2	(the first move will not have anything to connect to yet)	
2	Y	1	(the second move may or may not have a connection depending on where it is positioned)	Life circle → child → adult
3	M	3	2	Children can enjoy the wild too
4	L	5	2,3	As children go they become the new generation
5	T	6	5,3	An awareness of the environment links new gen + wilderness
6	i	4	3,6	The old + new environment

1. Placing card e in position 2.

No links are made.

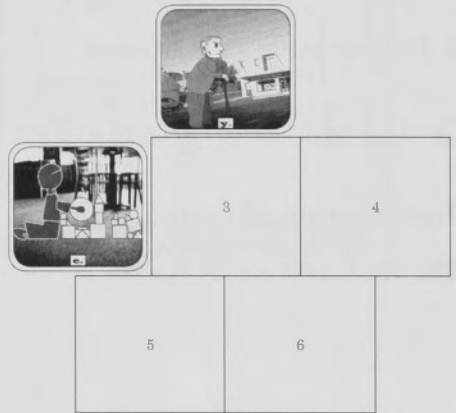


2. Placing card y in position 1.

Card y now links to card e.

Justification of Connection:

Life circle → child → adult.

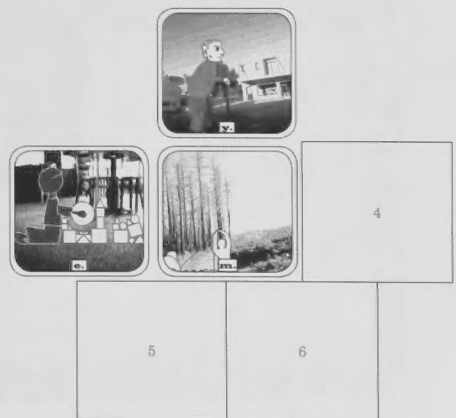


3. Placing card m in position 3.

Card m now links to cards e.

Justification of Connection:

Children can enjoy the wild too.



4. Placing card l in position 5.

Card l now links to cards e and m

Justification of Connection:

As children go they become the new generation

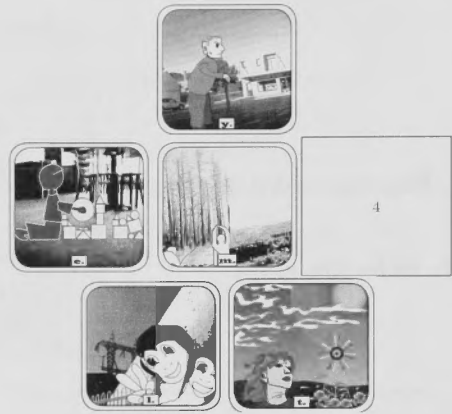


5. Placing card t in position 6.

Card t now links to cards m and l

Justification of Connection:

An awareness of the environment links new gen[eration] + wilderness



6. Placing card i in position 4.

Card i now links to cards m and t.

Justification of Connection:

The old + new environment



Industrial Culture Jam!

Response 1

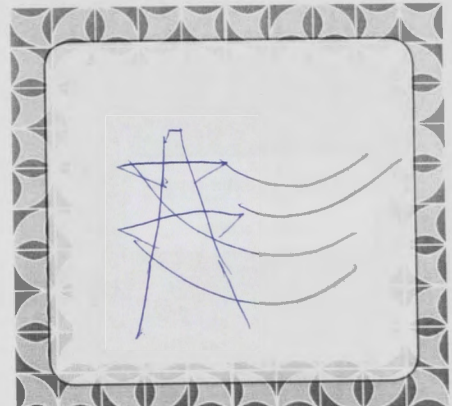
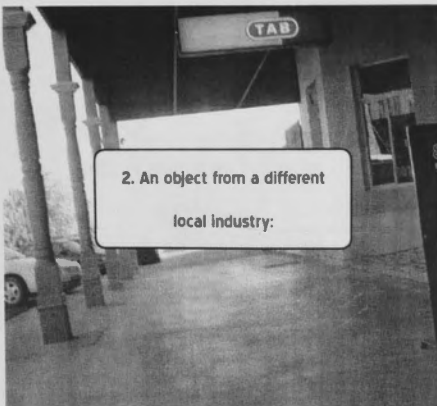
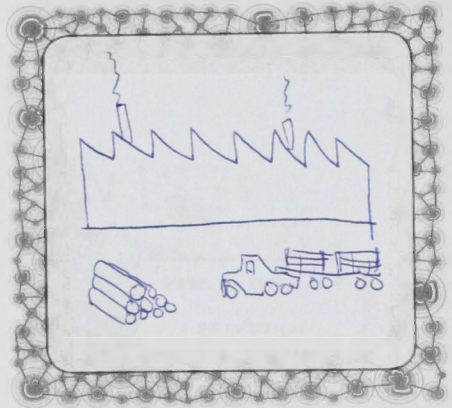
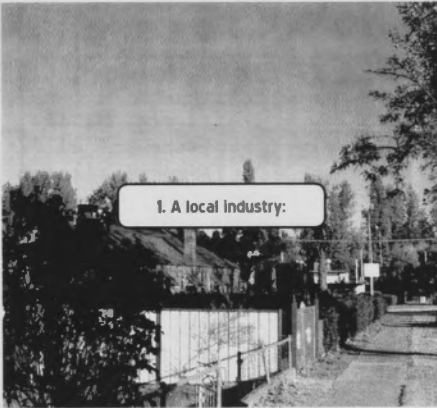
Alias: Anon

Alias: Anon

What motivates you?
Achievement

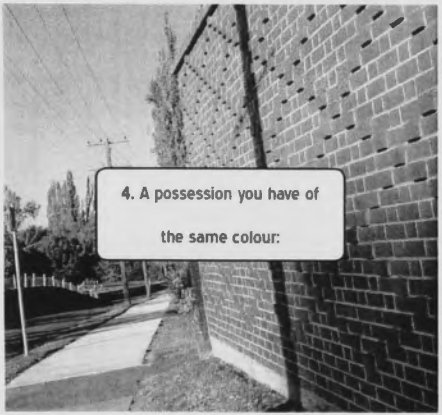
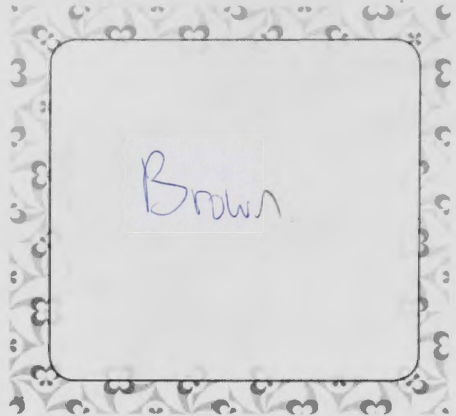
What is your comfort food?
Hot crunchy chips

What annoys you the most?
Procrastination

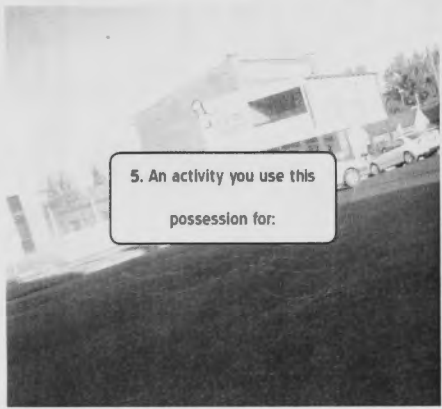
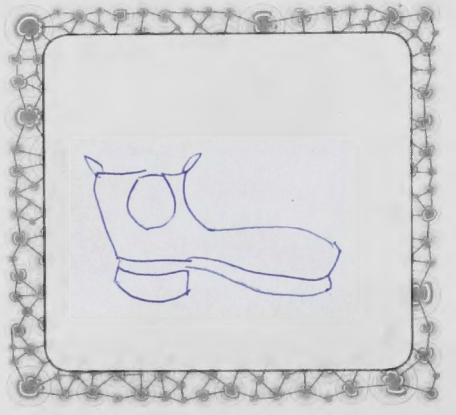




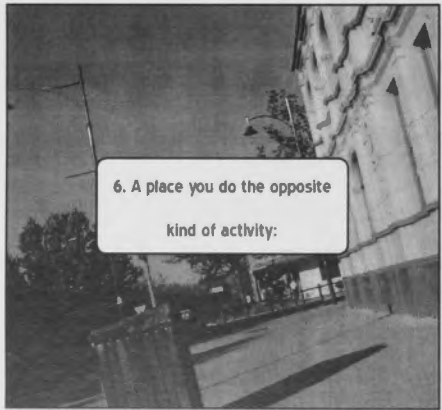
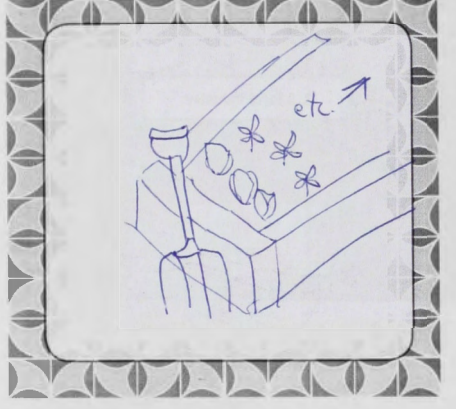
3. The colour of this object:



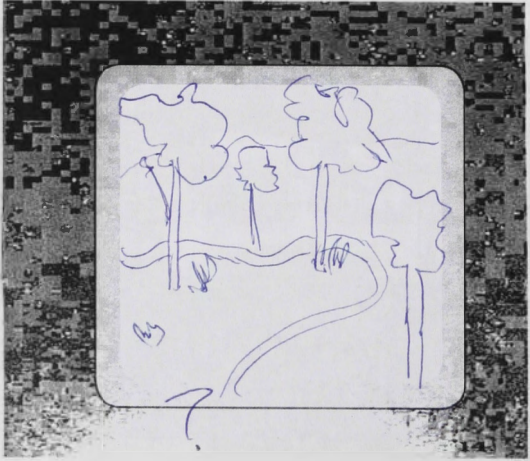
4. A possession you have of the same colour:



5. An activity you use this possession for:



6. A place you do the opposite kind of activity:



Response 2

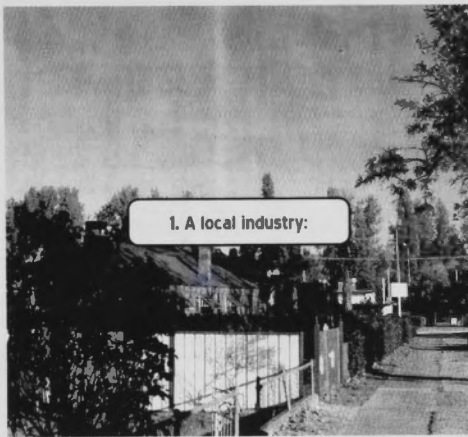
Alias: Aislinn

Alias: Aislinn

What motivates you?
My family

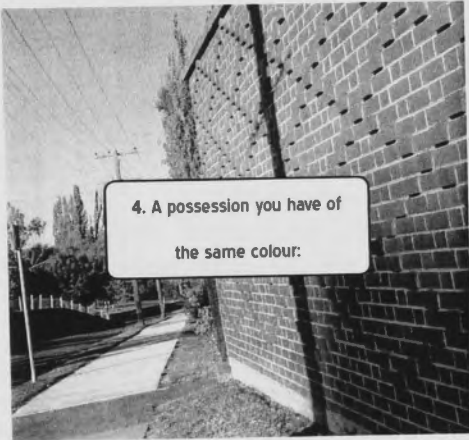
What is your comfort food?
Chocolate

What annoys you the most?
False people

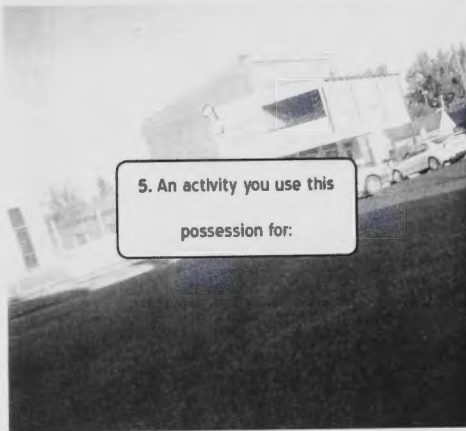




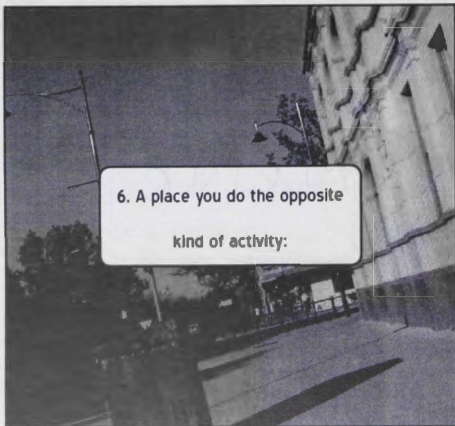
3. The colour of this object:



4. A possession you have of the same colour:



5. An activity you use this possession for:



6. A place you do the opposite kind of activity:



Response 1

Alias: Aislinn

My Creative Side

Everyone has a creative side. Different people are creative at different things.

When does your creative side come out?
 When I have space and time to think

What place does art have in your life?
 On the scale below where would you be?

I enjoy being artistic I don't have an artistic bone in my body

Draw your oldest possession

No I don't Like drawing

I would prefer to describe it in words

The oldest 'item' I have is a collection of postcards sent by my Great-grandfather during WWI.

I'll give it a go

The possession I have had the longest is my body!

Play

What do you do just for fun?
 Sudaku, crosswords, reading

What games do you like to play?

- I'm not really into games
- Cards
- Board games
- Computer/console games
- Sports
- Other: _____

Something about home

What is special about where you live?
 It has a view of the surrounding hills

What would you change about your local area?:
 More play equipment at the parks

MAPPING

Draw a map of your local area and include:

- Where is your favourite place? *the park*
- What route do you take when you have some time to spare?
- What place do you avoid going? *Anywhere with big hills/slope*

Everyday Practices

What is your favourite everyday activity?
Reading stories to my children

What activity do you dislike the most?
cleaning!

Sustainability

There is a lot of talk about sustainability. It can mean many different things to different people.

What does sustainability mean to you?:
The ability for things to continue at the same level without damage or negative effects

How would you describe yourself....

I am... open to change, happy in my own skin

I'm good at... Caring, helping out, multitasking

I like... music, books, sunny days, baking

I want to... do some more study.

My Alias

In all future activities you will be asked for your alias instead of your name so we can keep your responses anonymous (unless request otherwise).

Make a fictional character alias for yourself:

What kind of character? medieval
(superhero, evilgenious, mythical, historical, etc.)

Any special talents? nurturer

What is your Alias called? Aislinn
(Use this alias name for all the other activities in this project pack)

Thank you for participating in **Project ■-●-▲-TUMUT**

If you would like to join in the next phase please contact Viveka (see details on back) or fill in the participant sign up sheet.

My Home Town is: Young via Sydney!

Now I live in: TUMUT

Name & Contact Details:
(Optional and will be kept confidential)

Follow the progress of the project & see how your responses are being used, go to:
designingtumut.wetpaint.com

I understand that my responses may be published as part of the project----- yes no
 If so:

I would like to remain anonymous----- yes no

I would like to be named as the author--- yes no

Sign: _____

As Time Goes By!

Response 1

Alias: blank

What is your relationship with time? = Is it a constant tussle

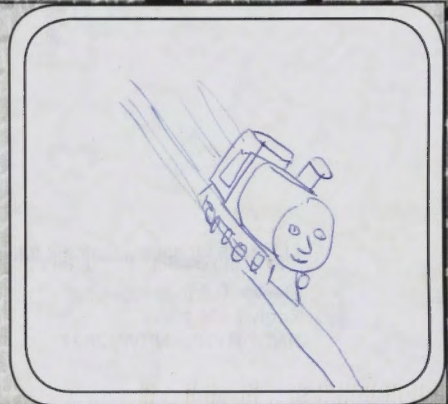
Time mapping				
Your relationship with time	what	how	when/where	why
My time is in short supply	Family	Work + other things	Mainly at home	Too much on
I make time	Riding	Just go	Weekends and some week nights	Feel better for it.
I have plenty of time	Sleep	lie down	In my bed	On < 7hr I am useless
I run out of time	holidays, riding, gardening etc.	Too much I want to do	Mainly at home	Feel need to complete things

Characterising Time

How would you draw a personification of time? →

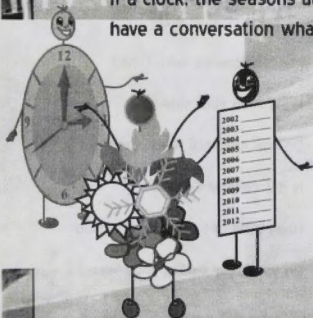
Would it be a super hero or an evil genius, chaotically mess or neat and studious, split personality or overtly consistent?

An out of control steam train (a.k.a. Thomas)



A Timely Conversation

If a clock, the seasons and the years could have a conversation what would they say →



Clock: There are 24hrs in a day - use them

Seasons: Appreciate and respect change

Years: Hi, I'm a cultural construct



Appendix 5

Phase 3 of Project Tumut

Appendix 5a gives details and documents the methods used in Phase 3 of the Tumut fieldwork. Appendix 5b documents the responses from participants to Phase 3. This appendix is referred to in the Concept Development Chapter under: Developing the Methodology section, Project Tumut, Phase 3.

This Appendix Contains:

5a Methods

Larry the Story-Tree Creature.....	356
The Storyscape Game.....	357
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Wild Card.....	369
Old Story Card.....	369
New Story Card.....	369
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5b Responses

Story Leaf Responses.....	378
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Project Tumut: Phase 3

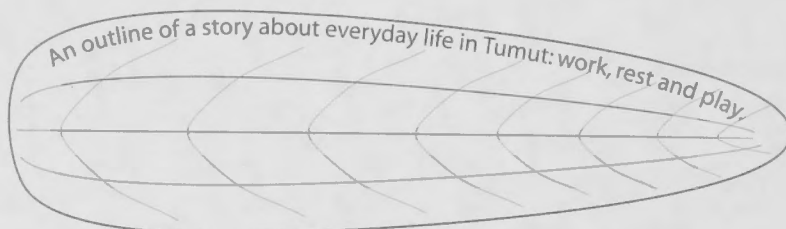
5a Methods

Larry the Story-Tree Creature

Larry is a large bean bag like creature with branches. Leaf packs were made for participants to record their stories about everyday life in Tumut. The packs contained ten leaves and gave participants some instructions to help them think of what to write on the leaf paper. These paper leaves then foliated Larry with stories.



Larry the Story-Tree Creature: Front, Side & Back



Story Leaf: Printed on green paper

Instructions: Write a couple of sentences on the leaves opposite → Tell Larry (the story tree creature) everything about your community of Tumut. When you have finished put your leaf on Larry to foliate him with stories.

Make sure you tell Larry about everything from the **unique to the obvious**

Write about:

1. Everyday life in Tumut
2. What people do for work
3. Family life and friends
4. What people you know do for rest, relaxation and play
5. What kids, Teenagers, the youthful, the grown ups and the elderly do
6. Networks and community groups



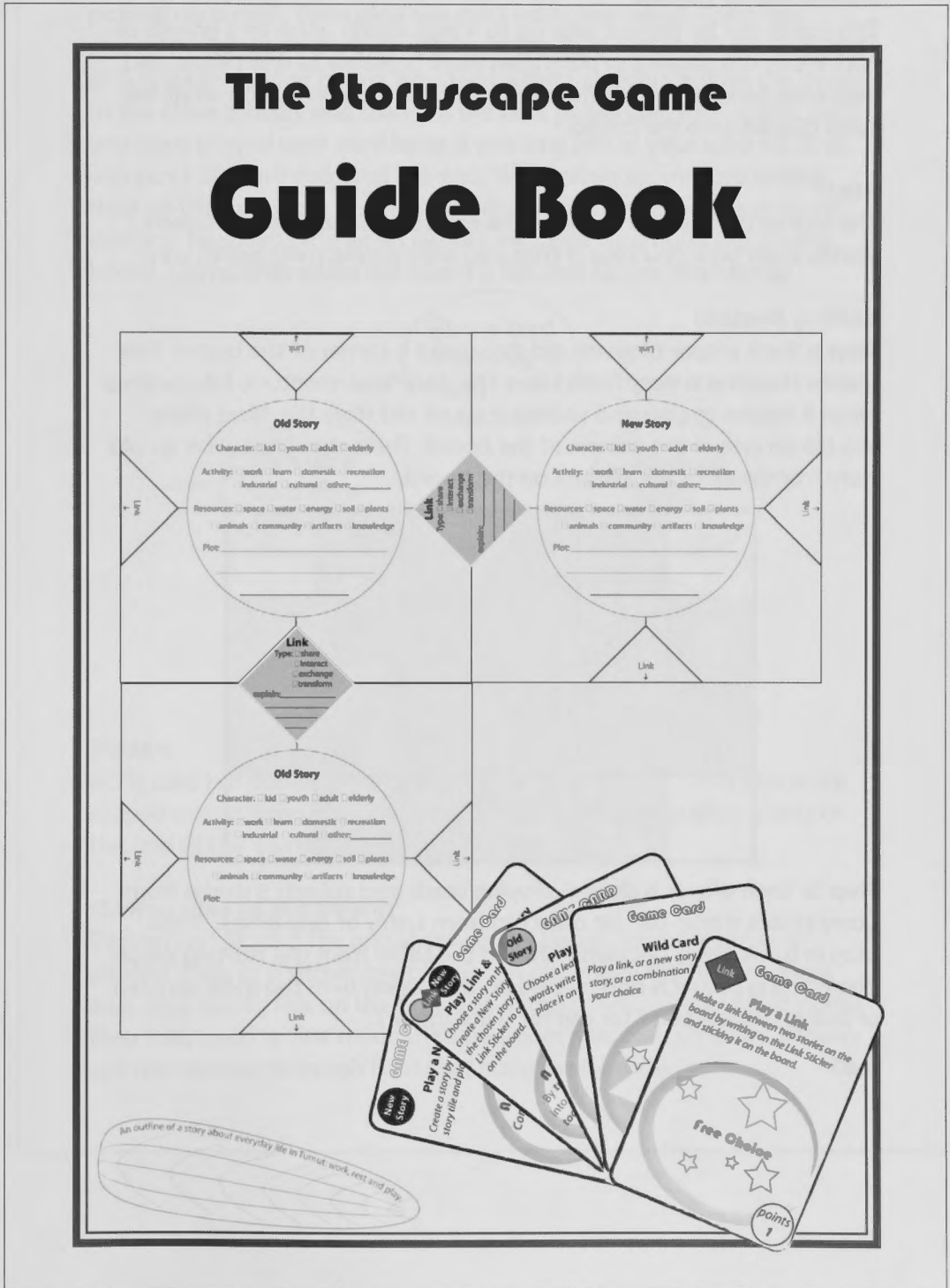
Leaf Packs: Printed on heavy weight paper

The Storyscape Game

The Storyscape game intended to get participants to play with the concept 'diversify cohesively'. Each participants was given a pack containing a Guide book for the game, a pack of cards and board components.

Guide Book

Printed on A4 paper, folded to an A5 booklet and stapled .



How to Play:

Individuals or Teams:

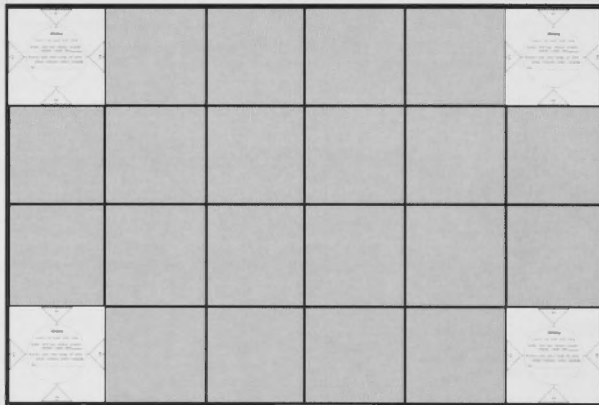
This game can be played with up to 4 individuals or up to 4 groups of two. If you are playing in pairs then work together as one player and help each other create stories and links and keep an eye on what has been played onto the board.

Aim:

The aim of the game is to make the most stories and links between stories. Each time you play a card you earn points, most points win.

Getting Started:

Step 1: Each player plays an old story onto a corner of the board. This means choosing a story from Larry the story-tree-creature, interpreting what it means to you and writing it on an old story tile. Next place the tile on one of the corners of the board. There should now be an old story from each of the players on the board.

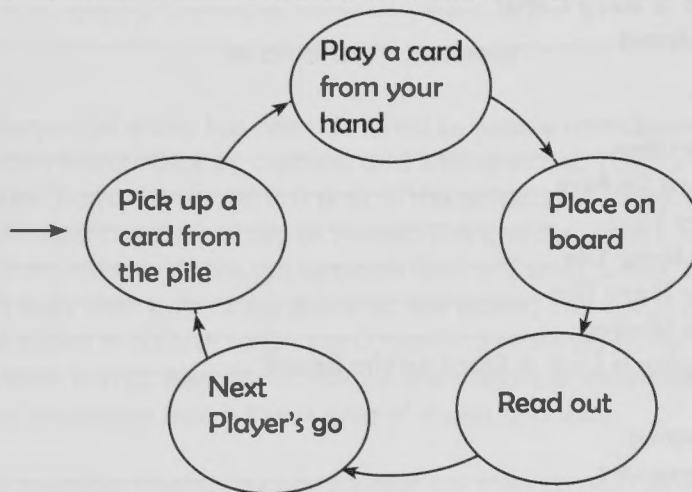


Step 2: Each player is dealt 5 playing cards and collects 5 stories from Larry (more stories can be collected from Larry at any time). Then play in turns going clockwise around the table from the starting player. The starting player is determined by the person with the most amount of points in their hand (or ask for a volunteer)

9.

Turns:

Play clockwise from starting player. Each time its your turn start by picking up a card. Then play one card from your hand. Cards are played by following the instructions on the card and putting a story tile or link sticker on the board. Read out what you have put on the board to the other players and then it is the next players go. Remember once you have played your card keep it safe in a pile of your used cards so you can tally your points at the end. While other players are taking their go you can work on what you are going to play next, just make sure you keep listening when people say what they have put on the board. Game ends when the board is full and no one else can go.

**Points:**

Each card has points in the bottom right hand corner. Once you have played a card keep it in your used card pile to tally up your points at the end of the game. The most points wins.

Moving tiles on the board:

Players can place a tile anywhere on the board. When a player is placing a tile or a sticker the player can also move the tiles to where ever they would like on the board eg. if the player is linking two stories they may need to first move the two stories next to each other. Players are not allowed to break links that have been made.

10.

Contents:

You are the story makers, as a group you will make a storyscape, the player that makes the most stories and links between stories wins!

About the Game p.2

Cards:

Overview	p.3
Old Story Card	p.3
New Story Cards	p.3
Link Cards	p.4
Link & Story Cards	p.4
Wildcard	p.4

Board:

Overview	p.5
Board Surface	p.5
Story Tiles	p.6
Old Story Tile	p.6
New Story Tile	p.6
Link Sticker	p.6
Playing a Link & Story on the board	p.6

Story Elements:

Characters	p.7
Activities	p.7
Resources	p.8

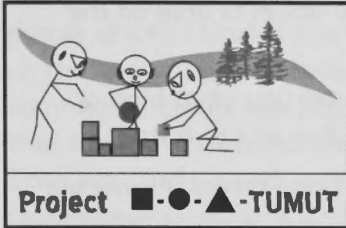
Link Elements: p.8

How to Play:

Individuals or Teams	p.9
Aim	p.9
Getting Started	p.9
Turns	p.10
Point	p.10
Moving Cards on the board	p.10

I.

About the Game:



This Storyscape Game forms the 3rd phase in 'Project Tumut' a PhD project to test design-led research methods for sustainability.

The previous phase of Project Tumut engaged participants from the Tumut community in creative activity packs in order to develop a concept about sustainable wellbeing for Tumut's future. The resulting concept was:

'to diversify cohesively'.

This storyscape game has been designed to enable participants to play with this concept by creating and linking stories. The story-tree-creature, Larry, Forms the first part of the game. Larry collects all the stories about the community of Tumut. This is so the community can start the process with the stories which exist in Tumut today. These stories then form part of the game as 'old stories'. The storyscape game uses a board and cards to get participants to write old stories (existing ones, from Larry), new stories (future ones) and link them together to form a storyscape that is like a map of stories and links.

The storyscapes created by participants will then be used to create phase 4 of the project - scenarios of possible futures for Tumut. These scenarios will be developed into visualisation that can be presented to the community of Tumut for feedback.

The last phase in the project will see the scenarios combined into one visualisation determined by the community feedback.

For more information on Viveka's PhD and the papers she has presented at conferences and has published from this work go to www.viveketurnbullhocking.wetpaint.com

2.

Cards:

The game has a large pack of cards. These cards have instructions of what to do and how to create old stories, new stories or links on the board.

Each card has a icon on the top left corner to tell you what kind of action you can make eg. old story, new story, link or link & story.

Each card also has points in the bottom right hand corner. As you use the cards keep them in a pile so you can tally your points at the end of the game.

Each game card has a kind of action in bold eg. 'Play a New Story' and then explains how to do this in italics underneath. In the large oval at the bottom of the card it will give you a picture and explanation of what you can do eg. A story about contemplative time.

Old Story Old Story:

There is only one kind of old story card. To play an old story card take one of the leaves from Larry and interpret it in your own way. Then take an old story tile and select the appropriate tick boxes and write what the story is about next to 'Plot:'.

The game will start with each player placing an old story at the corner of the board.

New Story New Story:

There are 15 different new story cards. Each of them gives details of what kind of story the player can create, eg. a story about: A new outside activity that benefits the community, Sharing tools and equipment, Giving space to nature, Free choice, etc. Each card is worth a different number of points depending on the level of difficult. Play a new story by creating a fictitious, but possible story, write it on a blue new story tile and place it on the board.

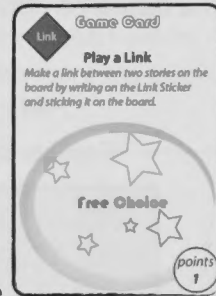


3.



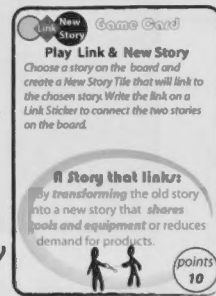
link:

There are 16 different link cards. Each card gives details of what kind of link to make between stories on the board, eg. Link between stories: that share a community group, can exchange goods or services, that can form an interaction between characters. Each link card is worth a different number of points depending on the level of difficulty. Play a link by taking a link sticker and choosing the appropriate tick boxes and writing the explanation. Then stick the two stories together using this link sticker.



link & Story:

This card is about encouraging players to transform current stories into more positive and sustainable ones. There are 15 different link & story cards. Each card gives details of what kind of link & story to play, eg. A story that links: by transforming an old story into a new story that shares tools and equipment. This card enables the player to play a transform link from an existing story on the board to a new story they can create. Players choose a story on the board and then use the instructions to write a new story based on their chosen story. Then on the link sticker tick the transform box and write a brief explanation on the type of transformation.



Wildcard:

There is only one type of wildcard. This card gives the player an opportunity to play what ever they like: link, new story, old story, link & story, etc. Players are free to create any kind of story or link they like. Each of the other card types also has a free choice card which enables players to play a story or link in the way they want to



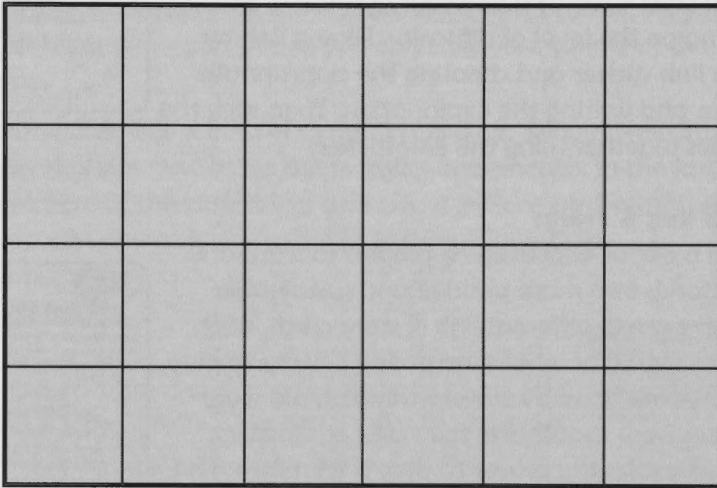
4.

Board:

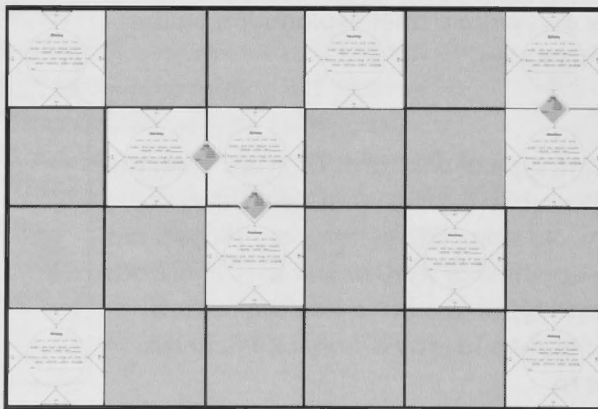
The board comprises of a series of components, a board surface, story tiles and link stickers.

The board surface

Consists of a surface with a number of squares on it.



The squares are exactly the same size as the story tiles. When you play a story tile they get placed onto the board surface.



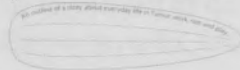
5.

Story Tiles:

Each story tile allows you to put a story on the board. The tile consists of tick boxes for character, activity and resource (see next page for more details). Tick the appropriate boxes for your story. Then next to plot write a brief outline of what the story is about. The story tile also has a place marked for where you can put the link stickers.

Old Story Tiles (green):

When starting a game or playing an old story card from your hand, use a story from Larry:



Interpret the story in your own way. Then tick the appropriate boxes on the tile and write what the story is about.

New Story Tiles (blue):

When playing a new story card from your hand create a story about a possible future by ticking the appropriate boxes and writing what the story is about next to the plot. This tile is also used when playing a link & story card.

Link Stickers:

When playing a link card from your hand, create a link between two stories on the board. You can move stories together if needed. Choose the appropriate tick boxes for your link (see next page for more details) then write a brief explanation of your link.

Playing a link & story onto the board:

Choose a story already on the board then transform it into a new story. Write the transformed story on a new story tile and write a transform link on the sticker explaining how you have changed the story. Then stick the new story tile to the story on the board with the link sticker



Chose story
Create Link
Write story
b.

Story Elements

The story elements are used to help write old stories and new stories. You will see these elements on the story tiles as tick box options. Each of these elements is meant as an aid to help you write your stories on the tiles. The Plot section asks you to write more specifically about what and how these elements go together, ie. what the story is about.

1. Characters:

Age groups are only approximations and may be conditional to the characters state of mind or life context. It is up to the player to decide which label best describes their character.

Kids: 0-15yrs

Youth: 16-30yrs

Adult: 30-60years

Elderly: 70+

2. Activities:

Work: Paid or voluntary

Domestic: Looking after family and friends, house work etc.

Learning: School, training, reading, etc.

Recreation: Rest, play, holidays, hobbies, etc.

Other: You may create a story about an activity that does not fit into any of the above categories. If this occurs then just write the type of activity in the space next to other.

7.

3. Resources:

Knowledge: Personal, theoretical, practical, wisdom, etc.

Artifacts: Buildings, tools, infrastructure, any 'man-made' object.

Community: People, networks of people, social groups, etc.

Space: Indoors, outdoors, air, an area, etc.

Animals: Domestic, wild, fish, birds, reptiles, mammals, insects, etc.

Plants: Trees, shrubs, crops, vegetables, flowers, fungi, algae etc

Water: Tap, river, dam, rain, etc.

Energy: Electricity, Sun, wind, heat, food, etc.

Soil: Dirt, land, etc.

Link Elements

These elements help create links between stories on the board. You will see these elements on the link stickers as tick box options.

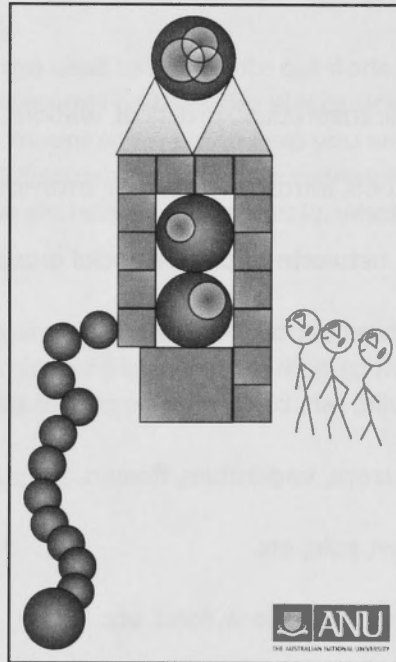
Share: Stories may have something in common or perhaps one story could share a resource with the other story

Interact: Stories may have characters from the same group or characters may interact with each other in some way.

Exchange: Resources, products or services may be swapped or bought and sold between two stories

Transform: This is when an old story is link to a new story about the same thing only changed in some way eg. made better

8.



Thank you for participating in Project Tumut

Special thanks to Rhonda and Stan from Cooee Cottage and Cate Cross for all their help and support

This is part of Viveka Turnbull Hocking's PhD Project at ANU.

For more information on Viveka's PhD, the papers she has presented and published from this work go to www.vivekaturnbullhocking.wetpaint.com

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or contact the ANU Human Ethics Committee

Research Office, Chancelry 10B, The Australian National University, ACT 0200

Tel: 6125-7945 Fax: 6125-4807

Email: Human.Ethics.Officer@anu.edu.au

Cards

Printed on pink card paper

Wild Card



Game Card

Wild Card
Play a link, or a new story, or an old story, or a combination of them. It's your choice

**Wildcard
free to choose**

points
5

Old Story Card



Old Story **GAME CARD**

Play an Old Story
Choose a leaf from Larry, in your own words write it on an old story tile and place it on the board.

An old story on a leaf

points
1

New Story Card

New Story **GAME CARD**

Play a New Story
Create a story by writing on a new story tile and place it on the board.

A Story about:
Using what already exists and reducing the need for the new.




points
5

New Story **GAME CARD**

Play a New Story
Create a story by writing on a new story tile and place it on the board.

A Story about:
Empowering people and increasing participation.



points
5

New Story **GAME CARD**

Play a New Story
Create a story by writing on a new story tile and place it on the board.

A Story about:
Promoting variety. Protecting and developing biological, socio-cultural or technological diversity.



points
5

New Story GAME CARD

Play a New Story
Create a story by writing on a new story tile and place it on the board.

A Story about:
Using *sustainable energy*.
Sun, wind or biomass to reduce dependence on oil.

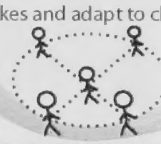


points 5

New Story GAME CARD

Play a New Story
Create a story by writing on a new story tile and place it on the board.

A Story about:
Developing *networks*.
Promoting forms of organisation that can learn from mistakes and adapt to changes.



points 5

New Story GAME CARD

Play a New Story
Create a story by writing on a new story tile and place it on the board.

A Story about:
Giving *space to nature*.
Protecting and promoting natural environments.




points 5

New Story GAME CARD

Play a New Story
Create a story by writing on a new story tile and place it on the board.

A Story about:
Giving time for *thinking before doing* and weighing up the objectives.



points 5

New Story GAME CARD

Play a New Story
Create a story by writing on a new story tile and place it on the board.

A Story about:
Wellbeing.



points 5

New Story GAME CARD

Play a New Story
Create a story by writing on a new story tile and place it on the board.

A Story about:
Contemplative time.



points 5

New Story GAME CARD

Play a New Story
Create a story by writing on a new story tile and place it on the board.

A Story about:
A new *indoor activity* that *benefits the community*



points 5

New Story GAME CARD

Play a New Story
Create a story by writing on a new story tile and place it on the board.

A Story about:
A new *outside activity* that *benefits the community*




points 5

New Story GAME CARD

Play a New Story
Create a story by writing on a new story tile and place it on the board.

Free Choice



points 1

Link + New Story Card

Link New Story Game Card

Play Link & New Story
 Choose a story on the board and create a New Story Tile that will link to the chosen story. Write the link on a Link Sticker to connect the two stories on the board

A Story that links:
 By **creating** a new story about **outsiders** that links to a story on the board about **locals**.




points 10

Link New Story Game Card

Play Link & New Story
 Choose a story on the board and create a New Story Tile that will link to the chosen story. Write the link on a Link Sticker to connect the two stories on the board

A Story that links:
 By **transforming** the old story into a new story that **allows for contemplation time**.




points 10

Link New Story Game Card

Play Link & New Story
 Choose a story on the board and create a New Story Tile that will link to the chosen story. Write the link on a Link Sticker to connect the two stories on the board

A Story that links:
 By **transforming** the old story into a new story that **gives time for thinking before doing**.




points 10

Link New Story Game Card

Play Link & New Story
 Choose a story on the board and create a New Story Tile that will link to the chosen story. Write the link on a Link Sticker to connect the two stories on the board

A Story that links:
 By **transforming** the old story into a new story that **improves wellbeing**.




points 10

Link New Story Game Card

Play Link & New Story
 Choose a story on the board and create a New Story Tile that will link to the chosen story. Write the link on a Link Sticker to connect the two stories on the board

A Story that links:
 By **transforming** the old story into a new story that **gives time for thinking before doing**.




points 10

Link New Story Game Card

Play Link & New Story
 Choose a story on the board and create a New Story Tile that will link to the chosen story. Write the link on a Link Sticker to connect the two stories on the board

A Story that links:
 By **transforming** the old story into a new story that **gives space to, protects or promotes nature**.



points 10

Link New Story Game Card

Play Link & New Story
 Choose a story on the board and create a New Story Tile that will link to the chosen story. Write the link on a Link Sticker to connect the two stories on the board

A Story that links:
 By **transforming** the old story into a new story about **developing social networks** that can learn and adapt.



points 10

Link New Story Game Card

Play Link & New Story
 Choose a story on the board and create a New Story Tile that will link to the chosen story. Write the link on a Link Sticker to connect the two stories on the board

A Story that links:
 By **transforming** the old story into a new story that **uses sustainable energy** like sun, wind or biomass.



points 10

Link New Story Game Card

Play Link & New Story
 Choose a story on the board and create a New Story Tile that will link to the chosen story. Write the link on a Link Sticker to connect the two stories on the board

A Story that links:
 By **transforming** the old story into a new story about **bringing people and things together** to reduce transport.



points 10

Link New Story Game Card

Play Link & New Story
 Choose a story on the board and create a New Story Tile that will link to the chosen story. Write the link on a Link Sticker to connect the two stories on the board.

A Story that links:
 By *transforming* the old story into a new story that **Promotes variety** by protecting or developing cultural, biological or technological diversity.




points 10

Link New Story Game Card

Play Link & New Story
 Choose a story on the board and create a New Story Tile that will link to the chosen story. Write the link on a Link Sticker to connect the two stories on the board.

A Story that links:
 By *transforming* the old story into a new story that **empowers people** or increases participation.




points 10

Link New Story Game Card

Play Link & New Story
 Choose a story on the board and create a New Story Tile that will link to the chosen story. Write the link on a Link Sticker to connect the two stories on the board.

A Story that links:
 By *transforming* the old story into a new story that **creates something new out of what already exists.**




points 10

Link New Story Game Card

Play Link & New Story
 Choose a story on the board and create a New Story Tile that will link to the chosen story. Write the link on a Link Sticker to connect the two stories on the board.

A Story that links:
 By *transforming* the old story into a new story about **healthy and eco-friendly food.**




points 10

Link New Story Game Card

Play Link & New Story
 Choose a story on the board and create a New Story Tile that will link to the chosen story. Write the link on a Link Sticker to connect the two stories on the board.

A Story that links:
 By *transforming* the old story into a new story that **shares tools and equipment** or reduces demand for products.




points 10

Link New Story Game Card

Play Link & New Story
 Choose a story on the board and create a New Story Tile that will link to the chosen story. Write the link on a Link Sticker to connect the two stories on the board.

A Story that links:
 By *transforming* the old story into a new story that **reduces, recycles or reuses waste.**




points 5

Link New Story Game Card

Play Link & New Story
 Choose a story on the board and create a New Story Tile that will link to the chosen story. Write the link on a Link Sticker to connect the two stories on the board.

Free Choice



points 4

Link Card

Link Game Card

Play a Link
 Make a link between two stories on the board by writing on the Link Sticker and sticking it on the board.

link between:
 Stories that can *share* an **activity**.

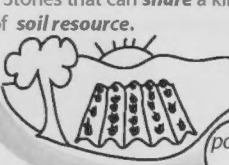


points 2

Link Game Card

Play a Link
 Make a link between two stories on the board by writing on the Link Sticker and sticking it on the board.

link between:
 Stories that can *share* a kind of **soil resource**.



points 5

Link Game Card

Play a Link
 Make a link between two stories on the board by writing on the Link Sticker and sticking it on the board.

link between:
 Stories that can *share* an **energy resource**.




points 5

Link Game Card

Play a Link
 Make a link between two stories on the board by writing on the Link Sticker and sticking it on the board.

link between:
 Stories that can *share* a **plant resource**.



points 5

Link Game Card

Play a Link
 Make a link between two stories on the board by writing on the Link Sticker and sticking it on the board.

link between:
 Stories that can *share* an **animal resource**.



points 5

Link Game Card

Play a Link
 Make a link between two stories on the board by writing on the Link Sticker and sticking it on the board.

link between:
 Stories that can *share* a **space**. Indoor, outdoor, area or environment.



points 5

Link Game Card

Play a Link
 Make a link between two stories on the board by writing on the Link Sticker and sticking it on the board.

link between:
 Stories that can *share* their **community**. Through a commonality of social networks.




points 5

Link Game Card

Play a Link
 Make a link between two stories on the board by writing on the Link Sticker and sticking it on the board.

link between:
 Stories that can *share* their **knowledge**. Through teaching, learning or swapping.



points 5

Link Game Card

Play a Link
 Make a link between two stories on the board by writing on the Link Sticker and sticking it on the board.

link between:
 Stories that can *share* an **artifact**. Through multiple uses, multiple users or reusing.




points 5

Link Game Card

Play a Link
Make a link between two stories on the board by writing on the Link Sticker and sticking it on the board.

link between:
Stories that can *share* their **water**. Through multiple uses, multiple users or reusing.




points 5

Link Game Card

Play a Link
Make a link between two stories on the board by writing on the Link Sticker and sticking it on the board.

link between:
Stories that can *share* one of their **resources**.




points 2

Link Game Card

Play a Link
Make a link between two stories on the board by writing on the Link Sticker and sticking it on the board.

link between:
Stories that can form an **interaction between characters**.




points 2

Link Game Card

Play a Link
Make a link between two stories on the board by writing on the Link Sticker and sticking it on the board.

link between:
Stories to form an **interaction between old and young characters**.




points 5

Link Game Card

Play a Link
Make a link between two stories on the board by writing on the Link Sticker and sticking it on the board.

Free Choice



points 1

Link Game Card

Play a Link
Make a link between two stories on the board by writing on the Link Sticker and sticking it on the board.

link between:
Stories that can form an **interaction between characters**.



points 2

Link Game Card

Play a Link
Make a link between two stories on the board by writing on the Link Sticker and sticking it on the board.

link between:
Stories that can form an **interaction between characters**.

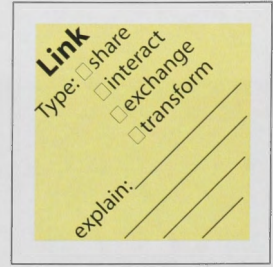


points 2

Board Components

Link Sticker

Printed on sticker paper



New Story Tile

Printed on light blue paper

A square template for a "New Story" tile. In the center is a circle containing the text "New Story" and several categories with checkboxes: "Character: kid youth adult elderly", "Activity: work learn domestic recreation industrial cultural other: _____", "Resources: space water energy soil plants animals community artifacts knowledge", and "Plot: _____". Four triangles point towards the center circle from the top, bottom, left, and right edges. Each triangle contains the word "Link" and a small arrow pointing towards the center.

Old Story Tile

Printed on light green paper

A square template for an "Old Story" tile, identical in layout and content to the "New Story" tile. It features a central circle with the text "Old Story" and the same categories: "Character: kid youth adult elderly", "Activity: work learn domestic recreation industrial cultural other: _____", "Resources: space water energy soil plants animals community artifacts knowledge", and "Plot: _____". Four triangles point towards the center circle from the top, bottom, left, and right edges, each containing the word "Link" and a small arrow pointing towards the center.

Project Tumut: Phase 3

5b Responses

The storyscape game was conducted on the 1st of February '09 at Cooee Cottage with 9 community members from Tumut.

Nine people wrote stories for Larry and three groups of three played the Storyscape game. The group consisted of mostly females and one male.

It was a hot day, about 40 degrees, so much focus was on keeping the family cool and doing activities to keep cool. The river was central to the conversations.

Below, in this section, are photos from the day, the transcripts of the stories written on the leaves for Larry, followed by the transcript from the three games; 'Storyscape X', 'Storyscape Y' and 'Storyscape Z' and the initial analysis of results.



Participants Writing Stories about Everyday Life in Tumut to Foliate Larry



Participants Playing the Storyscape Game

Story Leaf Responses

Before playing the storyscape game, participants interacted with Larry the story tree-creature. Participants wrote stories on leaves to place on Larry. Below are the transcripts of the leaves that were created. These stories were then used as part of the storyscape game.

1. The Montreal Theatre has started many romances. There are cuddle seats that fit two people.
2. We used to picnic at Brungle. My dad lost his special shoe kicking balls in the river
3. Have BBQ's with family and friends swimming at pool, dam, river, play cricket, basketball, soccer, bowls.
4. I was happy when my children returned to school last week. They looked so excited and shiney!!
5. People in Tumut love to watch and play sport.
6. Parks and BBQ's are popular
7. Tumut is ever – evolving
8. Most my family lives at Tumut and Brungle. Also my friends live here. So always visiting them.
9. Sport is a huge part of Tumut areas .
10. Tumut river is the best!
11. Lots kids play in river
12. Aboriginal families just like to yarn particularly.
13. Aboriginal culture is important.
14. Tumut is everyday quiet. There is natural beauty everywhere. There are very few beautiful buildings.
15. People drive trucks. People fix trucks. People grow forests. People grow apples, cherries, corn, millet. People make brooms. People drive
16. Everyday life in Tumut can be like “days of our lives” – it's up and down, drama filled and full of life!

17. People in Tumut like to go swimming and fishing
18. I have heard Opera at the Montreal, I have heard children singing at the Montreal
19. Work: Cooee Cottage, NPWS, Schools, Visy, RSL Club, Target, Hungry Jacks (Gundagai)
20. The children love to play outside. Sport plays a big part in their lives
21. I love playing skip bo (card game) with my friend Sharon – even though she often wins.
22. Young people "LAP" the main st .
23. My children play in the street with the other children. We love that this happens. It seems rare these days.
24. Work in saw mills – in orchards fruit picking and Visy Paper mill.
25. We often visit the river and eat tea or just enjoy an ice cream with the children there.
26. Tumut is beautiful, but not a lot for teenagers to do
27. Tumut has many committees eg. Community Foundation, Falling Leaf Festival, Tumut Show, Aboriginal Liaison Committee.
28. Work is available in Tumut if you want it bad enough!
29. Interesting relaxing a place to retire, wonderful. Outlook lovely country town
30. People in Tumut work at National Parks, timber mills, shops, and other businesses
31. Bingo!!
32. There are not many structured activities for kids apart from sport
33. People in Tumut like to go boating and skiing at the dam
34. Teenagers don't do much, some play sport, grown ups get together, elders like to relax and attend meetings
35. I have two children – one is 12, the other 7. Any day now I will have my third child. I am excited.

36. Tumut welcomes industry families into day to day activities
37. Tumut is a beautiful place to live.
38. Teenagers get jobs from year 9 on. Working part time throughout highschool.
39. I never thought a parade full of semi trailers and cars could be so good! (The falling leaf festival)
40. Since the heat wave hit – my house has been inundated by white tip spiders. Also, the brown snakes are visiting our gardens.
41. Kids love art/craft
42. People in Tumut like to go to the pub to have a drink, play pool and catch up with friends.
43. Dads, and uncles and brothers and men are around in the day in Tumut because of shift work. They are special 'fluoro – everymen'. They go to school assemblies.
44. As a child I played netball, did rhythmic gymnastics and did dancing. Culture of getting involved, belonging to something and enjoying it. Community is supportive.
45. Lots of people go fishing and boating in Tumut.
46. People in Tumut like to have BBQ's with family and friends
47. The water in the river was so cold that when you come out in summer you tingle with a sun massage all over. Now the river goes too fast for much swimming.
48. People in Tumut like to walk along the riverwalk and the wetlands.
49. I know of some who have had tough times in Tumut. Not as happy. Issues with family, drugs, alcohol.
50. Fishing is great for relaxation!
51. Sometimes people try not to see teenagers. Teenagers are mostly cheerful and confident in their connections.
52. Tumut is very hot in summer and freezing in winter.

53. Some like to just look at the mountains
54. The boxing day races! This is an event when young and old have reunions in their home town while also brining visitors to the town. Very fun and happy day!
55. I think the closeness of family and friends in Tumut is important. You know who belongs to who and one treasures their friends in a small town.
56. People in Tumut love to dance and listen to music
57. My mother-in-law loves to play "housie" (Bingo) on a weekly basis. She loves it.
58. Sitting by the fire on a cold day is relaxing for all ages
59. People do a lot of outdoor stuff here. Skiing, shooting, walking, tennis, netball, golf, camping. I got to bookclub.
60. Lots of adults drink alcohol
61. Play sport go bar read go to garage sales
62. Aboriginal families used to come together to play cards for \$ a lot – "Gambling Schools"
63. Life with family have many friends but there not much for the young children
64. When I was in high school (I've just finished) Tumut was an escape from the city, school and the nature of boarding school.
65. I like to paint for relaxation.
66. I get upset when I see so much water released into the river. It needs to be cared for better.
67. You have to be born here or have lived here for 20 years to be a local.
68. I always see people walking along the riverwalk – everyday! I think that provides a 'peace' in Tumut. It's quiet and lovely.
69. People in Tumut like family oriented activities
70. There is a strong family value in Tumut
71. Cooee house, mens group, scouts
72. The country feel of Tumut is good.

73. Play football, play lawn bowls, basketball, cricket
74. People in Tumut like to just sit and watch the world.
75. Tumut is slowly accepting of activities outside the square
76. I think I visit Woolworths every day. I often take other people who haven't got a car to the supermarket.
77. Tumut is growing in population and industry.
78. It is great to see new industries come to Tumut, but sad to see small business dying.
79. At Tumut Public School we got 'Cool kid' Awards. You felt good when you got one.
80. My Tumut is a very quiet one. I swim in the river, escaping the heat. I go to Montreal theater, sit in the vintage leather seats to watch films.
81. Every day in Tumut there are spectacular sunsets. In every season. They are unique. The light here feels 'soft'.

Storyscape Game Results

The following pages document the transcriptions from the three game boards: X, Y & Z. The contents of each game board is written out into a table. Below is a key to show the codes and colours used in the table. Old story tiles are represented by green and New story tiles are blue. The content on these tiles is abbreviated to C for character, A for activity and R for resources. The table only shows the option ticked by participants. The link stickers are represented by yellow and are placed between the two tiles being linked together. Grey represents spaces on the board left blank and white are artificial spaces that did not exist on the game board but were created in the process of transcribing the boards into a table format.



Example: Part of a Storyscape Game Board

<u>Key</u>		
Code	Name	Options
Story	Story	Old, New
C	Character	Kid, youth, adult, elderly
A	Activity	Work, learn, domestic, recreation, industrial, cultural, other
R	Resources	Space, water, energy, soil, plants, animals, community, artifacts, knowledge
Links	Links	Share, interact, exchange, transform

Storyscape X

<p>Story: New C: adult A: recreation R: space, water, energy, soil Plot: Look further into the windmill energy format Adelong</p>	<p>Link: Blank</p>	<p>Story: Blank</p>	<p>Link: Blank</p>
<p>Link: Blank</p>		<p>Link: Blank</p>	
<p>Story: New C: kid, youth A: recreation R: space, community, artifacts Plot: Give the kids a roller rink so that they are not on the streets. Will help community by reducing crime from boredom</p>	<p>Link: Council meet needs of local youth.</p>	<p>Story: New C: everyone A: recreation, cultural R: Plot: Council need to play a larger role in providing local facilities</p>	<p>Link: Transform. Council to take leadership role</p>
<p>Link: Transformation. Replace boredom with activity</p>		<p>Link: Blank</p>	
<p>Story: New C: kid, youth A: recreation R: community Plot: Have blue light discos, or a video arcade, a supervised activity for youth at night.</p>	<p>Link: Blank</p>	<p>Story: Old C: kid, youth A: recreation, cultural R: knowledge Plot: arts and craft is a link between all people and culture</p>	<p>Link: Blank</p>
<p>Link: Interact Night activities to keep kids out of trouble</p>		<p>Link: Blank</p>	

<p>Story: New C: everyone A: cultural R: water, soil, plants, animals, community, knowledge Plot: Old English trees along river are replaced by native trees</p>	<p>Link: Exchange. Promote native flora and fauna protect what exists</p>	<p>Story: Old C: everyone A: recreation R: space, water, energy, soil, plants, animals, community Plot: Tumut river is the best! Better than the local pool</p>
<p>Link: exchange, transform. Native trees replace inappropriate English varieties</p>		<p>Link: share Tumut natural resources selected above man-made</p>
<p>Story: New C: A: learn, recreation R:space, knowledge Plot: Council build more seats near river</p>	<p>Link: transform. Council initiative</p>	<p>Story: Old C: kid A:recreation R: water Plot: children love to visit the river to cool down</p>
<p>Link: Interact Showing council can beautify river</p>		<p>Link: Share. Children from family can go to river</p>
<p>Story: New C: adult A: work, recreation, industrial R: Plot: Locals show outsiders recreational areas on a monthly basis to familiarise them</p>	<p>Link: Interact. Outsiders meeting more local families</p>	<p>Story: Old C: kid, adult A: domestic R: knowledge Plot: This family has 2 kids with another to be born soon. Increasing population.</p>
<p>Link: Share. Show new families what Tumut has to offer</p>		<p>Link: Transform. New families increase population</p>

<p>Story: New C: kids, youth A: recreation R: space, community, artifacts Plot: Kids and Youth need more activities besides sport and swimming</p>	<p>Link: blank</p>	<p>Story: New C: Youth, adults A: work R: community, knowledge Plot: People in Tumut work at National Parks, Timber Mills, Shops, Visy and others.</p>	<p>Link: share. Tumut industry brings new families to town</p>
<p>Link: Interact. Lack of facilities for those not into sport or fishing</p>		<p>Link: Blank.</p>	
<p>Story: Old C: everyone A: recreation R: water Plot: Tumut is a great town for fishing and relaxing</p>	<p>Link: Blank.</p>	<p>Story: Old C: adult A: work, recreation R: Space, community, artifacts Plot: The hotel is used as meeting place for recreation</p>	<p>Link: Interact. Meeting places for recreation</p>
<p>Link: Blank</p>		<p>Link: Blank</p>	
<p>Story: Old C: kids A: cultural R: artifacts Plot: To link all cultures and families in education</p>	<p>Link: Interact. Exchange of knowledge</p>	<p>Story New C: everyone A: learn, culture R: community, knowledge Plot: Aboriginal families like to share their knowledge with the community</p>	<p>Link: Blank</p>

<p>Story: Old C: everyone A: work, industrial R: knowledge Plot: Tumut welcomes new industry and families</p>	<p>Link: Interact. Increasing population</p>	<p>Story: New C: adult A: Work, domestic, industrial, other-population R: Community Plot: Population increases as work attracts newcomers and new babies are born</p>
<p>Link: Share. Outsiders and recreation locals welcome them</p>		<p>Link: More people enjoying recreation.</p>
<p>Story: New C: adult A: work, recreation R: community, knowledge Plot: 'outsiders' are invited to play Bingo with the locals</p>	<p>Link: Blank</p>	<p>Story: New C: everyone A: recreation, cultural R: water, energy, soil, plants, community Plot: Tumut has a good climate for family for recreation and work</p>
<p>Link: Share. Outsiders and Bingo (locals invite them)</p>		<p>Link: Transform. Recreation part of Tumut life</p>
<p>Story: Old C: everyone A: recreation R: space, community Plot: Kids, teenagers, adults and elders play sport, get together and attend meetings for recreation</p>	<p>Link: Share. Link is family and recreation</p>	<p>Story: Old C: kids, adults, elderly A: recreation R: knowledge Plot: Recreation for all families and children</p>

Storyscape Y

Story: Blank	Link: Blank	Story: Blank	Link: Blank
Link: Blank		Link: Blank	
Story: New C: A: R:energy Plot: Tumut Pre-schools and Schools have trained music specialist staff shared in community	Link: Blank	Story: Old C: adult A: R: Community Plot: Housie is a great activity for adults	Link: Blank
Link: Blank		Link: Blank	
Story: Old C: adult A: recreation, cultural R: community Plot: Music and dance are a social activity in Tumut.	Link: Blank	Story: New C: everyone A: cultural R: community Plot: everyone knows most families living in Tumut.	Link: share. River share natural and economic resource soil

<p>Story: New C: adult A: learn R: community, knowledge Plot: Parents need to be more responsible for teenagers underage drinking</p>	<p>Link: Be more responsible</p>	<p>Story: Old C: adult A: domestic, recreation, cultural R: Plot: Adults abuse alcohol and allow their children to drink before age</p>
<p>Link: Blank</p>		<p>Link: Transform Behaviour changes and less women and children suffer violence</p>
<p>Story: Old C: A: recreation, other R: Plot: Every day in Tumut there are spectacular sunsets. In every season. They are unique. The light here feels soft</p>	<p>Link: Blank</p>	<p>Story: New C: kid, youth, adult A: work, learn, industrial, cultural. R: community, knowledge Plot: all children are educated on the health aspects of all always this happens consistently and as a matter of course</p>
<p>Link: Blank</p>		<p>Link: Blank</p>
<p>Story: New C: kid, youth A: R: Plot: Kids and young using the river for fun safely</p>	<p>Link: Blank</p>	<p>Story: Old C: adult A: domestic R: space, water, community, knowledge Plot: My Tumut is a very quiet one. I swim in the river, escaping the heat. I go to Montreal theatre, sit in re vintage leather seats to watch films</p>

<p>Link: Transform. Bringing community together</p>		<p>Link: Blank</p>	
<p>Story: New C: everyone A: R: community Plot: A music festival where kids play music and parents and grandparents join in.</p>	<p>Link: Share Music sharing with kids</p>	<p>Story: Old C: kid A: learn R: knowledge Plot: At Tumut Pubic School we got 'cool kid' awards. You felt good when you got one.</p>	<p>Link: Share, interact, exchange Cool kids are real</p>
<p>Link: Blank</p>		<p>Link: Blank</p>	
<p>Story: New C: everyone A: R: Plot: Tumut is growing in population and industry</p>	<p>Link: share Keeping healthy</p>	<p>Story: New C: everyone A: recreation, cultural R: Plot: People do lot outdoor sport, skiing, walking, golf, camping.</p>	<p>Link: Blank</p>
<p>Link: Transform. Growing together</p>		<p>Link: Blank</p>	
<p>Story: New C: youth, adult, elderly A: R: community Plot: Sharing and becoming friends</p>	<p>Link: Share. Sharing and giving</p>	<p>Story: New C: youth, adult, elderly A: work, domestic, recreation, cultural R: knowledge/ capacity Plot: Tumut might become even more friendly and curious to other people</p>	<p>Link: Transform. Health and Eco-friendly foods</p>

<p>Link: Transform. Community teaching kid about river</p>		<p>Link: Blank</p>
<p>Story: New C: adult A: recreation, cultural R: plants Plot: Adults teaching kids to swim fish, look after plants</p>	<p>Link: Share Family Link</p>	<p>Story:New C: A: R: Plot: People in Tumut like family oriented activities</p>
<p>Link: Blank</p>		<p>Link: Blank</p>
<p>Story: New C: A: R: Plot: tumut community deliberately welcomes new families by having their own family celebration day of games and picnic.</p>	<p>Link: share, interact, exchange, transform Changes exist and amplifies existing -></p>	<p>Story: Blank</p>
<p>Link: Blank</p>		<p>Link:Blank</p>
<p>Story: New C: everyone A: work, industrial, cultural R: all Plot: Tumut has a spectacular harvest feast in the vegetable garden or orchard or forest</p>	<p>Link: share. Processes good sad for some small business</p>	<p>Story: New C: A: R: Plot: It is great to see new industries come to Tumut, but sad to see small business dying</p>

Storyscape Z

<p>Story: New C: everyone A: learn, recreation, culture R: space, community, knowledge Plot: Exploring the landscape and environment to learn ways to protect our nature.</p>	<p>Link: Transform. Changing the reason to explore</p>	<p>Story: New C: everyone A: recreation R: community, knowledge Plot: Exploring and using the landscape and environment instead of having to go elsewhere for holidays</p>	<p>Link: Interact. Workshops in nature</p>
<p>Link: Blank</p>		<p>Link: Blank</p>	
<p>Story: Old C: everyone A: recreation R: space, community, knowledge Plot: Outdoor activity is popular in Tumut. Using parks as meeting places.</p>	<p>Link: Share. Plants would be in both these situations.</p>	<p>Story: New C: adult, elderly A: recreation, cultural R: community, knowledge Plot: taking family and friends out into the bush or do something that you haven't done together to enhance and improve wellbeing</p>	<p>Link: Blank</p>
<p>Link: Blank</p>		<p>Link: Share, transform. Changing how we do things together.</p>	
<p>Story: Old C: everyone A: recreation, cultural R: energy, soil, animals, community Plot: Boxing day races is a good promo activity for Tumut</p>	<p>Link: Share. Tumut community</p>	<p>Story: Old C: everyone A: recreation R: Space, community Plot: Visiting family and friends is very important</p>	<p>Link: Share Meat BBQ share animal resource</p>

<p>Story: New C: kid, youth A: recreation R: space, community Plot: instead of just sport on weekends there should be other workshops for music/ drama/ dance/ art/ IT/ science/ writing</p>	<p>Link: Transform. Promoting variety of youth activities</p>	<p>Story:Old C: kid, youth A: recreation R: space Plot: As a young person lots of people play sports. It is important</p>
<p>Link: Blank</p>		<p>Link: Blank</p>
<p>Story: New C: everyone A: domestic, industrial R: knowledge Plot: The Falling Festival to promote healthy eco-friendly food.</p>	<p>Link: Blank</p>	<p>Story: New C: adult A: learn R: knowledge Plot: Promoting healthy diet, personal exercise and environmental wellbeing. Through posters around town, at school, at institutions.</p>
<p>Link: Transform. Encourage festival in promotion of alternative foods</p>		<p>Link: Share. Wellbeing education</p>
<p>Story: New C: youth, adult A: recreation R: community Plot: Variety of entertainment at the falling leaf festival caters for all</p>	<p>Link: Blank</p>	<p>Story: New C: everyone A: recreation R: space, community, knowledge Plot: Having recycling bins etc by the river to dispose of rubbish after seeing the movies/ falling leaf festival</p>

Link: Blank		Link: Blank	
Story: New C: everyone A: recreation, cultural R: Space, community, knowledge Plot: Consistent use of Montreal for all. Variety of performances!	Link: Share. Having the movies at the pool	Story: New C: elderly A: recreation, other-exercise R: space, water Plot: Utilising the pool for aqua aerobics for the elderly	Link: Interact. Characters that can interact
Link: Share. Encouraging participation would result in use of Montreal		Link: Blank	
Story: New C: everyone A: work, learn, recreation, cultural R: community, knowledge Plot: Encouraging everyone to actively participate in community events in an organisational roles	Link: Transform. Involvement in a more active role	Story: New C: A: work R: knowledge Plot: Doing a plan for what you want to do.	Link: Share Sharing knowledge about an area for future plans
Link: Share. Knowledge to learn		Link: Transform Involving more people	
Story: New C: everybody A: learn, cultural R: community Plot: Share and learn knowledge from interagency participation	Link: Share, exchange Exchange of information	Story: New C: adult A: work, cultural R: knowledge Plot: Starting a group to assist with planning in an area where people come together easily	Link: Blank

<p>Link: Interact.</p> <p>Bus tours or group adventures to experience the beauty of the landscape during festival season</p>		<p>Link: Transform.</p> <p>Using recycling bins</p>
<p>Story: New</p> <p>C: everybody</p> <p>A: recreation</p> <p>R: energy, community</p> <p>Plot: Groups like to travel together to enjoy local views</p>	<p>Link: Share, interact.</p> <p>Group go to movies</p>	<p>Story: New</p> <p>C: everybody</p> <p>A: recreation, cultural</p> <p>R: space, community</p> <p>Plot: Movies by the river</p>
<p>Link: Transform.</p> <p>Reducing transport</p>		<p>Link: Transform</p> <p>Movies and more at the river</p>
<p>Story: Old</p> <p>C: adult, elderly</p> <p>A: recreation</p> <p>R: soil</p> <p>Plot: People like to take time out to really look at the view.</p>	<p>Link: Transform</p> <p>View while contemplate</p>	<p>Story: New</p> <p>C: everyone</p> <p>A: learn, recreation</p> <p>R: space, community</p> <p>Plot: Yoga at the river before movies</p>
<p>Link: Share, transform.</p> <p>Changing from 1 person activity to group activity.</p>		<p>Link:</p> <p>Encouraging youth to learn from elders</p>
<p>Story: New</p> <p>C: everybody</p> <p>A: recreation</p> <p>R: community, knowledge</p> <p>Plot: People can join a group to be part of a group activity such as bushwalking and learn from each other</p>	<p>Link: Blank</p>	<p>Story: Old</p> <p>C: youth</p> <p>A: recreation</p> <p>R: energy</p> <p>Plot: Young people like to drive along the main street regularly</p>

Initial Analysis of Results

Key concepts and general trends that emerging from the Storyscapes where:

1. More activities than just sport like Music & Dance / Arts & Crafts which are good activities to bring the whole community together
2. More activities for teenagers especially night time activities and responsible drinking
3. Family related activities and activities to welcome new families to Tumut
4. Using facilities in multiple ways to support more activities eg. a diversity of performances at the Montreal theater, aqua aerobics for the elderly at the local pool, movies and yoga at the river.
5. More people getting involved in organizing events and activities

From analyzing the storyscape in terms of the general trends and key concepts a core idea was assimilated. This core idea of sustainable wellbeing for Tumuts future was:

A future where the Tumut community facilitated public creativity: Encouraging members of the community to engage in creating new groups, projects, events and activities in Tumut, using facilities and venues in multiple ways to support a larger diversity of activities.

From this core idea three future scenarios will now be developed as visualizations of what this might look like and how it might work. The three ideas for scenarios are:

1. **A community guidebook for creating a new group, project, activity or event** Encouraging people to get evolved and be creative in organizing activities by giving them *permission* to do so through a documented process of how they might go about it.
2. **Tumut community Time Bank** Motivating community members to develop a diversity of activities and networks by exchanging help, services and interests through the establishment of a Time Bank. Where people earn time dollars through the hours they spend doing something for others and can spend their time dollars

by getting others to do something for them. (Time banks have been established in communities across the world since the 80's, from Britain and America to Japan)

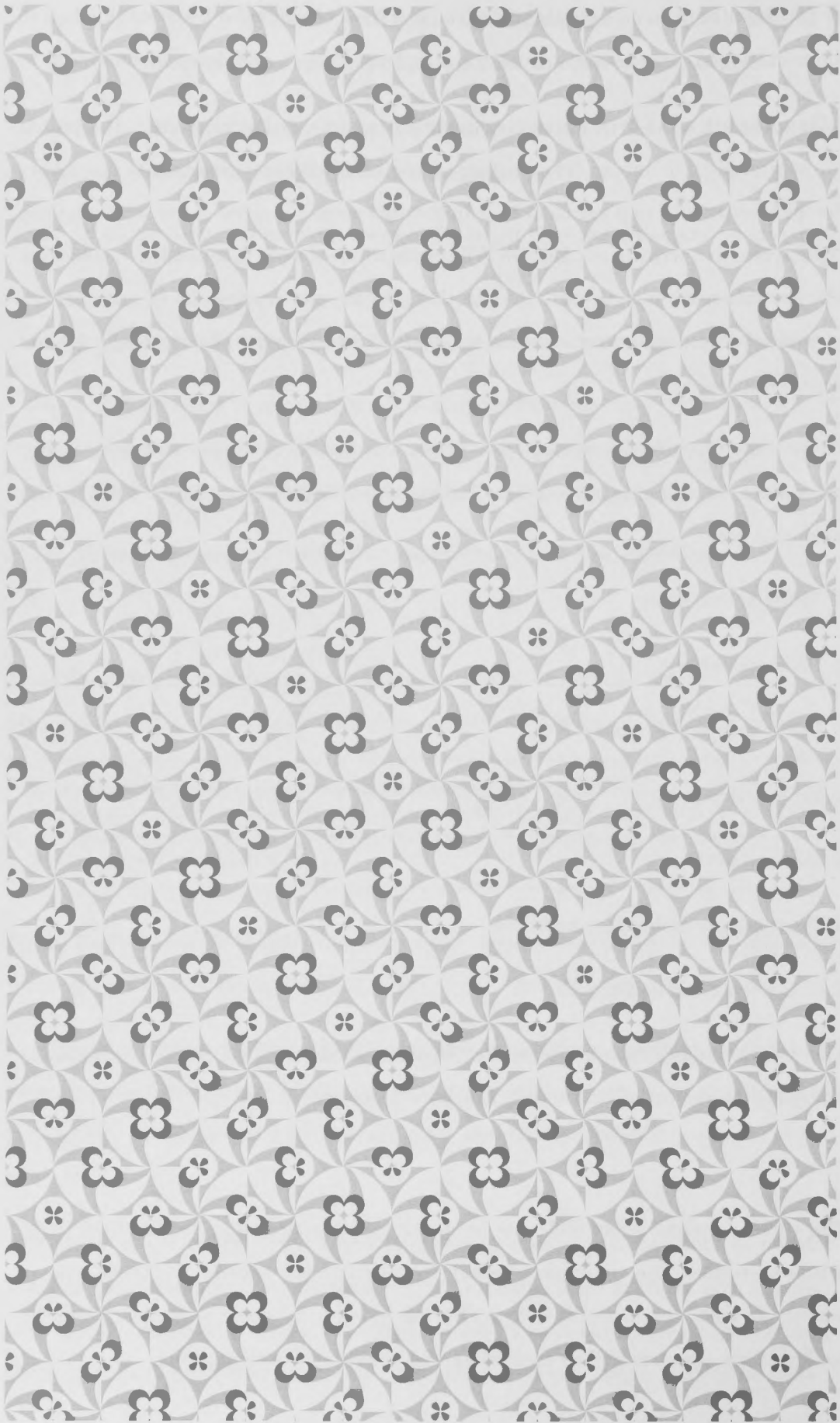
3. Developing wiki-type activities Establishing projects for collective participation by community members in creating something. Where community members independently add to a creation to collectively compile a piece of art, craft, music, drama, creative writing etc. Like in Wikipedia where people independently add to or edit the information on the site to collectively create an encyclopedia of information. In wiki-type activities no one person but instead a community of people who are the author or creator.

These scenarios are an attempt to address the key ideas in the storyscapes and implement sustainable principles. The sustainable principles dealt with in the scenarios are:

1. Think before doing
2. Promote variety
3. Use what already exists
4. Empower people
5. Develop networks
6. Bring people and things together
7. Share tools and equipment

These sustainable principles come from: Manzini, E. and Jégou, F., (2003) *Sustainable Everyday: Scenarios of Urban Life*, Edizione Ambiente, Milan

The three scenario ideas will now be developed into drawings to visualize these future scenarios. The visualizations will then be brought back to Tumut as well as emailed to participants in order to get feedback on the different scenarios. From the feedback one scenario will be created and presented to the community.



Appendix 6

Phase 4 of Project Tumut

Appendix 6a gives details and documents the methods used in Phase 4 of the Tumut fieldwork. Appendix 6b documents the responses from participants to Phase 4. This appendix is referred to in the Concept Development Chapter under: Developing the Methodology section, Project Tumut, Phase 4.

This Appendix Contains:

6a Methods

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Project Tumut: Phase 4

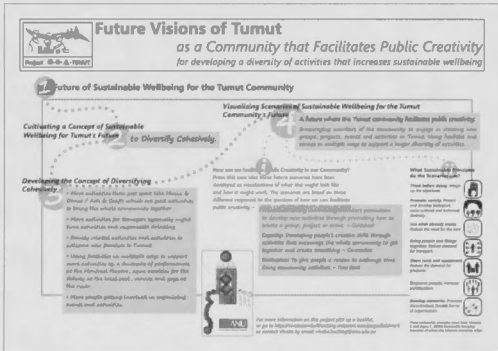
6a Methods

Future Visions for Tumut

Phase 4 consisted of an evening held in the council building to display the posters of the three visualisations and get feedback from the Tumut community on these scenarios. Four posters were put up (see 1.1 Posters). Booklets were handed out to attendants and to participants from Phase 3 who could not attend (See 1.2 Booklet). Feedback sheets were provided to research representatives to collect feedback from attendees and a reply paid version was included in the back of the booklets (see 1.3 Feedback Sheets) Tea, coffee and homemade biscuits were also provided.

Posters

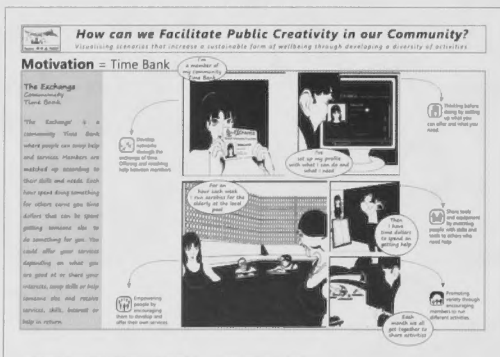
A set of four posters were printed on large format paper, cropped to 60 x 45cm and laminated. Below shows the set of four posters. The following pages documents larger versions of these four posters.



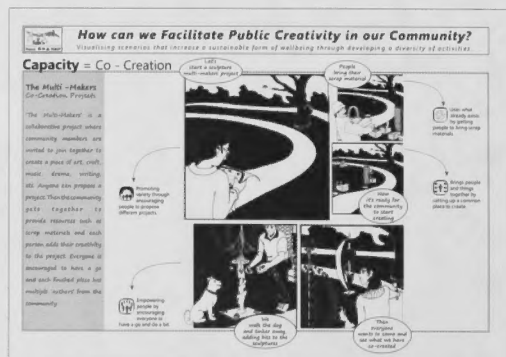
1. Information Poster about the project



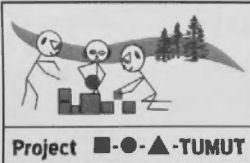
2. Guidebook Scenario Poster



3. Co-Creation Projects Scenario Poster



4. Time Bank Scenario Poster



Future Visions of Tumut

as a Community that Facilitates Public Creativity
for developing a diversity of activities that increases sustainable wellbeing

1 A Future of Sustainable Wellbeing for the Tumut Community

2 Cultivating a Concept of Sustainable Wellbeing for Tumut's Future -

to Diversify Cohesively.

3 Developing the Concept of Diversifying Cohesively -

- More activities than just sport like Music & Dance / Arts & Crafts which are good activities to bring the whole community together.
- More activities for teenagers especially night time activities and responsible drinking.
- Family related activities and activities to welcome new families to Tumut.
- Using facilities in multiple ways to support more activities eg. a diversity of performances at the Montreal theatre, aqua aerobics for the elderly at the local pool, movies and yoga at the river.
- More people getting involved in organizing events and activities.

4 Visualising Scenarios of Sustainable Wellbeing for the Tumut Community's Future -

A future where the Tumut community facilitates public creativity:

Encouraging members of the community to engage in creating new groups, projects, events and activities in Tumut. Using facilities and venues in multiple ways to support a larger diversity of activities.

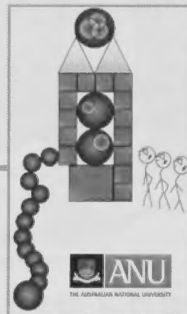
How can we Facilitate Public Creativity in our Community?

From this core idea three future scenarios have been developed as visualisations of what this might look like and how it might work. The scenarios are based on three different responses to the question of how we can facilitate public creativity -

Promotion: Giving community members permission to develop new activities through promoting how to create a group, project or event. - Guidebook

Capacity: Developing people's creative skills through activities that encourage the whole community to get together and create something - Co-creation

Motivation: To give people a reason to exchange time doing community activities - Time Bank



What Sustainable Principles do the Scenarios use?

Think before doing. Weigh up the objectives.

Promote variety. Protect and develop biological, socio-cultural and technical diversity.

Use what already exists. Reduce the need for the new.

Bring people and things together. Reduce demand for transport.

Share tools and equipment. Reduce the demand for products.

Empower people. Increase participation.

Develop networks. Promote decentralised, flexible forms of organisation.



These sustainable principles come from: Manzini, E. and Jégou, F., (2003) Sustainable Everyday: Scenarios of Urban Life, Edizione Ambiente, Milan

For more information on this project pick up a booklet, or go to <http://vivekaturnbullhocking.wetpaint.com/page/fieldwork> or contact Viveka by email: viveka.hocking@anu.edu.au



How can we Facilitate Public Creativity in our Community?


Visualising scenarios that increase a sustainable form of wellbeing through developing a diversity of activities.

Promotion = Guidebook


Activate!


Community Guidebook

The 'Activate!' program promotes the creation of new activities by providing a guidebook outlining how to set up a group, project or event. The guidebook encourages members of the community to get involved by developing and running their own activities. Supporting this diversity of activities could be as simple as using venues in multiple ways such as out-of-hours or when they are not booked for their regular purpose.


 Empowering people by encouraging them to organise activities and share interest.



 Thinking before doing by providing guidelines for how to plan new activities.

 Share tools and equipment by regularly meeting and engaging in common interests.

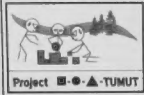


 Develop networks through bringing people together around common interests.



 Promoting variety through showcasing the diversity of activities developed by the community.

Then all the activities are displayed at the seasonal community open days



How can we Facilitate Public Creativity in our Community?

Visualising scenarios that increase a sustainable form of wellbeing through developing a diversity of activities.

Capacity = Co - Creation

The Multi - Makers Co-Creation Projects

'The Multi-Makers' is a collaborative project where community members are invited to join together to create a piece of art, craft, music, drama, writing, etc. Anyone can propose a project. Then the community gets together to provide resources such as scrap materials and each person adds their creativity to the project. Everyone is encouraged to have a go and each finished piece has multiple 'authors' from the community.



Promoting variety through encouraging people to propose different projects.



Empowering people by encouraging everyone to have a go and do a bit.

Let's start a sculpture multi-makers project



People bring their scrap material



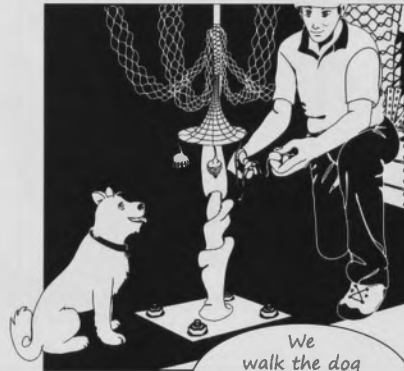
Now it's ready for the community to start creating



Uses what already exists by getting people to bring scrap materials.



Brings people and things together by setting up a common place to create.



We walk the dog and tinker away, adding bits to the sculptures



Then everyone wants to come and see what we have co-created



How can we Facilitate Public Creativity in our Community?

Visualising scenarios that increase a sustainable form of wellbeing through developing a diversity of activities.

Motivation = Time Bank

The Exchange Community Time Bank

'The Exchange' is a community Time Bank where people can swap help and services. Members are matched up according to their skills and needs. Each hour spent doing something for others earns you time dollars that can be spent getting someone else to do something for you. You could offer your services depending on what you are good at or share your interests, swap skills or help someone else and receive services, skills, interest or help in return.



Develop networks through the exchange of time. Offering and receiving help between members.

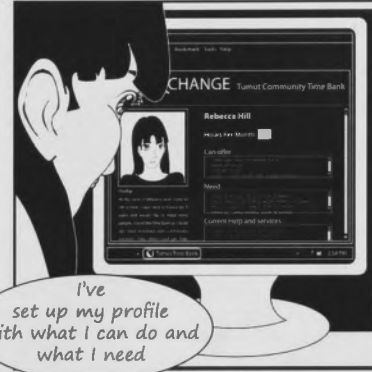


Empowering people by encouraging them to develop and offer their own services.

I'm a member of my community Time Bank



I've set up my profile with what I can do and what I need



Thinking before doing by setting up what you can offer and what you need.



For an hour each week I run aerobics for the elderly at the local pool



Then I have time dollars to spend on getting help



Share tools and equipment by matching people with skills and tools to others who need help.



Each month we all get together to share activities



Promoting variety through encouraging members to run different activities.

Booklet

Printed on A4 paper, folded to an A5 booklet and stapled. These booklets were handed out to attendees of the poster display and participants from Phase 3 who could not attend the display night.

The Booklet

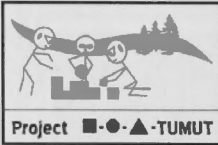


Future Visions of Tumut

*as a Community that Facilitates Public Creativity
for developing a diversity of activities to increase sustainable wellbeing*



How did these Visualisations Come About?



This is phase 4 of Project Tumut. Each phase in this project has been developing what participants see as sustainable wellbeing for the future of the Tumut community.

1
Phase 1: Used a creative questionnaire to orient the project to the community of Tumut.

2
Phase 2: Used a creative activity pack to cultivate a concept.
Results: To Diversify Cohesively.

3
Phase 3: Used a storyscape game to develop the concept of diversifying cohesively.

Results: The stories participants generated in the game talked about -

- *More activities than just sport like Music & Dance / Arts & Crafts which are good activities to bring the whole community together.*

- *More activities for teenagers especially night time activities and responsible drinking.*

- *Family related activities and activities to welcome new families to Tumut.*

- *Using facilities in multiple ways to support more activities eg. a diversity of performances at the Montreal theater, aqua aerobics for the elderly at the local pool, movies and yoga at the river.*

- *More people getting involved in organizing events and activities.*

4
Phase 4: The Visualisations aim to get Community feedback on a future scenario for Tumut's Sustainable Wellbeing. See the back of the booklet for a feedback form.

This is part of Viveka's PhD project. For more information about this project go to <http://vivekaturnbullhocking.wetpaint.com/page/fieldwork>

How were these Visualisations Created? from the Participants Storyscapes

4

The storyscapes that participants created in phase 3 were analysed for general trends. A core idea was constructed out of this analysis. This core idea of sustainable wellbeing for Tumut's future was -

A future where the Tumut community facilitates public creativity:

Encouraging members of the community to engage in creating new groups, projects, events and activities in Tumut. Using facilities and venues in multiple ways to support a larger diversity of activities.

i

How can we facilitate Public Creativity in our Community?

From this core idea three future scenarios have been developed as visualisations of what this might look like and how it might work. The scenarios are based on three different responses to the question of how we can facilitate public creativity -

Promotion: Giving community members permission to develop new activities through promoting how to create community activities. - Guidebook

Capacity: Developing people's creative skills through activities that encourage the whole community to get together to create something - Co-creation

Motivation: To give people a reason to exchange time doing community activities - Time Bank

i

What Sustainable Principles do the Scenarios use?

Think before doing. Weigh up the objectives.



Promote variety. Protect and develop biological, socio-cultural and technical diversity.



Use what already exists. Reduce the need for the new.



Bring people and things together. Reduce demand for transport.



Share tools and equipment. Reduce the demand for products.



Empower people. Increase participation.



Develop networks. Promote decentralised, flexible forms of organisation.



These sustainable principles come from: Manzini, E. and Jégou, F., (2003) Sustainable Everyday: Scenarios of Urban Life, Edizione Ambiente, Milan

How can we facilitate Public Creativity in Our Community?

Visualising scenarios that increase sustainable wellbeing through developing a diversity of activities.

Promotion = Guidebook

Activate!

Community Guidebook

The 'Activate!' program promotes the creation of new activities by providing a guidebook outlining how to set up a group, project or event. The guidebook encourages members of the community to get involved by developing and running their own activities. Supporting this diversity of activities could be as simple as using venues in multiple ways such as out-of-hours or when they are not booked for their regular purpose.

Ellie and her friends want to set up a new games group.



Empowering people by encouraging them to organise activities and share interest.



Ellie goes to the newsagents to pick up a guidebook on how to create a new group, project or event in Tumut.



Thinking before doing by providing guidelines for how to plan new activities.



Ellie and her friends regularly get together to share and play games together.



Share tools and equipment by regularly meeting and sharing a common interests.



Ellie's friends organise a games night once a month for all the youth of Tumut.



Develop networks through bringing people together around common interests.



Every season there is a community openday. A chance to get together, showcase the activities and welcome new families.



Promoting variety through showcasing the diversity of activities in the community.



Examples of promoting a diversity of activities that exist today:

One example of encouraging a community to develop their own activities exists on University campuses. Students are encouraged to get involved in university life by joining a group. Guidelines are set up for clubs to be created and run by the students. Campus venues are booked when not in regular use and Stalls at Orientation week showcase all the activities.



We are going to set up our own games group



I picked up a guidebook in the local newsagent



We get together to play and share games



We also run games nights



Then all the activities are displayed at the seasonal community open days

How can we facilitate Public Creativity in Our Community?

Visualising scenarios that increase sustainable wellbeing through developing a diversity of activities.

Capacity = Co - Creation

The Multi -Makers Co-Creation projects

'The Multi-Makers' is a collaborative project where community members are invited to join together to create a piece of art, craft, music, drama, writing, etc. Anyone can propose a project. Then the community gets together to provide resources such as scrap materials and each person adds their creativity to the project. Everyone is encouraged to have a go and each finished piece has multiple 'authors' from the community.

John is setting up a sculpture multi-makers project in the wetlands walk.



Promoting variety through encouraging people to propose different projects.



People from the community bring down boxes of materials for the sculptures - scraps of old, broken or discarded objects and materials.



Brings people and things together by setting up a common place to create.



There are 5 sculpture bases set up along the walk.



Uses what already exists by getting people to bring scrap materials.



When people come down to walk the dog they also stop to tinker away by adding bits to the sculptures.



Empowering people by encouraging everyone to have a go and do a bit.



Then when it is time for the falling leaf festival the wetlands become a sculpture walk and people come to see what the community has co-created.



Examples of co-creation projects that exist today:

Made popular through the internet there are many co-creation activities that exist today. Also called open-source or wikis they exist both in 'real life' and on the internet. Wikipedia is the most obvious example with the whole internet community invited to help create by adding entries, editing and updating an encyclopedia of information about everything.



How can we facilitate Public Creativity in Our Community?

Visualising scenarios that increase sustainable wellbeing through developing a diversity of activities.

Motivation = Time Bank

The Exchange Community Time Bank

'The Exchange' is a community Time Bank where people can swap help and services. Members are matched up according to their skills and needs. Each hour spent doing something for others earns you time dollars that can be spent getting someone else to do something for you. You could offer your services depending on what you are good at or share your interests, swap skills or help someone else and receive services, skills, interest or help in return.

Rebecca belongs to her community time bank.



Develop networks through the exchange of time. Members offering and receiving help.



She set up her account at the local library. Her profile says what she can offer and what she needs.



Thinking before doing by setting up what you can offer and what you need.



Rebecca takes a group of elders down to the local pool for aqua aerobics once a week for an hour and earns a time dollar.



Empowering people by encouraging them to develop and offer their own services.



Then she needs help putting up some picture frames so the Time bank matches her to someone with the skills and tools to help.



Share tools and equipment by matching those with skills & tools to others in need



Once a month everyone gets together at the river for yoga, movies and lots of other activities put on by the members.



Promoting variety through encouraging members to run different activities.



Examples of community time banks that exist today:

There are many community time banks around the world set up to encourage people to get involved in their community, to improve community services and to help the elderly stay engaged and supported in their later years. For a thorough explanation of Time Banks see Elizabeth Miller's ANU digital thesis at <http://thesis.anu.edu.au/public/adt-ANU20080618.143218/index.html>

I'm a member of my community Time Bank



I've set up my profile with what I can do and what I need



For an hour each week I run aerobics for the elderly at the local pool



Then I have time dollars to spend on getting help



Each month we all get together to share activities





Give your Feedback

On these Future Visions for Tumut

Why give Feedback?

This project has engaged members of the community in the process of designing a common vision of sustainable wellbeing for the future of the community. Your feedback on the three visualisations is important to the project as a whole and for developing a common vision. I am very much looking forward to your thoughts!

For a common vision representative of the Tumut Community we need your feedback so please contribute.

How to give your Feedback:

Written

Fill in the form opposite and either:

- Give it to Viveka
- Drop it in the box
- Post it in the reply-paid envelope provided.

Email

Send Viveka an email with your comments to viveka.hocking@anu.edu.au

Website

Go to the website, add a comment

<http://vivekaturnbullhocking.wetpaint.com/page/fieldwork>

Verbally

Tell Viveka in person or ring her on

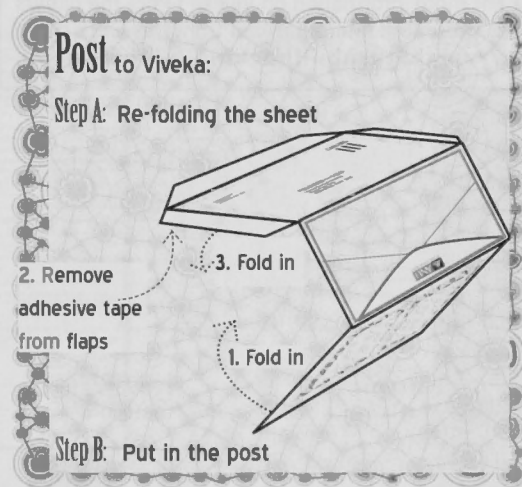
(M) 0431 945 252

(T) 02 6456 7439

Viveka will call you back so you don't have to pay for the call.

Please fill in the Feedback Form in the Pocket Below.

The form re-folds into a reply-paid envelope



A large, empty rectangular area with a dotted border, intended for the student to fill in their feedback form.



I look forward to receiving your feedback on these visualisations!

This is part of Viveka Turnbull Hocking's PhD Project at ANU. For more information on Viveka's PhD, the papers she has presented and published from this work go to <http://vivekaturnbullhocking.wetpaint.com>

Feel free to contact Viveka if you have any questions about the project:

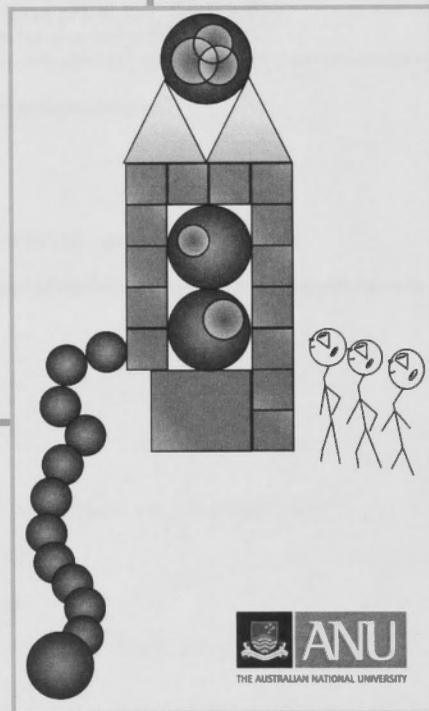
Viveka Turnbull Hocking

PO Box 1066,
Jindabyne, NSW, 2627
(T) 02 6456 7439,
(M) 0431 945 252
viveka.hocking@anu.edu.au

If you have any concerns with the project you can also contact Viveka's supervisors:

John Reid,
0416 249 090,
0428 319 424,
john.reid@anu.edu.au
Kersty Hobson,
02 6125 0348,
kersty.hobson@anu.edu.au

or contact the ANU Human Ethics Committee Research Office, Chancery 10B, The Australian National University, ACT 0200
Tel: 6125-7945
Fax: 6125-4807
Human.Ethics.Officer@anu.edu.au



Feedback Sheet

Reply Paid Feedback Sheet for Booklet

Folded and placed in the pocket at the back of the booklet.

Feedback Sheet *Give your Feedback. On These Future Visions for Tumut*

1. Which scenario do you like the best?
 The question is asking for a personal response. Pick the scenario that appealed to you most. Tick one or more of the following.

A Activate! Guidebook
 B The Multi-Makers Co-Creation
 C The Exchange, Time Bank

2. Which scenario do you think is most appropriate for Tumut?
 The question is asking you to respond as a representative of your community. This may be the same or different to question 1. Tick one or more of the following.

A Activate! Guidebook
 B The Multi-Makers Co-Creation
 C The Exchange, Time Bank
 D A combination of A, B or C (explain) _____

3. How would you facilitate public assembly to your community? This question is asking if the above scenarios give you any other ideas, give examples.

4. What would you like to see happen next? This question is asking what you see as the next step for these scenarios of sustainable wellbeing for Tumut's future. For example is it about creating more scenarios, continuing the conversations started from these scenarios, finding out which one of these scenarios the community likes best or something else? Explain your ideas.

5. How would you get the rest of the community involved in further developing a scenario like the ones presented here? This question is asking how to engage more people in this kind of project so as to increase a sense of community ownership.

6. What is the value (if any) of these Scenarios for Tumut's Future? Give your thoughts and opinions.

7. Do you have any other feedback? Please express any other thoughts, comments, ideas and/or opinions you may have.

If you have any other comments or suggestions please contact Virela Turnbull Hocking
 (M) 0431 945 252 (email) virela.turnbull@anu.edu.au (Mail) PO Box 1066, Jindabyne, NSW 2627

Thank you for your feedback!

Front

Delivery Address:
 PO Box 1066
 JINDABYNE NSW 2627

Post Office
 1111

Virela Turnbull Hocking
 Reply Paid 1066
 JINDABYNE NSW 2627

How to use:

1) Give your feedback, in writing in person, or
 2) Put it in the slot at the top right or
 3) Post it, use pre-paying postcard or
 4) Email it on email website
www.tumutnsw.com.au
 or text Virela by phone 0431 945 252

How to use:

1) Put in the slot
 2) For making the next

Back

Feedback Sheet

Give your Feedback On These Future Visions for Tumut

Activate! Guidebook
 Project B-C-D-A-Tumut

The Multi-Makers Co-creation
 Time Bank

A **B** **C**

A, B & C show the 3 visualised scenarios which illustrate possible ways of facilitating public creativity for increasing sustainable wellbeing.

Below are 7 questions to get your feedback in order to compile a common vision. Answer each question as best you can and feel free to skip the ones you have no comments for.

- 1. Which scenario do you like the best?**
 This question is asking for a personal response. Pick the scenario that appealed to you most. Tick one or more of the following
- 2. Which scenario do you think is most appropriate for Tumut?**
 This question is asking you to respond as a representative of your community. This may be the same or different to question 1. Tick one or more of the following
- 3. How would you facilitate public creativity in your community?** This question is asking if the above scenarios give you any other ideas, give examples.
- 4. What would you like to see happen next?** This question is asking what you see as the next step for these scenarios of sustainable wellbeing for Tumut's future. For example is it about creating more scenarios, continuing the conversations started from these scenarios, finding out which one of these scenarios the community likes best or something else? Explain your ideas.
- 5. How would you get the rest of the community involved in further developing a scenario like the ones presented here?** This question is asking how to engage more people in this kind of project so as to increase a sense of community ownership.
- 6. What is the value (if any) of these Scenarios for Tumut's Future?** Give your thoughts and opinions.
- 7. Do you have any other feedback?** Please express any other thoughts, comments, ideas and/or opinions you may have.

If you have any other comments or suggestions please contact Virela Turnbull Hocking
 (M) 0431 945 252 (email) virela.turnbull@anu.edu.au (Mail) PO Box 1066, Jindabyne, NSW 2627

Thank you for your feedback!

Feedback Sheet

Used by research assistant or handed out to attendees at the display of the posters

Feedback Sheet



Give your Feedback On these Future Visions for Tumut

Activate!
Guidebook



The Multi-Makers
Co-creation



The Exchange
Time Bank



A, B & C above show the 3 visualised scenarios which illustrate possible ways of facilitating public creativity for increasing sustainable wellbeing.

Below are 7 questions to get your feedback in order to compile a common vision. Answer each question as best you can and feel free to skip the ones you have no comments for.

1. Which scenario do you like the best?

This question is asking for a personal response. Pick the scenario that appeals to you most. Tick one or more of the following.

- (A) Activate! Guidebook Why? - _____
- (B) The Multi-Makers. Co-Creation _____
- (C) The Exchange. Time Bank _____

2. Which scenario do you think is most appropriate for Tumut?

This question is asking you to respond as a representative of your community. This may be the same or different to question 1. Tick one or more of the following

- (A) Activate! Guidebook Why? - _____
- (B) The Multi-Makers. Co-Creation _____
- (C) The Exchange. Time Bank_
- (D) A combination of A, B or C (explain) _____

3. How would you facilitate public creativity in your community?

This question is asking if the above scenarios give you any other ideas; give examples.

4. What would you like to see happen next? This question is asking what you see as the next step for these scenarios of sustainable wellbeing for Tumut's Future. For example is it about creating more scenarios, continuing the conversations started from these scenarios, finding out which one of these scenarios the community likes best or something else? **Explain your answer**

5. How would you get the rest of the community involved in further developing a scenario like the ones presented here? This question is asking how to engage more people in this kind of project so as to increase a sense of community ownership.

6. What is the value (if any) of these Scenarios for Tumut's Future? Give your thoughts and opinions. _____

7. Do you have any other feedback? Please express any other thoughts, comments, ideas and/or opinions you may have. _____

If you have any other comments or suggestions please contact Viveka Turnbull Hocking (M) 0431 945 252 (email) viveka.hocking@anu.edu.au (Mail) PO Box 1066, Jindabyne, NSW 2627

Thank you for your feedback

Page 2 of 2

Project Tumut: Phase 4

6b Responses

Feedback on the three scenarios was collected from attendees of the poster display night. Participants from Phase 3 who could not attend were given booklets and could give their feedback by post. Most attendees talked to a research representative who used the questions below to ask for feedback and recorded the responses. A few attendees filled in their own responses on the feedback sheet and other participants responded by post.

Q1. Which scenario do you like the best? and why?

This question is asking for a personal response. Pick the scenario that appeals to you most. Choose one or more of the following.

- (A) Activate! Guidebook
- (B) The Multi-Makers. Co-Creation
- (C) The Exchange. Time Bank

Q2. Which scenario do you think is most appropriate for Tumut? and why?

This question is asking you to respond as a representative of your community. This may be the same or different to question 1. Choose one or more of the following.

- (A) Activate! Guidebook
- (B) The Multi-Makers. Co-Creation
- (C) The Exchange. Time Bank
- (D) A combination of A, B or C (explain)

Q3. How would you facilitate public creativity in your community?

This question is asking if the above scenarios give you any other ideas; give examples.

Q4. What would you like to see happen next? This question is asking what you see as the next step for these scenarios of sustainable wellbeing for Tumut's Future. For example is it about creating more scenarios, continuing the conversations started from these scenarios, finding out which one of these scenarios the community likes best or something else? Explain your answer.

Q5. How would you get the rest of the community involved in further developing a scenario like the ones presented here?

This question is asking how to engage more people in this kind of project so as to increase a sense of community ownership.

Q6. What is the value (if any) of these Scenarios for Tumut's Future?

Give your thoughts and opinions.

Q7. Do you have any other feedback?

Please express any other thoughts, comments, ideas and/or opinions you may have.

Feedback on Phase 4: Future Visions for Tumut

Seven responses to the feedback questions are transcribed below.

Response 1

Q1: (A) New to area, a guidebook would be good. (B) Been involved in a creative capacity building activity where I use to live and liked it.

Q2: (A) People have made comments to me about community involvement - "if you want something done you have to do it yourself ". Something like a guidebook might make it easier to connect people together.

Q3: Something to connect people better like a local web based guide. Like RSVP, though not for dating but for linking interests instead.

Q4: It would be good if something came from this process - to encourage more networking in town especially to help new people to connect. At the moment everything seems to happen from the book store.

Q5: Hard to say being new. Radio worked where I use to live. Perhaps events in conjunction with other festivals (as long as they are not competing). Rotary Clubs and other existing networks.

Q6: Yes, don't know a lot about the Tumut community yet but where I use to live was dynamic. I liked that and would like to be involved in that here.

Q7: Interesting process. I'm sorry I was not involved in the process earlier because that sort of thing interests me.

Response 2

Q1: (B) A high profile method of increasing community awareness and involving the community.

Q2: (B) There is a need in the community for increased creative projects. Build on the Engaging Visions profile. (A) The Activate Guidebook would be of great benefit and a potential scenario worth pursuing

Q3: Encourage increased public art of a high standard. Encourage increased cultural performances and events

Q4: Engage a professional artist for the co-creation project to lead the community and encourage community involvement and pursue quality.

Q5: Local Government Management and Community Development Officer should receive a full presentation of the project and findings. Participate in council's new Community Plan. Engage with the Youth Council, community radio, service clubs

Q6: All three scenarios will build capacity in the Tumut region and are to be encouraged.

Q7: Information a) council has recently introduced a Public Art Policy Grants process, b) Council is to develop a new Community Plan this year

Response 3

Q1: (B) Makes innovation look easy. Makes the challenging look possible. Break conservative constraints on the use of public space.

Q2: (A) Because of accessibility and equity "we can", Tumut is capable. (C) Refreshes volunteerism. (A) & (C) most helpful for tumut

Q3: Difficult to answer as community inertia is hard to overcome. Would build creativity by being an advocate for visiting artists.

Q4: Enact multi-makers. Engage an artist to create a focus for the project and to give it energy. Then do the process with council and then with targeted groups.

Q5: Use multi-maker to promote process and involve community

Q6: Huge value. Non-conflict process to develop scenarios. Very positive process.

Q7: Articulate "more and how" better. Further examination of the process.

Response 4

Q1: (C) It is the most modern

Q2: (A) & (B) because it's gives the starting point involves all, overall outcomes

Q3: More input for already organised events

Q4: I think it is the combination of all of the above. Small steps to get the bigger picture.

Q5: More publicity target audiences

Q6: They all help to improve and develop the community further.

Q7: It is really good ideas and concepts just need to get further into the community.

Response 5

Q1: (A) great idea

Q2: (D) could all work. There are enough people to care

Q3: At least one good restaurant which increases diversity in town.

Q4: Council involvement. Use time bank to get others started. Local radio and paper likely to help. Mills also may help.

Q5: Advertise. Use council facilities. Get enthusiastic people to become protagonists.

Q6: Great especially for social and potentially ecological sustainability. Town already economically sustainable

Q7: -

Response 6

Q1: (B), Because it involves everyone

Q2: (B), as above, creates more ownership

Q3: Time Bank concept could be used.

Q4: Involve clubs and groups. Services and youth clubs.

Q5: Publicity, Local Radio, Involve council and clubs

Q6: Good for teenagers. They need more things to do

Q7: Good idea. Co-Creation would be good for Tumut

Response 7

Q1: (C), because people have skills and ideas but don't always get a chance to share them

Q2: (A), because some people already do great things but don't know how to make things bigger / more available to others. (B), Great to do things together and show off to the town and visitors. (C), as above, also variety is always good.

Q3: -

Q4: Trial some low key co-creation activities to see the local's ideas and willingness to be involved. Work with schools first.

Q5: Work with small groups like schools, scouts, elderly homes then branch out from there. Use big events such as the festival or markets or on busy weekends to promote the idea.

Q6. Give people meaning and see themselves as valuable. Also keep people busy, young and old, so people don't get bored then leave.

Q7. Great work so far this is important to me as a new Tumut resident as I need to find more things to do and people to do them with.

Glossary

List of Key Terms Used in this Thesis



Artefact	Is the word the design discipline uses as the physical outcome from design. It is the man-made, the object, the product, and the physical manifestation of culture.
Artificial realm	Is the aspect of our world constructed by humanity. It is the physical outcome of human endeavours: cities, cars, lamps, chairs, posters, etc. It is part of a trilogy – artificial, natural and un-natural – that makes up our system of everyday life. ★ See pp.130-131, in the Three Bodied Design section of the Concept chapter.
Creative Practices	A group of disciplines such as design, music, creative writing, visual arts and crafts which share a creative and practice based context. ★ See p.3, in the Design part of the Terminology section of the Introduction chapter.
Constructivism	This is a term often used interchangeably with constructionism. It is an epistemological approach to the construction of knowledge. Constructivism suggests that there is a real world out there but that we construct meaning out of that world through our interactions and experiences with it and each other. ★ See pp.26-27, in the Epistemological Context Section of the Brief chapter.
Co-Creation	Describes an approach that uses collaboration to create/construct an outcome ★ See pp.59-61, in the Participatory Approaches part of the Design Research section in the Background Research chapter.

Co-Design

The opening up of the design conversation between designer, participants and the design process. Engaging participants in the design process, see also The Enabling Design entry below

- ★ See pp.133-136, in the Co-Design sketch-model of the Concept chapter.
- ★ See pp.59-61, in the Participatory Approaches part of the Design Research section in the Background Research chapter.

Culture of Living

Is the systems approach to design developed in this thesis. It describes design's role in the system of everyday life as a vital link in the creation and re-creation of our culture of living. This term is used to suggest that our present culture of living is unsustainable and we need to change, by design, towards a more sustainable culture of living.

- ★ See pp.136-140, in the Culture of living sketch-model in the Conceptual Framework section of the Concept chapter.

Design

Design is an activity that everyone does, a discipline of study and a practice which may include graphic, industrial, architecture, interior, landscape, and so on.

See the Terminology section in the Introduction section

- ★ See p.3, in the Terminology section of the Introduction chapter .
- ★ See pp.41-50, in the Design Practice section of the Background Research chapter.

Designerly

Is a term used in the design discipline to describe the design approach to thinking and doing, as a design way.

Epistemology

Is the study of knowledge. Different epistemologies include objectivism, constructionism, and subjectivism (Crotty, 1998). The epistemology used in this thesis is constructivist or constructionism, as explained in the Brief chapter.

- ★ See pp.26-27 in the Epistemology section of the Brief chapter.

Enabling Design

Is adapted from Manzini's enabling solutions (Do-It-Yourself design solutions) to mean a design process that enables people to engage with the process to construct design outcomes for their system of everyday life.

- ★ See pp.84-86, in the Enabling Design segment under the Complexity part of the Sustainable Design section in the Background Research chapter.
- ★ See pp.135-137, in the Co-Design Sketch-Model of the Concept chapter.

The Fenner School of Environment and Society

Is part of the Science Faculty at the Australian National University and is the school in which I have conducted my PhD studies. It is a school that features a wide variety of disciplines both natural sciences, social scientists and a some creative practitioners.

Intuition

Derived from Findeli's definition as the ability to perceive patterns in the complexity of the everyday: 'the systemic apprehension of complex reality' (Findeli, 1994, p.63). Intuition can be learnt through aesthetics: 'aesthetic education is most apt to develop intuition in a rigorous, progressive manner' (Findeli, 1994, p.63).

- ★ See pp.90, in the Wicked Problems segment under the Complexity part of the Sustainable Design section in the Background Research chapter.

Knowledge Cultures

Val Brown (2008) identifies five western knowledge cultures: individual, local, specialist, strategic and holistic. She suggests for social change there is a need to synthesise these into a nested knowledge system, which she calls 'collective knowledge'

- ★ See p.86, in the Enabling Design segment under the Complexity part of the Sustainable Design section in the Background Research chapter.

Low Tech

Are applications that do not use the latest technology and instead use simple techniques that have existed for a long time. For example interactive designs that use photocopy print out instead of interactive flash animations. Low tech is a reference to the appropriateness of applying old forms like creative practices are old forms of knowledge construction which could be considered low tech compared to the high tech experimental forms of scientific research.

- ★ See p.38, in the Historical Context section of the Background Research chapter.

Method

Is the activity used to gather information for research. Methods include sampling, questionnaire, observation, focus group, comparative analysis and so on (Crotty, 1998). Design methods where used in this thesis.

- ★ See pp.31-32, in the Epistemology section of the Brief chapter.

Methodology

Is the approach to research which determines which methods to use and how to use them. Methodologies include experimental research, survey research, ethnography, grounded theory, heuristic inquiry, Action Research and so on (Crotty, 1998). This thesis uses a design approach to developing a design-led thesis.

- ★ See 29-31, in the Epistemology section of the Brief chapter.

Mock-up

Is a design term for putting together a physical representation of a design outcome. The Presentation chapter uses a mock-up of the Bigamatic guide to show a visual representation of the guide.

- ★ See p.234, in the How section of the Presentation chapter.

Natural realm

Is the aspect of our world that exists despite the activities of humanity and includes humans. It is the physical outcome of natural processes: Biosphere, lithosphere, atmosphere, hydrosphere, etc. It is part of a trilogy – artificial, natural and un-natural – that makes up our system of everyday life.

- ★ See pp.130-131, in the Three Bodied Design section of the Concept chapter.

Non-Object
Oriented

The dematerialisation of design. The refocusing of design away from the artefact as the outcome of design and towards constructing knowledge for the culture of living that design facilitates.

- ★ See pp.1-9, in the Introduction chapter.

Participatory
Design

In this study I refer to participatory design methods as a descriptive term to suggest that the methods are constructed to include participants.

- ★ See pp.59-61, in the Participatory Approaches part of the Design Research section in the Background Research chapter.

Post Industrial
Design

Is a theoretical perspective which includes a dematerialisation of design, a focus on complex systems, cybernetics and ecological models. It establishes social and environmental limits. It reassesses the role, methods and application of design in a broader sense; as an interface between technology and society, as an integrative social science, and as facilitating behavioural change. This is the theoretical perspective used in this thesis.

- ★ See p.28, in the Theoretical Perspective in the Epistemology section of the Brief chapter.

Sketch-Model

Is a design term for quick small physical representations of design ideas, usually made from cheap materials like cardboard or foam core and PVA glue. In this thesis the term is used as a conceptual model, a visualisation of an idea which is not an empirical representation and should not be read as a depiction of a truth existing in reality.

- ★ See p.129, in the A Complex Model for Design-led Research section in the Concept chapter.

Socially Oriented
Research

Includes all disciplines conducting studies in relation to society. These disciplines include creative practices like design as well as humanities, social science and other sciences.

- ★ See p.4, in the Terminology section of the Introduction chapter.

Sustainability

For the purposes of this study Sustainability is defined as the idea of change for the better. Which, opens up questions of what kind of change? who chooses? what is better? for who?

- ★ See p.4-5, in the Terminology section of the Introduction chapter.

System of the Everyday

Is the complex network of systems – natural, artificial and un-natural – that make up everyday life.

- ★ See pp.129-131, in the Three-Bodied Design sketch model of the Concept chapter.

Theoretical Perspective

Defines the philosophical approach to research. Theoretical perspectives include positivism, phenomenology, hermeneutics, Feminism, postmodernism and so on (Crotty, 1998). This thesis uses a post-industrial design perspective as is explained in the Brief chapter.

- ★ See p.28, in the Epistemology section of the Brief chapter.

Three-Bodied Design

Is the complex system in which design acts, see System of the Everyday entry above.

- ★ See pp.129-131, in the Three-Bodied Design sketch model of the Concept chapter.

Traditional Research

Research conducted in the Sciences, Social Sciences and Humanities which apply approaches to research that have been used within an academic setting for some time.

- ★ See p.4, in the terminology section of the Introduction chapter.

Un-Natural realm

Is the aspect of our world that exists in our minds and communicated through our artefacts. It is the virtual realm with no physicality: thought, theory, ideas, etc. It is part of a trilogy – artificial, natural and un-natural – that makes up our system of everyday life.

- ★ See pp.112-117, in An Allegory for Design Research section of the Concept chapter.
- ★ See pp.129-131, in the Three-Bodied Design sketch model of the Concept chapter.