Enabling environmental activists to identify and refine their objectives by using 'future reflective backcasting'

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Declaration

I certify that except where due acknowledgement has been made; the material produced in this thesis is that of the author alone. The work has not been submitted previously, in whole or in part, to qualify for any other academic award. The content of this thesis is the result of work carried out since the official commencement date of the approved research program.

Abstract

Future narratives can be a useful way of conceptualising environmental problems and constructing solutions. Existing ecological future narratives such as sustainable futures and global warming have been effective at relaying the seriousness and scale of ecological problems but they can also be ambiguous, overwhelming and lead to stasis. In this research, I explore backcasting as a useful mechanism for creating detailed preferred futures and mapping out how those future states can be realised. During my exploration of backasting processes, I identify the possibility for backcasting to move beyond a simple outcome-driven process and instead become a process that creates a space for reflection, formulating and reformulating solutions.

I examine four case studies: Cradle-to-Cradle, Transition Towns, Melbourne 2032 and case study 4 which involves 5 workshops in 3 secondary schools. These illustrations present how the creation of alternative futures can be used to address ecological problems. I developed, tested and participated in a variation of backcasting, called future reflective backcasting, in a workshop format. The workshop was enabled by my involvement in an activist group called Culture Jammers. My involvement with Culture Jammers not only reflected and encouraged my growing concern about environmental issues but it also motivated my interest in how small groups respond to such issues.

In the workshop, participants generated preferred future states that shaped conversational exchanges which helped them to critically reflect on existing circumstances and identify actions to take in the present. Based on the case studies and participant feedback, I produced a set of recommendations detailing how the future reflective backcasting workshop model should be conducted as well as how to set up and manage the future reflective conversational exchanges. This thesis contributes new knowledge to academic research by identifying a form of backcasting that has not been acknowledged in futures literature or design practice.

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Published Papers

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Contents

List of Figures

List of Tables

Chapter 1: Introduction

In this research I propose that future-oriented practices are useful ways of understanding and addressing environmental problems. This is because futures create spaces for fantasy and uninhibited imaginings (De Geus, 1999) in a way that is not contingent upon present constraints (Dreborg, 1996; Holmberg et al., 2000). However, futures also hold a very practical element because they are expected to become a present reality at some point. The notion of futures as 'approaching moments' is present in the definition of a 'future' as a *"period of time following the moment of speaking or writing; time regarded as still to come"* (Oxford English Dictionary, 2010). Thus, the value of using futures is that although they work in the realm of fantasy they also present impending possibilities. In other words, futures are not constructed in opposition to reality but something which, in itself, has the possibility of its own actualisation.

Psychological perceptions of possible futures have significant influences on the choices human beings make; they affect our values, attitudes, coping mechanisms, expectations (Pronin et al, 2008) feelings, motivations and behaviours (Vasquez & Buehler, 2007; Zimbardo et al., 2008; Markus et al., 1986, 1987). The very act of articulating a future scenario presents a tendency and inclination (Vasquez & Buehler, 2007; Wiseman, 2003) which increases its likeliness of occurrence (Sherman et al., 1985; Wiseman, 2003). Therefore, it may be assumed that different environmental narratives present future conditions that inform people's understandings and actions in the present state. However, as detailed in Chapter 2, some of the dominant ecological future narratives are pessimistic or ambiguous. For instance, there are several prominent ecological futures that focus on environmental risk or disaster models to mobilise people into taking part in environmental causes, such as global warming (e.g., Lovelock, 2006), population explosion (Thomas Malthus, 1798; Paul R. Ehrlich, 1971) and nuclear catastrophes (e.g., Beck, 1992). One example of a dystopic account of futures as a means of mobilising acts of environmentalism is the campaign built around the film *Age of Stupid*. The film depicts a future state devastated by global warming in order to raise awareness and promote energy reduction. Although such messages of environmental risk could be effective in relaying seriousness and immediacy, recent studies show that people are coping with dystopian ecological narratives like global warming by remaining emotionally distant, despondent and in a state of resignation (Macnaghten, 2006). Another popularised future narrative of how people might relate to nature in the future are 'sustainable futures' but, as discussed in Chapter 2, this vision lacks clarity or a consensus over exactly what it means to live 'sustainably.'

Despite the relative success that these narratives have had in raising awareness of the human impact on the environment, the rate of environmental degradation is still increasing.

Species are now becoming extinct at the rate of 100 to 1000 times what is considered to be 'biologically normal'[1], one and a half acres of rainforest is still disappearing every second (Parry, 2007) and in the UK, we are still generating over 434 million tons of waste each year[2].

The initial proposition of this research is that there is a need for different future conditions to re-orient how people conceptualise present states. In this respect, backcasting is one mechanism that is highly effective at creating alternative preferred futures. Backcasting is a method of creating a preferred future state and then mapping out a plan to achieve it. Proponents such as Dreborg (1996) and Holmberg et al., (2000) argue that the benefits of backcasting are its goal-oriented, inherently optimistic and 'trend-disregarding' qualities. This thesis extends research on backcasting by demonstrating a method called future reflective backcasting which shows how preferred futures can also help people to critically reflect on present practices, identify and refine objectives. In this method, future scenarios are created and used to discuss issues around the problem area in order for the workshop participants to pull out a set of necessary actions to take. The 'future-reflective' dimension unfolds as a series of exchanges in which the participants' re-evaluate present practices by asking questions like *"what needs to change in present systems to allow this future state to come into fruition."* Identifying obstacles in this way opens up discussions that question present systemic conditions. The point is not to determine how to achieve a preferred future, but to use the future as a tool in thinking about current conditions. For example, a future state in which unnecessary food packaging no longer exists might lead the group to question how the food industry currently operates. The participants may even decide to discount the original goal which is permissible because realising the preferred future is not the objective, the vision only serves as a context for interrogation and cogitation. Chapter 7 presents two detailed scenarios which show how the 'future reflective' exchanges actually occur in the workshops deployed in this research (see *7.3. Future Reflective Scenarios*).

The future reflective backcasting model works on two levels. The first is that it encourages its participants to start with a wide view of the problem area by optimising a particular future state rather than focusing on the specific problem itself. For instance, if given a task to design a car for the year 2050, it would be difficult for one to design the car without considering the likely (or preferred) socio-cultural and economic conditions that the car would need to fit into. In this instance, one might even begin to ask questions like *what is the*

[1] This is from the IUCN's (International Union for Conservation of Nature) assessment of the world's biodiversity in 2004. The IUCN used fossil records to calculate that the extinction rate is 100 - 1,000 times more than it was before human beings (i.e. Homo sapiens) arrived on earth.

[2] UK estimates per year for the years between 1999 and 2002, from the Department for Environment, Food & Rural Affairs (DEFRA), Environment Agency and Water UK (Environment Agency, 2006).

purpose of a car? She or he might decide that it would be more productive to focus on designing a new system of mobility rather than a single car. Hence, focusing on a preferred future state encourages one to start from a broad perspective which could result in solutions that are better contextualised, systems-focused and interconnected.

The second function of the future reflective backcasting model is to help participants with prioritisation and re-evaluating the efficacy of certain actions. For instance, if the participants envision a future scenario in which solar power is the only source of energy, then this future state can be used to question the efficacy of campaigning for a 10% reduction in carbon emissions. After interrogating different possible actions, the participants arrive at a decision about how they can begin to implement what they consider to be the necessary change(s). The argument for preferred futures as points for re-evaluating present systemic conditions is not to be taken as a retreat to cynicism or pessimism. Rather it is to be applied, as will be illustrated in this research, as a possibility for mobilising action and provoking creative interventions in present systems. The future reflective backcasting approach is useful when dealing with complex problems, the objectives are not clear, participants do not have any expertise in the problem area and there is an uncertainty about which actions to take.

This research will demonstrate the potential of this type of backcasting process through an analysis of specific instances found in four case studies. The first three case studies are practices from 'Cradle-to-Cradle', 'Melbourne 2032' and 'Transition Towns.' Each of these cases suggests how environmental solution finding processes can be contextualised by preferred future-states. The case studies present compelling models, strategies and techniques for future-oriented practices which operate in markedly different contexts. These cases are 'compelling' in the sense that they are good examples of what a future reflective backcasting process could look like. The outcomes of the case study and research analysis culminate in a final case study in which I create an 'open' workshop[3] that is based on the future reflective backcasting principles formulated from the case study examples. The open workshop tests, builds and improves upon the techniques and possibilities taken from the original case studies.

In this thesis, I will also suggest a criteria for how a future reflective backcasting workshop can be evaluated in terms of its ability to provoke actions, help participants find opportunities in the present, provide a space for learning new things as well as an evaluation based on the feedback of the workshop participants (see *6.3.6.2 The Effects of a Future Reflective Backcasting Workshop*).

[3] The future reflective backcasting workshop in case study four is called the open workshop. It is 'open' in the sense that it was not tied to a specific theme and open to anyone in the general public.

Future reflective backcasting is not suggested as a complete solution or tool but is instead intended as a model that will enrich existing future-oriented practices in environmentalism, revealing different possible viewpoints and inspiring new forms of engagement. By the end of this thesis I will have detailed the structure of a distinct variation of backcasting which has not been identified or acknowledged in existing environmental backcasting futures literature. I will show how this model has helped a group of environmentalists critically reflect on present circumstances and identify which actions to take in the present. Finally, I will describe some of the limitations of this study, shortcomings of the future reflective backcasting model and will suggest how future research into future-oriented environmentalism might progress.

1.1.1. Research Questions

The following list characterises the key questions that underpin this research process:

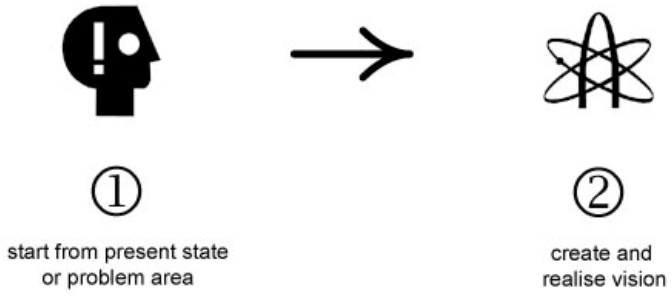
- Why are futures a good way of constructing and addressing environmental issues?
- How does backcasting offer a means of using futures to address environmental issues?
- Which compelling examples of backcasting currently exist and how do they suggest a basis for a future reflective backcasting workshop format?
- Based on the case studies used in this research which methods, techniques and organisational structures are necessary to the future reflective backcasting workshop model?
- Which type of environmental activists emerge as the main beneficiaries of this workshop model?

1.1.2. Future and Vision Oriented Approaches

There are closely related modes of using futures or alternative visions to address environmental problems. It is therefore necessary to distinguish how the various different vision/future-oriented approaches differ from future reflective backcasting:

(i) Visions or a vision-oriented approach proposes alternative states that are not explicitly contextualised by futures or tied to a future date. For example, *Social Ecology* (Bookchin, 1980), *The Slow Movement* (e.g. Honore, 2004), *Sustainable Everyday* (Manzini et al., 2003) and *Natural Capitalism* (Hawken et al., 1999).

Figure 1: Alternative Visions (Not Future Contingent)

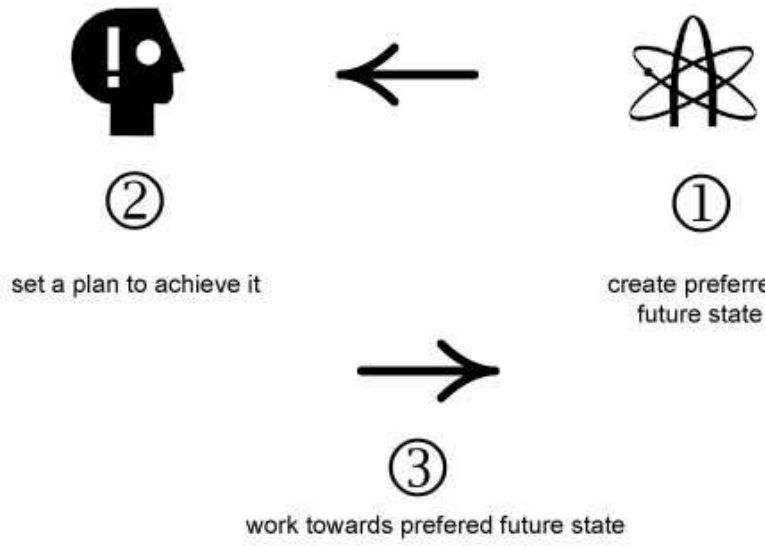


(ii) *'Backcasting'* as it is commonly applied in futures studies[4] is explicitly contextualised by futures or tied to a specific future date. It is an outcome driven approach which starts with a preferred future state and then works out a plan to achieve it e.g. Amory Lovins (1977) *Soft Energy Path*[5].

[4] This description is based on the description of backcasting provided by the WF**S** **(**World Future Society**)** (WFS, 2007). The relevance of the WFS to this research is discussed in section *3.4 Backcasting*.

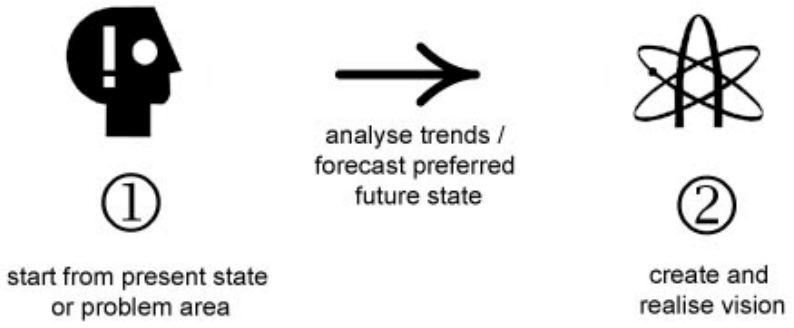
[5] Amory Lovins (1977) employs a backcasting approach to propose an alternative future that is based on a *'soft energy path'* i.e. energy efficiency and renewables replacing a fossil and nuclear fuel based energy system.

Figure 2: Backcasting



(iii) I use the term *'preferred futuring'* to describe a problem solving approach that starts the process by forecasting and analysing current trends before visioning. In other words, 'preferred futuring' employs past and/or present trends as a basis of proposing the best possible future e.g. 'Preferred Futuring' (Lippitt, 1998) (see *3.3 Preferred Ecological Futuring in Theory*).

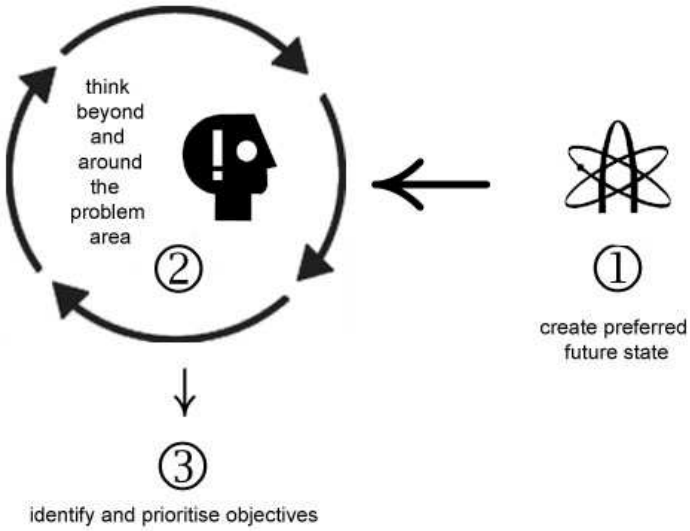
Figure 3: Preferred Futuring



(iv) *'Future Reflective Backcasting'*, is explicitly contextualised by futures or tied to a specific future date. The process starts from an abstract concept of a future and disregards present conditions. In future reflective backcasting, an envisioned preferred future state is not a destination for which a path needs to be sought but a context for discussing the problem

area. The preferred future state also serves as a context for identifying opportunities, refining objectives and, if necessary, reconfiguring the original preferred future state.

Figure 4: Future Reflective Backcasting



1.1.3. The Engaged-Uncertain Environmental Activist

This research verifies the usefulness of future reflective backcasting as an effective tool for helping a particular type of environmental activist clarify and refine objectives in his or her efforts to address ecological problems. This type of activist is proactively seeking out a way to take part in actions that are directed at tackling environmental concerns. The following characterisation emerges directly from the research process and describes the typical self-electing participant who took part in the workshops[6] presented in this research.

The engaged yet uncertain environmental activist is the type of person who has reached the point where she or he is convinced by all the arguments showing anthropogenic ecological degradation and sympathetic to the environmental cause but wants to go beyond the mainstream 'reuse, reduce, recycle' model. This type of activist is not certain that this kind of efficiency paradigm is a sufficient solution. Neither does she or he believe that there is a high-tech silver bullet on the horizon. Although this activist understands the importance of involving governments, businesses and industry, they are not resigned to leaving it to these sectors. Rather, she or he believes that they themselves are responsible for embodying the type of change that needs to take place. Hence, this is the type of person that is trying to find

[6] The workshops I am refereeing to here are the EDAP public workshops in case study two and the open workshop in case study four.

a way that they can personally take part in the transformation of systems rather than espousing what others should do or waiting for others to do something. The engaged yet uncertain environmental activist is not keen on preaching, slotting into comfortable moralising positions or 'educating' others because they are not so certain what the best way forward is. For this reason, this type of activist does not profess to have the answers and are less likely to be dogmatic or strongly opinionated but instead open to exploring new ideas and considering different perspectives.

Through illustration and exemplification, this research proposes a possible form of environmental engagement and social activism through design. This is not 'design' as a profession or discipline but design as a platform for creating new possibilities, carrying out creative interventions and generating new practices around ecological uncertainties. This particular type of design will be further explicated in the following sections of this chapter (see *1.1.5 In Relation to Design*). For the engaged-uncertain environmental activist, themes of self-empowerment, opportunity finding and networking will emerge as possibilities to intervene in environmental problem solving.

1.1.4. Research Deficit

The temporal aspect of environmental problem solving from the perspective of design is a topic worthy of considerable academic enquiry. Authors have noted the importance of futures to behaviours and actions in the present (e.g. Pronin et al, 2008; Schou 1998; Vasquez & Buehler, 2007; Sherman et al., 1985), the use and importance of preferred futuring (e.g. Lippitt, 1998; Jungk et al., 1987; Weisbord et al., 2000) and its potential application in design practice (Ben-Eli, 2007)[7]. Research has not yet explicitly explored or combined design practice and backcasting into an ecological problem solving context. The closest attempt at doing this is Tony Fry's (2008) *Design Futuring* where he considers the inability of designers to project their actions in time because they predominantly work with form, matter, functionality/use and space. Fry (2008) uses this as a basis to urge designers to develop new temporalities. However, the main thrust of the *Design Futuring* proposal is a deeply philosophical argument for new ethical forms of 'redirective' design practices. Future reflective backcasting, on the other hand, is concerned with introducing a 're-evaluative' aspect to backcasting processes, specifically processes that are aimed at addressing environmental degradation. 'Re-evaluative' in this instance, is used to describe a process of re-assessment, in which futures are juxtaposed to present states in order to re-configure and retune change efforts in relation to environmentalism. The outcome of this process is to

[7] This is in reference to comprehensive anticipatory design science, originally suggested by Buckminster Fuller in his ideas and relatively scattered philosophies. However, Ben-Eli (2007) provides a full account of the preferred futuring dimension of Fuller's work. Ben-Eli (2007) also provides further explication and refinement of Fuller's original ideas on comprehensive anticipatory design science.

reach an agreement about what actions need to be taken in order to decide what are accepted as being the necessary changes and, if required, a re-adjustment of the original preferred future state.

1.1.5. In Relation to Design

This research implicitly suggests future reflective backcasting as a possibility for design practice. However, academic design literature has an under-developed discourse in relation to backcasting and future-oriented practices. Consequently, it is practical to articulate the possibility of future reflective backcasting from the field of futures studies because this field has an established discourse on the type of future-oriented practice discussed in this thesis. However, the following sections will describe how future reflective backcasting is relevant to design. In order to do this, I will narrow down the broad spectrum of design definitions in order to draw out a particular notion that fits with the future reflective backcasting model proposed in this research.

'Design' can mean many things depending on its context and a bewildering array of definitions of 'design' exist. John Wood (2007) suggests that design can be applied to several different contexts, everything from the highly ordered (e.g. managerial) to the more formative application at an ideational level (e.g. creative). He notes that this fluidity creates the space for 'design' to be used in many categories including technological functionality, rhetorical form giving, tactical scheduling, human relations and economic strategising (Wood, 2007). Zygmunt Bauman (2006) defines design as an entity that is comparable to 'management' because they are both concerned with the realisation of an idea. Other authors such as Hellstrom et al. (2003) see design creativity as something that is directed towards solving real-world problems for potential users. There is also 'design' that works as a transformative operator, for instance, Herbert Simon's (1969) proclamation that anyone who devises a course of action aimed at changing existing situations into preferred ones is a designer.

The particular alignment with design taken in this thesis is with the way it enables us, as human beings, to express, shape and reconstruct the world around us through the articulation of future possibilities. This notion of being guided by a future possibility is the way backcasting works because backcasting is a method of creating a preferred future state and then reconfiguring present circumstances to realise the initial vision. In this sense, I propose that backcasting is a form of design. Therefore, future reflective backcasting offers a variation to the form of vision-attaining design presented in backcasting. The 'future reflective' dimension proposed for design in this research is a form of design that employs preferred future states as contexts for critically reflecting on present circumstances and re-orienting present actions.

In the final chapter of this research (see *7.4 Limitations and Future Directions*) I will make a series of suggestions about how further research can place the concept of future reflective backcasting firmly within the domain of academic design literature.

1.1.6. Terms & Scope

The following discussions offer a background and general overview of the ideas behind the usage of certain terms. Where necessary, each word will be re-defined in more specific terms when deployed within specific arguments in this thesis.

'Ecology' is understood as a branch of biology that deals with organisms in relation to their physical surroundings (Oxford Dictionary, 2010). '*Nature*' is defined as the phenomena of the physical world and products of the earth, including plants, animals and landscape (Soper, 1995). However, nature also exists within a cultural context where there are separations between nature in the 'physical' sense and nature in the metaphysical sense. Part of this understanding can be traced back to the ancient Greek distinction between '*physis*', that which is 'produced by nature' and *techné*, that which is instrumental and oriented towards the deliberate production of something (Tabachnick**,** 2006). This distinction is also in line with what I consider to be the platonic view of nature interpreted from works such as *The Republic* which suggests that 'nature' is something that is a separate and external entity rather than something in which human beings are embedded within. These polarised views have come under criticism by authors such as Bruno Latour (1993) who argues that the social construction of 'nature' as an external entity creates questionable dichotomies. It is not my intention to address the politics of nature, but to acknowledge that my use of 'nature' sits within this cultural construction. The use of 'nature' in this thesis is sufficiently conceptualised by Soper (1995) who defines it as the 'physical world' but also used in a metaphysical sense that covers different forms of living, symbolic meanings and ideologies.

My *use of 'ecological futures' is an attempt* to encapsulate different constructions of futures that present how people could live, interact and survive in nature. This is very different from forecasting or futurology that examines trends in order to forecast possible futures. This is because futurology tends to focus on new technologies that are likely to be invented and it presents a future that is likely to happen. This term is also different from its use in Chew's (2008) book *Ecological Futures* where he explores ecological degradation by looking at historical events. Ecological futures, in the remit of this research is concerned with *how* preferred future visions form the basis for solutions that emerge from future-based environmental problem solving processes rather than *what* is constructed or *why* we construct them.

The process of constructing futures is what I refer to as *futuring*. This is not to be mistaken with Fry's (2008) notion of *Design Futuring* which argues for design to be expanded into a new type of ethical practice. He argues for a 'redirective' practice that recognises its importance in overcoming unsustainability or 'defuturing'[8]. My use of the term *'futuring'* is similar to Cornish (2004) who describes futuring as "*the art and science of exploring the future*." Lippitt's (1998) use of *Preferred Futuring* describes the act of imagining an ideal future state[9]. However, my focus on '*preferred ecological futures/futuring*' is an attempt to describe subjective forms of ecological futures that are relative to its context. Subjectivity is necessary because futures are context dependent (see *4.4.1 Ethics*) and I argue that its application should also be confined to its context, locale or community. The reason for this is to avoid the situation of futures being imposed on others who are external to the context. Rather than being imposed, preferred futures should be used as a means of engaging and mobilising others to join and contribute to the original visions. Ultimately, the future reflective backcasting process is intended to be a participatory one, each individual expressing their view of what they perceive to be the necessary changes and then collaborating with others to expand and improve on the ideas. The Transition Towns case study is a good example of this as it suggests a fluid, iterative, consensual model of sharing and spreading futures at the level of a community as well as networks of communities spanning the globe.

I use the word '*futures*' in this research to denote a sense of pluralism that is necessary because there are several possible *futures*. When looking at preferred futures that have been created in the examples used in this research, my focus is on the process that led to its creation rather than the vision itself. It would be unnecessary and potentially futile to judge the validity of each vision. In the few instances where I analyse the content of a preferred future state (e.g. *5.3 Case One: Cradle-to-Cradle Dissecting the Vision*), I review the vision as a way of discussing the process which led to its creation and in relation to how the idea has been benchmarked.

The term *'egalitarian organisational structure'* is a reference to settings that operate non-hierarchically and require decisions to be reached consensually. This specifically refers to the small-scale decentralised communities presented in the Transition Towns case study. It also refers to the final open workshop in which self-electing participants take part in a future reflective backcasting process. In both cases, the ability to make decisions and influence the

[8] *Defurturing* is a term used by Tony Fry to critique unsustainable practices; practices that take away our ability to have a future or, in other words, 'de-future' us.

[9] Edward Cornish's (2004) *Futuring: The Exploration of the* Future and Lawrence Lippitt's (1998) *Preferred Futuring*, are quasi-backcasting approaches that also encompass elements of forecasting. Both of these texts are situated in the field of what I call 'preferred futuring'. This term is used to encapsulate a field of backcasting which starts from the present state rather than the future or preferred one (see *3.3 Preferred Ecological Futuring in Theory*).

process is not based on knowledge, status or expertise. The importance of consensus to this type of egalitarian model is to ensure that everyone has equal opportunity to influence the final decisions and that there is common agreement, thereby reinforcing equity between all participants. This is not to say that workshops built on egalitarian principles are devoid of implicit hierarchies, however, the case study analysis suggests that settings which strive for egalitarianism are more conducive to the future reflective backcasting approach (see *Table 13: Comparison of Different Workshop Settings*). Participants are not 'equal' in the sense that they each have different knowledge bases, experiences, personalities etc., however, I employ consensus as a mechanism for encouraging egalitarianism in spite of all the potential imbalances created by differences between participants. There is also a tension between the need to strive for egalitarianism in a future reflective workshop and the requirement for some level of facilitation (see *7.2.2 Context and Settings*). This tension was an acute part of the secondary school workshops because formal education requirements made it necessary for me to oversee, co-ordinate and take full responsibility for the entire workshop sessions. Despite the formal education setting of the secondary school workshops, I gave students open and loose parameters to work within. For instance, I gave students complete control over what they produced, how they produced it, the format it would take and I encouraged them to develop criteria for assessing its effectiveness. Students also had a high degree of influence (through their feedback and comments at the end of each session) over how subsequent sessions would be co-ordinated. The different settings presented in this research such as the local community and secondary school settings highlight the degree to which absolute egalitarianism may not be completely achievable, but serves as a useful ideal to strive for.

'*Ecological problems'*, in this text, covers issues of environmental degradation; everything from deforestation to global warming. This thesis is primarily concerned with how particular future oriented problem solving techniques and organisational structures respond to different types of environmental issues rather then the specific environmental threat itself.

'Extrapolation' is a straight-forward analysis of past or present trends in order to work out what will happen in the future. Extrapolation works on the premise that trends will continue to develop in the future in the same way that it has developed in the past.

Finally, the use of *'present'* or *'present state'* in this text implies the moment of the immediate now. However, during the future reflective backcasting process, the present also extends to an on-going now, or in other words, the 'present progressive.' A present progressive state, in this context, refers to ongoing actions i.e. for actions occurring at the moment of speaking and for actions that are intended to take place soon after. The following sections will follow

on from this topic of temporality by deliberating on the types of timescales that are necessary in the future reflective backcasting process.

1.1.7. Futures in Time

"*The whole notion of change relies heavily upon a conception of temporality.*"

- Burrell (1992)

The following sections will introduce the issues around which timescales are appropriate in environmental problem solving contexts. The main problem being the way different time frames might both create and limit possibilities. I propose that one of the issues is that different conceptions of time, in relation to a specific environmental problem, will impact on the perspective of urgency, risk and likeliness of its occurrence. This discussion is ultimately concerned with how these issues play out in the case studies used in this research. I start this process by drawing on different fields in order to map out the complexities involved in establishing temporalities. I will then go on to suggest which particular timescales cover the examples used in this research and I explain why the timescales I eventually settle on are appropriate to the context of this study.

Temporality is a very large and complex topic that covers multiple fields. Buddhists perceive futures to exist in the present and regard the concept of a 'past' and 'future' to be simple mental constructs (Umehara, 1970). This is similar to biologist, Maturana's (1995) account of the temporality of living beings. Maturana (1995) purports that living takes place in the now; it is a dynamic that disappears as it takes place, while the past, present and future are all notions that we as human beings (and observers), invent in order to explain our existence in the now. This concept corresponds with ideas previously expressed in Heidegger's (1927) notion of the successive 'nows.' Heidegger explains that everything exists in the perpetual present because human beings live in an endless succession of 'nows,' whereby the 'not-yet-now' (future) passes by the 'present-now' to immediately become a 'no-longer-now' (Macann, 1992).

Different temporalities situate people's existence in the present in different ways. This issue is particularly pronounced when one considers the role of timescales in framing future conditions. For instance, if one were to imagine his or her future in a cycle of one hundred days, how would it situate him or her in the world as opposed to imagining futures in cycles of a hundred years? If governments think in four-year election cycles, businesses work from one financial year to the next and stock markets re-start everyday, what type of change is possible within these timescales? Co-founder of the Long Now Foundation, Stewart Brand (2004) describes long-term thinking in modern society as difficult and rare rather than automatic and common. The Long Now Foundation is critical of what they consider to be a

culture that is configured to short-sightedness and suggest that this is also the source of modern environmental and economic problems. One of the foundation's recent projects to promote long-term thinking, is the ten thousand year clock project[10]. However, one might question the relevance of a ten thousand year timescale, to the context of a planet that is 4.6 billion years old? The last significant change in the climate happened approximately 55 million years ago and it took 1000 years to recover from the level of elevated carbon after the extinction of dinosaurs. The planetary timescales, which span billions of years, juxtaposed to 'long term thinking' time frames of ten thousand years from the Long Now Foundation, raises the question of which timescales are appropriate or necessary when thinking about preferred future relationships with nature?

Authors such as Michael Hanlon (2008) suggest that it is always useful to conceive futures in a generational paradigm, because people find it easier to think of futures in terms of their children and grandchildren's lifetimes. This view is supported by Robinson (2003) who argues that backcasting and scenario building time frames tend to work better within the context of 25-50 years into the future precisely because of this generational model. *"This is the fact that many users care about a time frame that is roughly the working life of their children, or their own working life if they are too young to have children"* Robinson (2003). Similarly, in the context of his backcasting project GBFB (Georgia Basin Futures Project), Robinson (2003) asserts that a specific time frame of 40 years is of interest to most people. Other authors purport that timescales for change need to be more immediate. For instance, *Seven Years to Save the Planet* by Bill McGuire (2008) or an assertion by James Martin in his 2007 book *The Meaning of the 21st Century*, where he argues that the decisions taken in the next 20 years will determine the fate of the earth and human civilizations for centuries to come.

These questions of how futures are quantified and what type of change such quantifications allow will be revisited in the practices identified within the selected case studies. This will be particularly relevant to cases where futuring activities are tied to specific dates in the future. In this respect, the time frames presented within the case studies used in this research fit into immediate and medium term futures. The following categories are based on ideas proposed by, futurist, Earl Joseph in his taxonomy[11] for viewing the future:

- Near Term (Immediate) Future - less than 1 year
- Short Term Future - 1 to 5 years from now
- Medium Term Future - 5 to 20 years from now
- Long Term Future - 20 to 50 years from now

[10] The objective of the ten thousand year clock project is to design and develop a clock that will count down the next ten thousand years.

[11] Adapted from Groff and Smoker (1997).

- Far Term - 50 years or more

This categorisation is used as a premise to propose that immediate futures take place within 1 year and medium-term futures between 5 to 25 years. Hence, immediate to medium term future summarises anything between now and the next 25 years. This serves as a useful shorthand to quantify the timescales presented in the case studies used in this research.

On one hand, these timescales are used to acknowledge that the perception of the immediacy of ecological futures will influence people in different ways. For instance, climate change is pitched as something that will happen in the next 60-90 years[12]; however, the urgency of the response to climate change is unparalleled to the reaction to peak oil which is considered to be a problem in the immediate to medium term future. The Transition Towns case study is a good example of this because their preferred future states are explicitly aimed at tackling both climate change and peak oil. In this case, climate change is seen as a long term issue and contextualises almost everything that the Transition Towns movement does, but their connection to it is not as strong as the explicit link to peak oil. For instance, the public workshops for imagining alternative futures use the projected dates for oil decline suggested by Hubbert's peak oil theory[13], as an informal timeline for their backcasting process.

A 25-year horizon is also relevant to the Melbourne 2032 context. Organiser of the project, Chris Ryan (2008) argues that a 25-year time frame is useful because it encompasses the critical period for climate action, as projected by the IPCC (Intergovernmental Panel on Climate Change). He suggests that it is far enough beyond the usual planning cycle for business and government that it allows engagement without too much concern about existing policy commitments or intellectual property; it is long enough that real transformation of infrastructure is conceivable and it avoids the problem of 'science fiction' that can make future projections meaningless.

A discussion about the appropriateness of this future timescale will re-emerge later on in the thesis - where it will be possible to review these issues in the context of primary research data that has been gathered (see *6.3.1 Designing in Time*).

[12] For instance, the Met Office's climate change projection is 2070–2100 (Met Office, n.d.). 2070–2100 is also the projection given by the IPCC in their 'A1B Scenario' proposed in the Emissions Scenarios Report (IPCC, 2000).

[13] Marion King Hubbert's peak oil theory is a prediction of future dates of when we will reach the height of oil extraction and it becomes too expensive to continue using oil as a source of energy. This theory is detailed in section *5.4 Case Two - Transition Towns Totnes: A Post-Oil Future.*

1.1.8. Research Overview in Chapters

In this thesis, I will argue for the need and necessity for backcasting to become a means of helping environmental activists expand a sense of what is possible, critically reflect on present systems and refine objectives. I will start by arguing for a broader range of futures that move away from ambiguous, risk-focused visions that are prominent in mainstream conceptions of futures. My focus then shifts to backcasting as a possible means of conceptualising different future possibilities for environmental solution finding processes. However, current applications of backcasting are predominantly 'outcome-fulfilling' processes i.e. a process that focuses on the attainment of a preferred future state. I argue that backcasting could instead use the future scenario to discuss issues beyond the problem area before the participants decide on what actions to take. The preferred future state only serves as an instrument to help groups consider the wider implications of their actions before prioritising and deciding what they consider to be the necessary changes to make. I explore different examples of backcasting to illustrate the potential of future reflective backcasting. These illustrations are triangulated in order to suggest a set of substantive principles for performing this practice in a workshop that is conducted in an egalitarian organisational setting.

Chapter 2: Ecological Future Meta-Narratives

In this chapter, ecological futures are considered on a broad socio-economic perspective by examining a sample of prominent ecological future narratives. The aim here is to set a scene through which the following chapter (*Chapter 3: Backcasting)* can be viewed. These narratives include sustainable futures, risk-driven ecological futures and utopian narratives.

These narratives are explored with a critical focus. For instance, I describe how the attachment to mainstream and commercially co-opted concepts of 'sustainable futures' result in a perpetuation of current forms of economic systems. One example of this is the mounting evidence from authors such as Pearce (2008) and Harden (2006) which shows that corporations are deliberately overstating a positive environmental impact in order to sell more goods and services. I also discuss risk based eco-narratives in this chapter. I argue that ambiguous or pessimistic narratives can inspire and motivate people but could also lead to denial and stasis. The closing sections of this chapter will propose backcasting as a means of addressing some of these issues because backcasting allows for the creation of a broader range of preferred ecological future narratives that focus on positive outcomes.

Chapter 3: Backcasting

The objective of this chapter is to describe the benefits of a backcasting approach in its application to environmental solution finding activities. I will elaborate on the benefits of backcasting by contrasting it against what could be considered as its diametric opposite

approach which I call ‘designing towards futures.’ I describe ‘designing towards futures’ as the tendency to extrapolate present states into futures. I acknowledge that basing preferred futures on present trends and circumstances could be a good way of adding credibility to the vision. However, I argue that this type of linear projection of present states towards future states creates a limitation on the perception of what is possible. Backcasting is suggested as a problem solving process that opens up possibilities and helps to clarify goals relative to the contexts in which it is involved. The proposition here is that there is a necessity and opportunity for backcasting to work as a means of challenging current modes of engaging in environmentalism in a way that helps to expand a sense of what is possible, refine objectives and outcomes. The closing sections of this chapter details how this method of future-oriented environmental problem solving can be applied through future reflective backcasting.

Chapter 4: Methods

The structure of future reflective backcasting is tested and informed by reviewing different applications of future-oriented strategies to environmentalism and building on practical case study examples. In order to do this, I start by analysing three case studies. These case studies suggest compelling models and techniques for future-oriented practices applied in markedly different contexts. As such, the cases provide insights into a number of key issues including temporality, appropriateness of different timescales for thinking about ecological problems and settings that are most conducive to a future reflective backcasting process. The case studies used in this research provide a foundational basis to gather data from primary and secondary sources. The outcome of the analysis into the first three case studies culminates in a final case of experimental creative workshops. These workshops are designed to test, build and improve upon the techniques taken from the original case studies. The substantive ideas which emerge will inform the workshop model of future reflective backcasting produced in the final chapter of this thesis.

Chapter 5: Case Studies

This chapter outlines the critical analysis of four case studies. It starts with a general but comprehensive overview of each case study before identifying which specific instances are relevant to the objectives of this research. This is with a particular focus on the precise and significant areas that are empirically assessed during the data collation and analysis stage. Each case study is not to be taken as a perfect exemplar but as a rough prototype that presents potential methods and possibilities for the type of future reflective backcasting practice argued for in this thesis.

Chapter 6: Data and Analysis

This chapter is a presentation of findings and analysis of the results from the different applications of backcasting used as illustrations in this research. I show patterns and re-occurring issues that link the experiences, secondary materials, participant responses and coded interview transcriptions from the four different case studies. For instance, I revisit the topic of temporality and appropriate timescales for contextualising environmental problem solving processes which I originally introduce in Chapter 1 (see *1.1.7 Futures in Time*). On this specific issue, the empirical data suggests that different timescales evoke similar responses from the participants who took part in case study 2 (Transition Towns Totnes public workshops) and case study 4 (the open workshop). I found that people preferred to use long term future timescales because they felt that it would give them enough time to achieve the visions as well as the possibility of someone else realising the visions for them. Conversely, futures in the near term proved to be more problematic because it meant that participants had to start working on the visions themselves. This is one instance of how the data from different case studies are woven together and used to re-conceptualise a discussion put forward earlier in the thesis. The re-contextualisation process helps to identify the substantive aspects that emerge from the data.

Chapter 7: Workshop Model

This chapter proposes the key dimensions of future reflective backcasting shaped by the case studies and illustrations presented in this research. This will be in the form of a workshop model. In this model, I will describe the settings that are required, appropriate contexts, necessary strategies and techniques of moderation. For instance, I propose that it is both appropriate and necessary to use the open context of futures to start the solution finding process to elicit radical ideas that expand a sense of what is possible. In order to explicate how the future reflective backcasting process works, I provide two scenarios from the open workshop in case study four. The scenarios depict the types of conversational exchanges that take place in a future reflective process. This chapter closes by suggesting how the findings of this research can be taken further and improved upon. For instance, I propose a longitudinal study to investigate the long term effects of future reflective backcasting in comparison to other forms of backcasting, further work aimed at placing the concepts of future reflective backcasting firmly into academic design discourse and a possible study to focus on the emotional needs of participants.

Chapter 2: Ecological Future Meta-Narratives

2.1 INTRODUCTION

How are ecological futures framed and how do they orient imaginings? Although there are no immediate answers to these questions, the following sections will explore this important line of enquiry. This issue is important and relevant to this research because it suggests why futures are a good way of constructing and addressing environmental issues. This is with particular focus on the nature of people's relationships with ecological future narratives and the socio-economic implications this creates. Futures are not just a way of pre-configuring actions or the direction of events; they also reveal the present by providing an insight into the fictions which guide us. In order to explore some aspects of this concept, four strands of contemporary ecological future narratives will be discussed. The intention here is not to give an exhaustive overview of all ecological future narratives. Instead, I will critically examine a sample of popularised ideas that exist on a broad socio-economic and political level in order to explain why I have adopted a future oriented approach to environmentalism.

The first narrative that I will look at are sustainable futures. The notion of sustainability has become universally accepted as a way to find solutions to environmental problems (Bakker, 1995). It has inspired several government initiatives and international public campaigns such as the Sustainable Development Commission[14] and the United Nations sustainability campaign called *Greening the Blue*. Although it has been widely accepted, the ambiguity of the sustainability rhetoric makes it difficult to know what a sustainable future will look like and how it can be achieved. The risk society, on the other hand, enlists the fear of potential negative outcomes as the basis of its narrative. Risk narratives can be a very effective means of encouraging people to re-organise society to deal with ecological problems, however, it comes at a cost. This chapter will present arguments suggesting that solutions which emerge from the perception of risk are in danger of leading to pessimism and resignation.

In this chapter, I will also review utopian ecological narratives in order to discuss how preferred futures can be catalysts for social transformation. Futures create spaces to rethink values and a chance to imagine new forms of existences beyond the dominant societal paradigm. However, a series of dystopic outcomes of utopian undertakings have also made people cautious of bold visions of the future. This is further compounded by a perception that utopias are unattainable (Wood, 2007). This sense of 'un-attainability' also appears in the actual word 'utopia.' 'Utopia' is derived from the Greek words *ou* 'not' and *topos* 'place', suggesting a place of non-existence or 'nowhere.'

[14] The Government's independent watchdog on sustainable development.

The premise of this chapter is to explore how these narratives frame ecological problems and condition the possibilities for dealing with ecological issues. For instance, a recent research study conducted at the University of Lancaster concluded that people are coping with ecological issues by remaining emotionally distant, despondent and in a state of resignation (Macnaghten, 2006). The basic proposition outlined in this chapter is that this state of resignation is caused, at least in part, by what people perceive to be likely ecological futures and the failure of these visions to inspire, create optimism or a clear vision of what is preferred. Hence, there is a need for different preferred future states. The closing section argues that backcasting is a useful way of producing more lucid preferred versions of futures in a way that helps its users create and focus on best possible outcomes.

2.1.1 Sustainable Futures

The idea of trying to achieve a 'sustainable future' has grown in popularity. Its origins can be traced back to Gro Harlem Brundtland's (1987) definition of sustainable development. Brundtland (1987) defines *'Sustainable Development'* as development which meets the needs of the present without compromising the ability of future generations to meet their own needs'. However, the concept of sustainability has been culturally defined and redefined (Fry, 1999) which has resulted in a proliferation of definitions (Pearce and Barbier, 2000). For instance, Pezzey (1989) quoted in Nelson (1995) surveyed definitions of sustainable development, and found over 50 different concepts. Goodland and Daly (1996) describe sustainability as "*a landfill dump for everyone's environmental and social wish list*." They suggest that social scientists, economists and others should produce their own terms rather than loading all their ideas onto the same concept (Goodland and Daly, 1996). Tony Fry (2000) asserts that a precondition for solving a problem is to be able to know and confront it, however, he argues that the rhetoric and practices of sustainability do not allow this to happen. Similarly, Lawrence (1997) argues that the idea of sustainability is too conceptual and without any clear direction, it is in great danger of becoming little more than a substitute for action. The difficulty in harnessing its exact meaning leads some to assert that sustainability can neither be defined nor made operational (Goodland and Daly, 1996).

Other authors such as Campbell (1996) claims that before sustainability can be made operational it will have to be redefined because its current definition romanticises a sustainable past and is too vaguely holistic. He considers this to be a fundamental flaw in the concept and recommends that the term be broken down into concrete short-term steps in order to narrow the gap between its theory and practice (Campbell, 1996). Tony Fry (2000) argues that the underlying ambiguities in its definition can never advance 'sustainment' or similar proposals, while the pursuit of a sustainable solution is more likely to be sustaining the unsustainable which he considers to be what most sustainable design activity does. In

fact, Clark (1995) suggests that Brundtland (1987) employs the term 'sustainable development' as a mystical goal rather than a concrete objective that can be achieved by specific actions.

Measuring sustainability is also a contentious issue. It is almost impossible to gauge how sustainable human beings are which begs the question; if a person cannot measure sustainability, how will she or he know when they achieve it? There have been some sustainability measurements developed by authors such as Edwin Datschefski who proposes that the goal of producing 100,000,000 sustainable products will result in 100% sustainability by 2100 (Datschefski, 2004). However, this model is perhaps overly simplistic and does not account for any of the core socio-economic issues that need to be identified and addressed. Another issue of measurement, within the context of sustainability, is the intergenerational element of Brundtland's (1987) definition. The phrase "*meeting the needs of the present without compromising the ability of future generations to meet their own needs…*" implies that sacrifices need to be made in order to achieve intergenerational equality. However, the very notion of intergenerational equality needs clarification. What are the 'needs' of future generations? What will their preferences be? How far into the future does one need to think about?

On the other hand, some might say that the ambiguities present in the concept of 'sustainability' is a useful metaphor for the complex situations that sustainability is trying to represent. Furthermore, the ambitious yet difficult and intricate areas that sustainability attempts to address means that it's definition would almost certainly encounter shortcomings. Some authors such as Lombardi and Basden (1997) proclaim that sustainability will always be beyond definition. Rather than being confined to a definition, the concept could be used as a guiding principle to help navigate towards a state of 'intergenerational equity.' In his 2003 book *The Creative City*, Charles Landry describes 'creativity' as something that is not a result but a journey. Perhaps the same could be said for sustainability? In fact, some environmentalists argue that if sustainable development is necessary it must therefore be possible (Campbell, 1996).

There are several benefits that can be attributed to the sustainability approach. One of the main merits of sustainability is its popularity. 'Sustainability' and its derivatives such as 'sustainable development', 'sustainable lifestyles' and 'sustainable design' have all become universally accepted as a way to find solutions to environmental problems (Bakker, 1995). These terms have become a useful shorthand for describing ecological problems and attempts to find solutions. For instance, although I do not have much confidence in the term 'sustainability', I found it both expedient and necessary to use this term while conducting the school workshops because teachers and students were very familiar with the concept (see

5.6.1 Secondary School Workshops). Sustainability has also been an effective way of engaging and mobilising people to address environmental degradation and has become part of mainstream public policy making. Governments, international organisations and businesses proclaim sustainability as a key performance indicator and a target for further development, for example, the UN's Millennium Project[15].

However, as a vision of a possible ecological future, the notion of sustainability is ambitious and worthwhile but lacks concrete objectives. I consider its ambiguity and lack of clarity to be problematic. Proponents of sustainability will often have to redefine the term before embarking on its implementation[16] which means that the movement lacks a cohesive vision or a consensus on how to achieve or measure success. I argue that without clarity and cohesion, the sustainable approach is in danger of becoming a replacement for action or worse, a cover for unsustainable practices. For instance, timber companies, Weyerhaeuser and Plum Creek Timber, were recently found guilty of using the forest industry's green-labelling program to mask logging practices that were harmful to endangered species (Harden, 2006). Regrettably, there is also mounting evidence from authors such as (Pearce, 2008) who details widespread abuse by corporate and public institutions capitalising on the publics' unquestioning acceptance of anything presented as being 'sustainable'.

2.1.2 The Environment as Risk

The risk society discourse looks at how society organises itself to react to perceived risks by enlisting a series of systematic strategies to deal with insecurities brought on by modernism itself (Beck, 1992; Blowers, 1997; Giddens, 1999). This discourse attempts to provide an insight into how a perception of risk influences people's view of the future, resulting in a preoccupation with protection against potential harm. The 'risk and environment' aspect of this discourse is entangled with a number of different threads. For instance, it considers the level of dependency people place on authorities to inform them about environmental risk as well as how the perception of risk influences societal trends (Macnaghten, 2006). It also includes the 'insurance-state' theme presented by authors such as Aharoni (1981) who argues that a 'no-risk' society is possible. However, the focus of this section will be to disentangle the implied ecological futures presented in narratives that portray the environment as a risk. I will examine some of the different ways that risk narratives influences cultural sensibilities. This will start with a brief discussion on the origins of 'environmental risk' narratives. I will then describe how risk narratives can be effective ways

[15] The UN Millennium Project is commissioned by the UN Secretary-General and sponsored by the UN Development Programme on behalf of the UN Development Group. The 7th goal of this project is to ensure 'environmental sustainability' and the programme proposes to achieve this by using a series of sustainability indicators (UN Millennium Project, 2005).

[16] For instance, when Manzini et al., (2008) put forward a set of ideas for how designers can design for environmental sustainability, they first needed to redefine sustainability before producing a specific notion of 'environmental sustainability'.

of raising awareness, communicating urgency and mobilising people into environmental engagement. However, the implied futures from the risk discourse might also perpetuate and normalise pessimistic ecological future states thereby increasing the likeliness of their occurrence.

The notion of the 'environment as risk' is based upon the broad understanding that the term 'the environment' covers a wide variety of concerns that includes everything from traffic congestion to global warming (Macnaghten, 2006). Environmental concern has origins in the concerns previously expressed by ecologists such as Aldo Leopold (1933); 'deep ecologist' Arne Naess (1989) and 'social ecologist' Murray Bookchin (1980). It also stems from the critical analysis of unsustainable practices offered by people such as Vance Packard (1960); Victor Papanek (1985); Ernst Friedrich Schumacher (1989) as well as authors who created a link between population increase and environmental problems such as Thomas Malthus (1798) and Paul R. Ehrlich (1971). However, some authors including Lutts (1985), Lear (1993) and Garb (1995), cite Rachel Carson's *Silent Spring* (1962) as a critical catalyst for the modern environmental movement. Another landmark towards increased environmental sensibility is Carolyn Merchant's *The Death of Nature* published in 1980 in which her pessimistic look at science, made a connection between human technological advances and exploitation of nature. In 1987, the Brundtland report prompted another wave of environmental awareness. This was soon followed by the UN Agenda 21 conference (also known as the Rio Earth Summit) in 1992 which was a significant milestone because the 179 governments who voted in favour of the programme actually adopted it. It also set a precedent for similar events such as the Kyoto protocol launched in 1997 and the Copenhagen Summit in 2009.

The notion of the environment as a risk has also been sanctioned politically, with its increasing appearance in legislation. UK environmental regulations and controls have had a steady increase since the 1960's (Burall, 1996). Early legislation tended to preside over proliferation of chemicals, resource and energy scarcity, and nuclear power. The very first European Environmental Action Programme, aimed at removing pollution, was introduced in 1973. One of its most important contributions is the polluter pays principal which places the cost of cleaning up pollution on those that cause it and it has proven to be fairly effective in dealing with large acts of pollution such as oil spills (Burall, 1996). By 1987, the EU (European Union) had applied nearly 200 command and control directives (Welford, 1996) most of which aimed to limit or prohibit highly polluting industrial processes. Over time, this process was then diverted to legislate products. This has resulted in a spate of controls over packaging, product take-back schemes and recycling targets which are aimed at diverting waste material away from landfill sites (Smith, 2001).

Brundtland's definition of sustainable development[17] is a useful concept to return to when trying to conceptualise how the notion of 'environmental risk' manifests into future narratives. Her definition suggests that environmental issues need to be addressed as part of "*our common future*." This understanding that environmental risk transcends all social boundaries, whether it is class, race or geography, is one of Beck's (1992) central arguments. The construction of environmental risk lacks any sensory attachment, is communicated through socio-political channels and is not limitable or accountable to prevailing rules (Beck, 1992). Beck (1992) considers the Chernobyl disaster and nuclear threat to be good metaphors for the modern way of dealing with environmental risk. In both instances, fears are not linked to observable danger but linked to the perception of risk.

There are examples that show how a strong perception of environmental risk can be fairly effective at mobilising environmental engagement. For instance, the film *Age of Stupid* is a powerful depiction of an ecological future in which the planet is destroyed by global warming. Director Franny Armstrong and other green campaigners use this message of environmental risk to mobilise support for an energy reduction programme called *Not Stupid*[18]. However, could such pessimistic narratives become self-perpetuating and self-fulfilling prophecies? Richard Wiseman's (2003) luck factor theory suggests that people who envision their futures more optimistically become luckier. This is similar to Robert Cialdini's (2007) research which suggests that normalising a situation makes it more likely to happen. Therefore, by normalising global warming and ecological disasters there is a possible risk of increasing the likeliness that such scenarios will occur.

An ecological future that is derived from perceptions of risk is one that is inherently pessimistic because the environment as a risk approach views the environment as a problematic entity. Implicit in the notion of risk is fear which means that solutions created in this context start from a negative agenda. A risk-driven ecological future narrative could be a catalyst for change, but this might come at a cost. The implied futures from the risk discourse are in danger of perpetuating and normalising pessimistic ecological future states. This could lead to a sense of resignation to the 'apparent' inevitability of negative outcomes thereby fuelling inaction.

[17] Brundtland (1987) defines *'sustainable development* as the development which meets the needs of the present without compromising the ability of future generations to meet their own needs'.

[18] The *Not Stupid* campaign tried to create 250 million green activists. The main objective was to encourage these activists to lobby the politicians who took part in the UN Copenhagen Climate Change Conference in November 2009. However, according to many commentators (e.g. Lynas, 2010) the conference was a total failure because the original treaty was reformulated to make it less effective and did not receive legally binding commitments from the participating political representatives.

2.1.3 Preferred Narrative Deficit

I have so far described some of the ways present ecological future narratives have made it difficult for decisive action to take place when dealing with ecological issues. This is not to discount the vast socio-economic complexities involved in tackling environmental problems or the fact that any departure from present conditions will generate uncertainties. Whilst acknowledging the potential benefits that different environmental narratives produce, I have argued that the intrinsic pessimism of the risk society or ambiguous ideals presented by sustainability do not appear to be effective catalysts for the type of speedy and efficacious change that is required to combat urgent ecological problems.

Beck (1995) characterises one way of coping with ecological issues which works in the context of apocalyptic visions that ultimately results in a sense of powerlessness and fatalism. A UK public perception research study on the public engagement with 'the environment'[19] conducted at Lancaster University indicates that people perceive the environment to be a single totalising entity that is external to their day-to-day existence, enabling them to remain emotionally distant, despondent and in a state of resignation (Macnaghten, 2006). High levels of non-engagement are further exacerbated by the lack of faith in the institutions tasked with combating the problems (Macnaghten, 2006). The Lancaster University research also reveals that people are using *"reflexive strategies of non-engagement"* with global issues including the future, as a way to help them avoid dealing with ecological complexities (Macnaghten, 2006).

Marius de Geus (1999) believes that there is a general lack of inspiration when it comes to dealing with environmental concerns and this is coupled with a lack of ideas regarding futures. Tokar (1987), on the other hand, considers that issue-oriented politics without an alternative vision can be politically limiting and personally frustrating, and although many people are uncomfortable with the way things are, they are not motivated to act on their beliefs because they see no other way. I propose that providing engaging and preferred alternative ecological future narratives might produce a set of different outcomes.

Gabel et al., 2006 postulate that envisioning the best possible future is a powerful tool for bringing about change as people respond more enthusiastically to big and inspiring challenges than safe incremental change. An example of this process in practice is the work of futurist, Steven Ames who pioneered Community Visioning programs in the late 20th century. This practice provides a platform for interactive social activities that help communities to visualise preferred future states in order to inform community planning

[19] '*The Environment*' as a way to describe a broad range of environmental problems.

processes[20]. It may be too early to gauge how successful these programs have been in practical terms but they are reported to have had an enormously positive impact on the psychology of the community. For instance, city futurist and co-design facilitator Phillip Daffara describes community visioning as a process that taps into the abundant local energy and talent to create a civic sense of purpose (Daffara, 2007). The following section will present a future narrative that supports this notion of creating preferred alternative states, as a way of inspiring new forms of engagement.

2.1.4 Ecotopian Futures

The term *'utopia'* originates from Thomas More's (1516) novel *Utopia* where the protagonist Raphael describes an ideal imaginary island. More's descriptions of a 'utopic' idealised society includes the exact number of dwelling units, population size and detailed plans of how the vision could be executed. However, More (1516) never explicitly defined utopia and it is difficult to pin down a distinct definition. The term itself has come to mean different things to different people. Rather than trying to settle on a definition, some authors such as Manuel et al., (1979) quoted in Tarlow (2002), distinguish between various different types of utopias such as *'applied utopistics'* (experiments aimed at producing the ideal society) and *'theoretical utopistics'* (utopian literature and political philosophy). However, for the purposes of this research, my description of *'utopia'* is that it is an ideal imagined state.

Utopias can be useful in providing bold preferred states to create new contexts of possibilities. Utopias show how futures can be used to critique present systems but also propose new opportunities. Psychologically, utopias can bring excitement and optimism about the future while providing a space for experimentation and playfulness (De Geus, 1999). However, utopias also contain contradictions and dystopic elements which have been emphasised by literary texts and various socio-political historical events. As a result, utopias pose a problem for preferred visioning activities that may resemble utopian undertakings. In order to understand its problematic influences on thinking and talking about 'ideal' or 'preferred' future states, the following sections will consider the utopian paradox of being both admired and feared. In doing this, I will also seek to highlight the important benefits that utopian pursuits bring to this research.

There is a long history of ecological utopian narratives which try to present possible new forms of existences. These visions were often created in reaction to environmental damage and degradation long before these concerns became part of mainstream culture. For instance, William Morris's romantic novel, *News from Nowhere* (1891) proposes an ecological utopia based upon small-scale human craftsmanship. This is similar in theme to

[20] In section *3.3 Preferred Futuring in Theory*, I will describe how community visioning and similar approaches are different from future reflective backcasting.

David Thoreau's (1854) *Walden* (or *Life in the Woods*), where the solution to modern lifestyles of over production, consumption, and accumulation, is a 'simple life.' However, Marius De Geus (1999), in my view, rightly doubts whether the world could support six billion Thoreauvians marching off to the woods with an axe in hand to find peace of mind. Peter Kropotkin's (1902) *Mutual Aid*, on the other hand, suggests that the ideal society needs to go beyond the decentralised and federative structures of the Middle Ages in order to foster lives of liberty and harmony. In Kroptopkin's vision, enhanced human co-operation would facilitate the preservation of nature and come to replace human efforts to dominate it. Another possibility envisioned by Ernest Callenbach is an *Ecotopia* based on a steady state, toxic-free society that leaves nature unharmed (De Geus, 1999). Other alternative ideas have come from deep ecologists who outline a form of ecological sensibility that deepens a sense of connectedness to nature. Social ecology, on the other hand, holds that present ecological problems are rooted in deep-seated social problems therefore ecological issues should be solved in the social realm.

In spite of the numerous ideas that these narratives provide, utopias are riddled with paradoxes; one of them being that utopias are both admired and feared. Huxley and Orwellian dystopic interpretations have come to shape the modern view of utopian undertakings. A contributing factor towards this mistrust is the tendency towards totalistic social planning implicit in utopian proposals such as Ebenezer Howard's (1902) *Garden Cities for Tomorrow* concept. What's more worrying is that although utopian visions are implicitly critical of present systems they are rarely critical in a reflexive way.

Tarlow (2002) suggests that utopians believe that people are intrinsically good and are capable of perfection if placed in the right conditions. Utopians believe that if people are able to understand the utopian vision, they will work harmoniously to achieve it (Tarlow, 2002). However, Carey (2008) argues that one of the fundamental problems with utopia is that real people cannot exist within it. This also reflects another line of criticism which is that utopians wrongly assume that a model for an ideal society can be developed independent of time, place and circumstances (De Geus, 1999). Consequences of this are situations where

utopian undertakings have led to dystopic outcomes for example, modernist ideas translated into tower blocks[21] in the United Kingdom.

The word 'utopia' is based on Greek *ou* 'not' and *topos* 'place' which can be loosely translated to mean 'nowhere' or a place of non-existence. Doxiadis (1975) presents this sense of 'unachievability' as the basis for his critique of utopias because they are presented as states of perfection or non-existence. However, as outlined in the introduction to this thesis (see *Chapter 1: Introduction*), using futures as a context for imagining new possibilities is one way of avoiding this issue because futures are perceived as approaching moments that will eventually materialise. Imagining future possibilities does not necessarily have to be about achieving the outcomes but the visions could be used as a means to reveal opportunities in the present. For instance, Ebenezer Howard's (1902) *Garden Cities for Tomorrow* never came into fruition in the exact form outlined in the original proposal but his ideas became very influential in subsequent government policy and urban planning. Howard's garden city concept highlighted the importance of ecology as an aesthetic and a potential source of human well-being. He insisted on a 'belt of green' around the city and advocated urban plans to ensure that people remained in close proximities to green areas. These ideas had a significant impact on the subsequent urban planning discourse and in 1920, the Ministry of Health made a direct reference to the garden city concept as being a possible solution to the problem of over-crowding in London (Batchelor, 1969). It was subsequently used as the basis for the 1946 New Towns Act (Batchelor, 1969).

The most significant contribution of utopias, in reference to this research, is that they show how bold visions of alternative states can be a catalyst for social transformation. In fact, one could argue that contemporary technology-based industrialised societies owe much of their current conditions to the visions of capitalists such as Adam Smith, industrialists such as Henry Ford and the modernist movement in the 20th century. Utopias provide a source of ideals while holding up a mirror to society (De Geus, 1999). Utopian ideas present insightful social commentaries with a radical perspective that enables one to re-evaluate present practices that are assumed to be the norm (Thiele, 2000). This capacity for generating

[21] High rise apartment buildings for public housing also known as 'Tower Blocks' were built in the United Kingdom after the Second World War for two main reasons. The first was to address issues caused by crumbling and unsanitary 19th century dwellings, the second reason was to replace residential buildings destroyed by German aerial bombings between 1940 and 1941. Both Patrick Dunleavy (1981) and Lynsey Hanley (2007) agree that architects and planners involved in the construction of UK tower blocks were influenced by ideas originating from modernist architect Le Corbusier, particularly his promotion of high-rise architecture for public housing. Tower blocks were often hastily built, with poor designs and low quality material (Hanley, 2007), while modern day tower blocks are plagued by crime, vandalism and social disorder (Dunleavy, 1981). Despite the best intentions of local authorities, urban planners and architects, tower blocks are now commonly considered to be what Hanley (2007) describes as *"slums in the sky"*.

preferred alternative states while also re-evaluating present states is a characteristic and component of future reflective backcasting.

2.1.5 From Eco-futures to Backcasting

In the following chapter, I will suggest backcasting as one possible mechanism for fostering creativity, optimism and motivating people into action without using fear or risk. This is because its participants are encouraged to focus on what is possible rather than probable negative outcomes. Backcasting compels its practitioners to start from the widest possible context, thereby creating the possibility to take on a broad systems view. The next chapter will justify and expand on these claims while introducing existing future-oriented strategies that set a theoretical precedent for a future reflective backcasting practice.

2.2 SUMMARY

Most projections of possible futures are rooted in the present. Futures do not just shape and inform what is going to happen, they also mould present understandings, coping strategies, experiences, constructions and thoughts. Therefore, fictional ecological future narratives affect people's capacity to engage with ecological problems.

I have looked at three different ecological future narratives and discussed their benefits and limitations in order to explain why I am taking a future oriented approach to environmentalism. For instance, I have acknowledged that sustainability has been a popular way of conceptualising one approach to environmentalism and it has inspired and mobilised many sectors of society. However, I have also argued that it is an ambiguous concept which can easily be appropriated to mask unsustainable commercial practices (Pearce, 2008; Harden, 2006). Another generalised narrative is the construction of possible futures through the lens of risk. It has been noted in this chapter that such risk-driven futures are an effective means of communicating urgency, but they could also lead to feelings of pessimism and resignation. In this chapter, I also discussed ecological utopian narratives which show how preferred alternative states can be used to critique present systems. Utopias set a useful theoretical precedent because they show that visions do not necessarily have to be realised but could be used as a means to reveal opportunities in the present.

Recent studies are showing a high degree of disillusionment and helplessness when it comes to dealing with environmental issues. One example of this is a study conducted at Lancaster University which shows that people are employing coping strategies of complete non-engagement with ecological issues (Macnaghten, 2006). I argue that although people may be frustrated and unsatisfied with the current conditions, there is little motivation to challenge the existing structures because of the deficiency in lucid, preferable alternative

future states. Hence, the main argument of this chapter is that there is a need for alternative, coherent, mobilising and inspirational future narratives.

Chapter 3: Backcasting

3.1 INTRODUCTION

'Designing towards futures' is an analogy used in this chapter to create foundational arguments for why a backcasting approach is not only useful but also necessary in environmental problem solving. This analogy is a way of describing an approach to environmentalism that works by extrapolating present trends into the future. The extrapolation approach focuses on what is likely to happen based on the possibilities presented in existing systems. Backcasting, on the other hand, provides a context that is able to expand the idea of what is possible so that one can focus on what is preferable in a way that can transcend disciplinary, professional and institutional boundaries. The form of backcasting that emerges from the field of futures studies is a process that is geared towards the direct attainment of a preferred future state. However, I am proposing future reflective backcasting as a process in which realising the envisioned future state is not the objective but used as contexts for discussions around the problem area with the aim of deciding what changes are necessary and prioritising which actions should be taken.

In this chapter I will contrast future reflective backcasting against closely related future-oriented practices. I will start by looking at backcasting models and consider how they are applied in the futures studies field. This will include a review of some practical applications of backcasting from companies such as Shell and Brightworks. I will then discuss issues relating to how backcasting is practically applied, particularly issues relating to the role of experts, the use of extrapolation and forecasting techniques as well as the influence that the organisational setting can have on the process. These issues will also be used to explain and justify some of the decisions I make in relation to how the future reflective backcasting workshop should be conducted.

3.2 DESIGNING TOWARDS FUTURES

"*It is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail.*"

- Abraham Maslow

The following sections will explain why a backcasting approach has been employed in this research. I will do this by reviewing approaches to environmentalism which conceive, reduce and view environmental problems through the perspective of present trends. Holmberg et al. (2000) argue that a consequence of deep uncertainties around ecological problems is a tendency to deal with one problem at a time in a fragmented fashion. This often results in sub-optimised measures that are not integrated in a large enough system perspective (Holmberg et al., 2000). Another reaction to ecological uncertainties and complexities is the need to hold on to what is familiar and extrapolate from these familiar states to the future in a

linear progression, I call this ‘designing towards futures’. This is with particular reference to current attempts at moving towards a harmonious ecological future state by working within all the constraints of present systems. Such attempts cover mainstream ‘eco-solutions’ such as recycling, carbon cutting, alternative technologies, efficiency measures and labelling schemes. The designing towards futures concept is in the spirit of what is commonly known as the law of the instrument; it refers to Maslow's hammer or, in other words, an over-reliance on a familiar tool. It is the need for an ecological solution to ‘work’ within the present understanding of ‘what works’. However, the outcome of this process can often be solutions that create minimal reforms or simply replicate the present systems.

Extrapolation has its benefits. Basing futures on present trends and likely outcomes can provide a sense of realism and credibility to the process. However, my argument is that it could be counter-productive to address ecological problems by starting from the present structures that contextualise the problem area. This is not to say that the current systems should be completely discarded or that all current forms of environmentalism should be condemned. However, I argue that present systems and structures should not be the starting point for environmental problem solving (or solution finding) processes. This is a necessary approach because the way a problem is contextualised, perceived and constructed directly influences the type of solution which emerges. For instance, if you take an environmental problem to a business consultant, then one can expect an answer in the form of a new commercial proposition or business plan. If the same problem is given to a politician then one might expect a set of new policies. One explanation for this is the concept of *‘déformation professionnelle’* which is a French phrase that loosely translates as a ‘professional bias’ or ‘professional distortion’. It describes an inclination to look at the world from the perspective of one's own professional view or occupational culture. The implication is that the majority of professional training results to some degree of distortion to the professionals’ world-view.

Slavoj Žižek (2007) argues that the way people formulate or perceive a problem could also characterise the problem itself. I would also apply this principle to the formulation and conceptualisation of solutions. Therefore, an area worthy of considerable academic exploration is the way we construct solutions to ecological problems and suggest how this problem solving process could be reframed to yield results that are more efficacious. Without reframing the way we construct and approach ecological issues, we are at the risk of perpetuating them or worse, creating a set of new ones. It should be noted here that answering these questions are not explicitly in the scope of this research. This research will instead focus on explicating the notion of backcasting, specifically future reflective backcasting, as a possibility for reframing problem solving processes into moments of re-evaluation and re-prioritisation.

Table 1 is a quick juxtaposition that outlines why the backcasting approach is a useful position to take. It highlights the differences created in the design process based on the type of future orientation that is taken.

Table 1: Future-orientations in Design

Designing Towards Futures	Backcasting
Adopting a logical approach, low tolerance for future uncertainties.	Embracing future uncertainties and using them as a source of creativity.
Starting from present systems and constraints.	Starting from a position of no boundaries or constraints.
Solutions-orientated.	Destination-orientated.
Addressing specific problems.	Thinking beyond the problem by optimising a future state where it no longer exists.
Focusing on trouble spots.	Considering whole systems.
Knowledge of the problem area is critical.	Knowledge is not as important as creativity and a vision of what can be.
A list of problems.	A sense of context.

3.3 PREFERRED FUTURING IN THEORY

This section will detail futuring strategies and models that are considered to be complimentary approaches and theories to the future reflective backcasting practice under exploration. I will compare different forecasting strategies and describe how future reflective backcasting compares to related practices of preferred futuring. The key difference between 'preferred futuring' and 'backcasting' is that the former starts by trying to understand trends or the problem area while the latter ignores the problem and simply starts from a preferred future state. The following sections will provide a series of models that can not be explicitly called backcasting, but share its core characteristics i.e. problem solving that is contextualised by future-based scenarios. The futuring models in the following sections also function as a means to pull out examples and discuss significant theoretical points that serve as a useful precursor to the backcasting discussions that will take place later in this chapter.

3.3.1 Models for 'Wishful Thinking'

Developed by Buckminster Fuller, *Comprehensive Anticipatory Design Science* or *Design Science* is a broad field that attempts to reframe the process of problem solving as a holistic, systematic and comprehensive procedure (Ben-Eli, 2007). This concept has been continuously developed throughout Fuller's career and encapsulates his scattered yet distinctive philosophies. Comprehensive anticipatory design science highlights some of Fuller's speculative thinking about humanity's ability to shape its own evolution in a problem solving context. The list below summarises Gabel et al. (2006) framework based on their interpretation of Fuller's work. Gabel et al. (2006) call it the *10 Principles for Comprehensive Anticipatory Design Leadership*:

(1) Think comprehensively.
(2) Anticipate the future.
(3) Respect gestation rates.
(4) Envision the best possible future.
(5) Be a 'trim tab'--an individual who can initiate big changes.
(6) Take individual initiative.
(7) Ask the obvious and naïve questions.
(8) Do more with less.
(9) Seek to reform the environment, not people.
(10) Solve problems through action.

The relevant point to pull out of the above list is principle 4 "*envision the best possible future*." In the context of his work and philosophies, Gabel et al., (2006) suggest that rather than simply predicting the future, Buckminster Fuller always tried to envision a preferred future state. Ben-Eli (2007) believes that the concept of 'preferred states' is key to Fuller's comprehensive anticipatory design science approach because it takes the process of problem solving into the creative realm of imagining entirely new possibilities. He also points out that the 'ideal state' may be defined as a general condition rather then as a precise end point and this would lead to an adaptive, self-organising 'becoming-as-you-go' process (Ben-Eli, 2007).

Figure 5: Design Science Planning Process

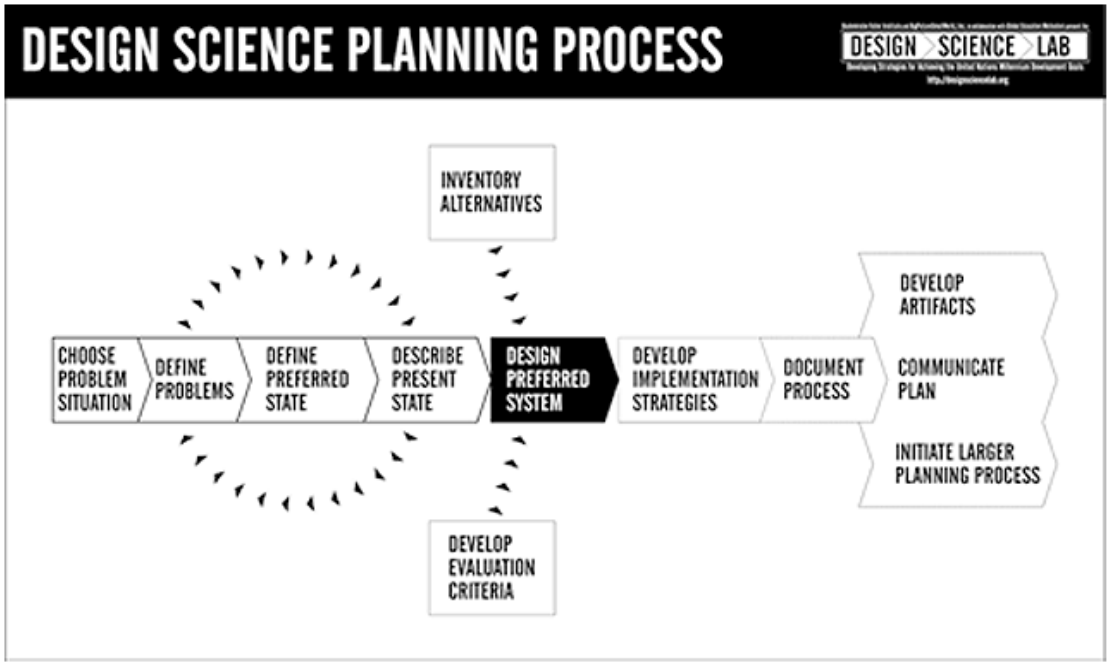


Figure 6 shows Buckminster Fuller's interpretation of how preferred futuring could translate into a design process. Distinguishing between the existing and preferred state, helps to create a path and develop strategies that are necessary for achieving the vision.

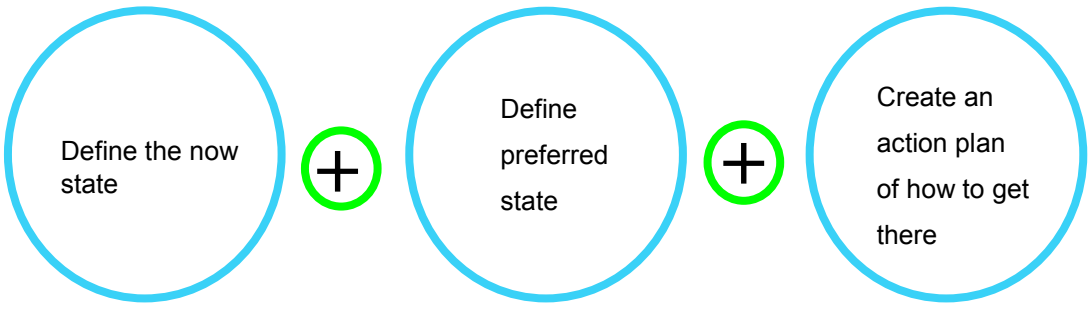
Another variation of this idea is the 'future workshop'. Robert Jungk and Norbert Müllert (1987) are credited by Dator (1993) with developing the definitive future workshop technique; a technique for enabling creative decision making processes in response to social or political issues. Jungk and Müllert (1987, p. 11) recommend that the future workshops should be used for problem solving in all types of democratic contexts, including co-ops, unions, schools, youth centres, pressure groups and voluntary organisations. However, the majority of their examples are based on neighbourhoods and community contexts. The future workshop format itself starts with a criticism phase which urges participants to articulate dissatisfactions and ask critical questions about the problem area. This stage is then followed by the fantasy phase which is about formulating desirable futures with an emphasis on visioning exaggerated pictures of future possibilities. Jungk and Müllert (1987) stress that established ways of thinking must be challenged in this phase. The final phase of this model is the realisation phase and this is an opportunity to undergo a detailed consideration about what can be done and how. The future workshop approach is similar to future reflective backcasting in the sense that exaggerated futures are use to challenge established ways of thinking before deciding on what can be done in the present. However, the future workshop starts with the problem area while future reflective backcasting starts with a solution area and tries to reframe critical pessimistic discussions into opportunity finding conversations. A

criticism phase is not present in future reflective backcasting. I consider a criticism phase to be unhelpful because environmental problems can sometimes be overwhelmingly complicated and focusing on how to rectify a problem, rather than imagining new possibilities, can be enormously restrictive.

Fuller's *Design Science* and the future workshop both exemplify how the preferred futuring technique starts with the past or present rather than the future. There is a re-occurring requirement to review history or identify trends before exploring possibilities in the future. For instance, in Buckminster Fuller's *Design Science* planning process (see *Figure 5: Design Science Planning Process*), one has to choose a problem situation and define problems before defining the preferred state. Similarly, Jungk and Müllert (1987) start the Future Workshop model with a criticism phase, in which grievances and negative experiences about the chosen topics are discussed before moving on to the fantasy phase. Hence, the preferred futuring convention is to start by focusing on the problem or the problem context. Future reflective backcasting breaks away from this tradition in order to encourage the participants to elicit ideas and conversational exchanges within a broader systems context rather than simply focusing on the problem itself. This type of systems thinking is necessary when attempting to address ecological problems because of the complexities and interconnected nature of such problems.

There are also similar strategies of preferred futuring deployed in business and community contexts. These future-oriented approaches have become commonplace in business problem solving activities particularly in the business change management literature with the work of practitioners such as John Hoyle (1995), Edward Cornish (2004) and Liam Fahely (1997). Lawrence Lippitt's (1998) *Preferred Futuring* is a typical example of the work carried out in this field. However, the need to grasp the present state before imagining the future is also evident in this model as Lippitt (1998) asks his participants to define the 'now state' before the preferred one, as shown in the figure below.

Figure 6: Preferred Futuring Model (Lippitt, 1998)



This structure also re-occurs in the community-based versions of preferred futuring from Ames (2007) *Community Visioning* and the *Future Search* model produced by Weisbord et

al., (2000). These models create platforms for co-creating preferred futures as a way to develop community plans and identify future priorities. In the *Future Search* model (Weisbord et al., 2000), it is necessary to recall the past and appreciate the present before envisioning futures. The community visioning model also requires an evaluation of *where we are now* before a decision about *where we need to go*.

Figure 7: The Oregon Futuring Model

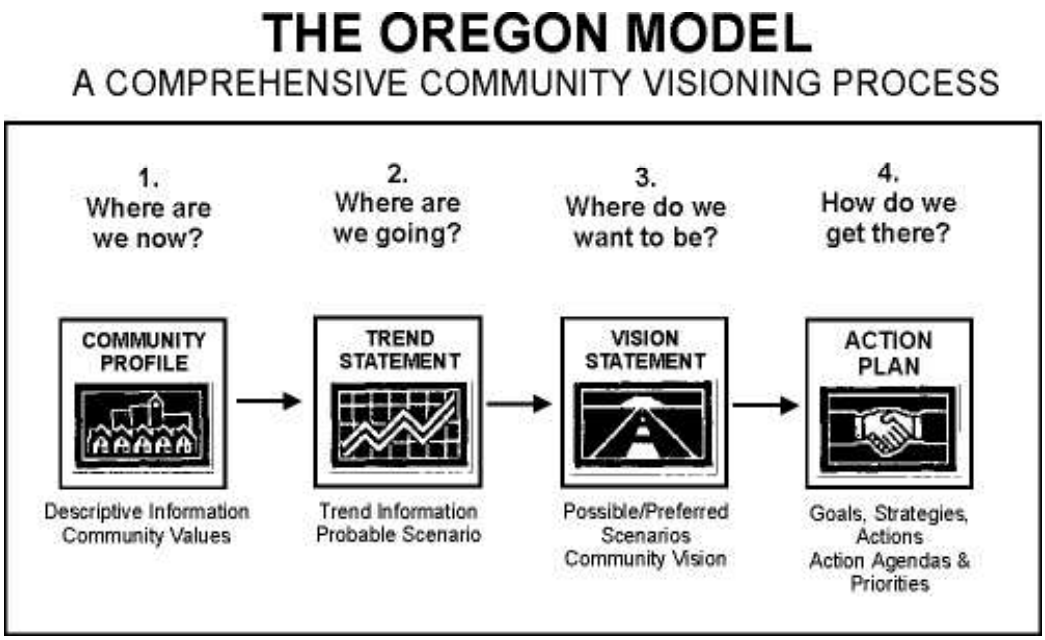
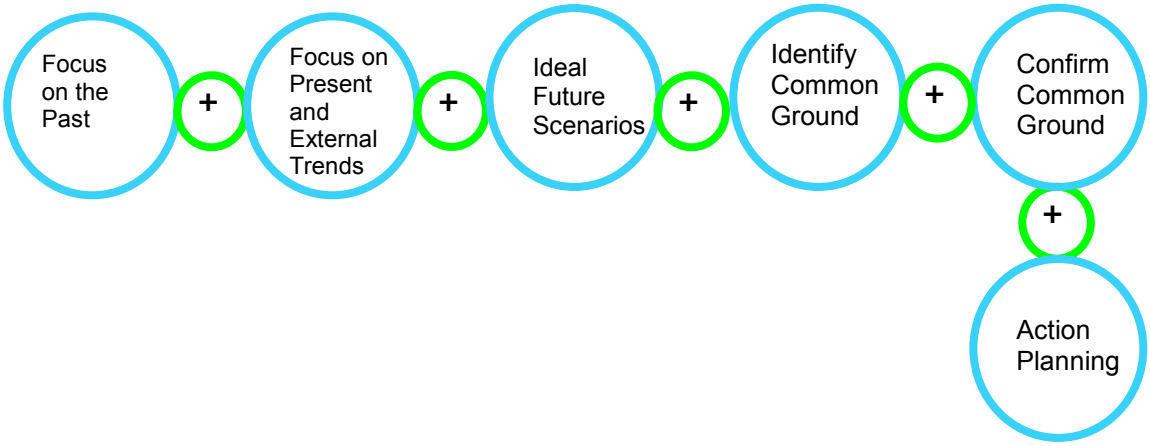


Figure 8: Future Search Model



This approach of defining the now state could be a good way of grounding preferred futures in familiar structures, thereby making its realisation more feasible. However, starting the process by focusing on the problem could also shape the wishful thinking exercise into a

reactive rather than a proactive one. This is in the sense that participants of these practices are reacting to existing trends or likely outcomes rather than proactively imagining new possibilities. Accordingly, the future reflective backcasting process starts with the dream. It only confronts restrictions created by present socio-economic limitations as and when they arise during the implementation phase.

3.4 BACKCASTING

In this section I will highlight the key academic resources that I use to gain an overview of backcasting as it is applied in the field of futures studies. I will start by looking at the historical emergence of backcasting. I will then consider key criticisms of backcasting put forward by its proponents such as Robinson (2003) who argues that practical applications tend to be expert-determined, rigid and over-formalised. These arguments allow me to introduce some of the justifications for why I have chosen to apply the future reflective backcasting workshop model in non-hierarchical egalitarian organisational settings with non-expert participants.

This thesis builds and expands on the backcasting literature situated in the field of futures studies. My use of *'futures studies'* is a direct reference to the academic field that theorises and develops future related practices. Within this field, I am specifically referring to three main resources that provide a comprehensive overview of the academic work conducted under the title of futures studies:

- The first key resource that I have used to gain an overview of futures studies and acquire an understanding of backcasting as it is applied in this field is the work produced by the World Futures Studies Federation (WFSF). The WFSF was formed in 1973 by a committee of academics, mathematicians, philosophers and futures enthusiasts. It is an authoritative resource because the federation collates and disseminates materials from all of the major futures studies institutions and academic research programs across the world. Its institutional members include the Finland Futures Research Centre; Institute for Alternative Futures, USA; Centre for Futures Studies; Kairos Future Group, Sweden; Russian Futures Studies Academy (RFSA) and Tamkang University, Taiwan. The WFSF's global network also includes practicing futurists, analysts, researchers, teachers, and scholars from approximately 60 countries.
- Another key resource that I have used to explore backcasting in relation to the futures field is the Millennium Project Global Futures Studies and Research. This is a complementary resource to the WFSF. It is a non-profit research think tank founded in 1996. This futures studies research think tank provides publications, reports and surveys about the work being carried out in the futures field as well as a consideration of futures research methodological issues. The Millennium Project's

international network and contributors include business planners, scholars, futurists and policy makers within governments, NGOs, international organisations, universities and corporations.

- Finally, I also use resources available from the World Future Society (WFS), founded in 1966. Although this organisation is based in Maryland US, it represents a global network. The WFS provides education resources[22] and journal publications[23] covering futures studies related issues.

It would be impossible to cover every application of backcasting because there are several nuances and variations. It is also likely that there are backcasting activities that would not even relate to this term. However, it is from the futures studies resources (mentioned above) that I base my understanding and explanation of what backcasting is and how it is applied within the futures studies field. The following sections will focus on work from proponents of the backcasting methodology, specifically, authors who define and continually address methodological issues by attempting to take backcasting into new domains. I will exclusively focus on work that is concerned with expanding the remit of backcasting into new territories because this is the precise domain that this research will intervene in. This includes work from Robinson[24] (1982, 2003), Dreborg[25] (1996), Banister[26] et al. (2004, 2005), Karl-Henrik Robèrt[27] and I will also use examples from significant applications from corporate scenario building. The corporate examples are 'significant' in the sense that such examples are extensively written about in the field and used as points to theorise around the backcasting methodology. In this chapter, I will use these significant corporate applications to discuss the

[22] The WFS's educational resources include a quarterly newsletter called *Learning Tomorrow* which provides futures education and training resources as well as discussing futures education related issues.

[23] The WFS publish *The Futurist*, a bimonthly magazine; *World Future Review*, a bimonthly peer-reviewed academic journal about foresight and trends forecasting; *Futurist Update*, a monthly newsletter sent to members of the futures community; *Future Times*, a quarterly online journal about the organisation (World Future Society) itself.

[24] John B. Robinson is considered to be a key figure in the backcasting field because he developed and coined the term 'backcasting' when using it in his 1982 text, *Energy Backcasting: A Proposed Method of Policy Analysis.* Through illustration, Robinson (1982) suggests how backcasting could be a methodology for addressing energy shortage. He has since suggested improvements to the backcasting methodology, for instance, proposing the application of backcasting as a means of 'social learning' (Robinson, 2003).

[25] Karl H. Dreborg has written extensively about the application of backcasting to environmental problem solving. Notably, his 1996 article titled *Essence of Backcasting,* aimed at policy makers, where he theorises around the notion of backcasting as a teleological approach.

[26] David Banister is a professor at Oxford University and frequently employs backcasting in transport policy research. Crucially, he is a key figure in critiquing, reviewing and discussing the appropriateness of using backcasting as a methodology in addressing complex social issues like mobility e.g. Banister et al. (2004, 2005).

[27] Karl-Henrik Robèrt founded *The Natural Step* framework in 1989. This model is used globally by over 70 cities in 9 countries including Sweden, United States, United Kingdom and Canada. Produced shortly after Brundtland's 1987 report, the model was one of the first to explicitly use backcasting as a way of supporting sustainability and environmental systems thinking.

impact that a setting can have on the backcasting process and explain why this research will focus on settings that strive for egalitarianism. These corporate examples include backcasting applications popularised in the 1960's by Shell who are what some authors such as Miola (2008) describe as a 'pioneer and industry leader of scenario building'.

The concept of backcasting has its origins in Aristotle's 300BC theory of the 'final cause'. Aristotle understood that futures can materialise into objectives which shape present actions. For Aristotle, the final cause is 'the end, that for the sake of which a thing is done', or in other words, its aim or purpose. In 1976, Amory Lovins used a backcasting methodology as a planning strategy to propose alternative modes of energy demand and supply. Lovins (1976) suggested that it would be better to conjure desirable futures in order to assess how a particular future state could come into fruition rather than simply focusing only on probable futures. His reasoning was that it would be possible to work backwards to determine what policy measures should be implemented after having identified a strategic set of objectives by exploring a preferred future state.

Lovins called his method *backwards-looking-analysis*, but it was not until 1982 that John Robinson coined the term *backcasting*. Robinson (1982) used the term *energy backcasting* to describe an approach to futures studies which involves the development of normative scenarios aimed at exploring the feasibility and implications of achieving the desired end-points. Robinson (1982) illustrates how this approach can be used as a methodology to analyse future energy options, by assessing how desirable futures can be attained (Banister et al., 2005). Robinson (2003) argues that the essential rationale for a backcasting approach is twofold. First, our ability to predict the future is strongly constrained. There is a fundamental uncertainty about future events which stem from (i) lack of knowledge about system conditions and underlying dynamics, (ii) prospects for innovation and surprise, and, most importantly, (iii) the intentional nature of human decision-making. The second rationale is that even if futures are predictable, in the cases of long-term societal problems like ecological degradation, the most likely future may well not be the most desirable.

As a futuring technique, backcasting is often contrasted to forecasting methods of predicting the future and trend analysis (Cuginotti, n. d.; Robinson, 1990). The juxtaposition in Table 2 is similar to the comparison made earlier in this chapter against the 'designing towards futures' and 'backcasting' approaches to environmentalism. As with that comparison, the key difference between the forecasting and backcasting approach is the relationship with uncertainty.

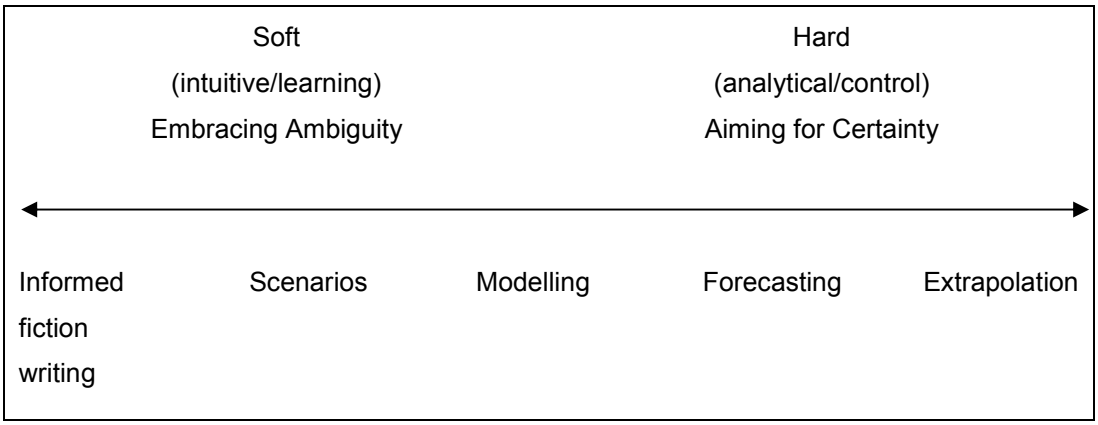
Table 2: Forecasting and Backcasting Comparison

Measure	Forecasting	Backcasting
Philosophy	Justification as the context. Causality determinism.	Discovery as the context. Causality and intentions.
Perspective	Dominant trends. Likely futures. Possible marginal adjustments. Focus on adapting to trends.	Societal problem in need of a solution. Desirable futures. Scope of human choice. Strategic decisions. Retain freedom of action.
Approach	Extrapolate trends into the future. Sensitivity analysis.	Define interesting futures. Analyse consequences and conditions for those futures to materialise.
Method and technique	Various econometric models. Mathematical algorithms.	Partial and conditional extrapolations. Normative models, system dynamic models, Delphi methods, expert judgment.

The above table is based on Geurs and Van Wee (2000, 2004); Dreborg, (1996) and adapted by Banister et al., (2005).

As indicated by the table above, forecasting is concerned with certainty and probability within the context of justification. Backcasting, on the other hand, is concerned with desirability, within the context of discovery. Backcasting is not the process of developing scenarios with an effort to justify the choice but rather an effort of collective discovery, what matters in this process is the discovery of ideas that can solve the question (Dreborg, 1996). Robinson (2003) asserts that rather than likelihood, there is an inescapable conditionality in any discussion of possible futures during a backcasting process. Therefore, in the place of the predictability of forecasting, the process of backcasting can be thought of as a future conditioning process.

Table 3: Practices used in the Study or Prediction of the Future.



From Chatterjee and Gordon (2006), adapted by Miola (2008).

The apparent dichotomy between backcasting and forecasting is not as clear as backcasting proponents[28] might suggest. The table above maps out different futuring techniques, to show which methods lean towards 'embracing ambiguity' and those at the other end of the scale, which 'aim for certainty'. However, these techniques overlap considerably, for instance, 'informed fiction' could easily be called 'scenarios' or 'modelling'. Similarly, backcasting, as depicted in Table 3, contains aspects which do not 'embrace ambiguity' but rather lean towards the hard, analytical aim for certainty. For instance, according to Table 2, backcasting incorporates aspects such as 'partial and conditional extrapolations', 'strategic decisions' and 'expert judgment'. Therefore, futures studies backcasting is also closely tied to the need for certainty, inclusion of experts and the extrapolative (i.e. 'designing towards futures') mechanisms that are typically associated with forecasting. In this sense, backcasting as it is applied in futures studies is closely tied to forecasting. In fact, there are already authors such as Höjer and Mattson (2000) who are exploring the possibility of explicitly combining backcasting and forecasting methods. Höjer and Mattson's (2000) study concludes that both methods are compatible with each other.

One attempt at addressing some of the rigidity and over-formalisation in the usage of futures studies backcasting is the introduction of 'social learning' into the process. Robinson (2003) cites a study of the management of global environmental risk carried out by Wynne et al., (2001) who suggest that social learning should be seen as a process of moral and cultural development as well as cognitive change which focuses attention on institutional cultures

[28] The backcasting 'proponents' that I am referring to are the authors who produced Table 2 which includes Geurs and Van Wee (2000, 2004); Dreborg, (1996) and Banister et al., (2005). It also refers to Robinson (2003) and the creators of Table 3, Chatterjee and Gordon (2006), adapted by Miola (2008).

and relationships. However, Robinson (2003) describes the notion of 'social learning' as an interactive social research and engagement of non-experts in backcasting processes.

Another attempt at expanding the usage of backcasting is to consider it as an instinctive human process rather than a method. For instance, Robinson (2003) describes backcasting as *"the intuitive process that we use to plan: we do not so much predict the most likely future as articulate an intention."* Dreborg (1996) proposes that backcasting is often seen as a means of dealing with future uncertainties but could also be used as a means of broadening the perception of possibilities. In this respect, Dreborg (1996) argues that backcasting is not a method in a strict sense, but an approach which is useful when:

- The problem to be studied is complex and there is a need for major change.
- The problem to a great extent is a matter of externalities.
- The scope is wide enough.
- The time horizon is long enough to leave considerable room for deliberate choice.

Future reflective backcasting builds on these understandings and interpretations of backcasting. However, in addition to these perspectives, the application of future reflective backcasting is also a method for using futures to critically reflect on present actions and identify how the can be reconfigured.

A further proposal of expanding the usage of backcasting is the notion of a 'second generation' method of backcasting. This approach is argued for by Robinson (2003) to address the commonly re-occurring situation where experts determine the outcomes in advance and introduce them into the backcasting dialogue. For Robinson (2003), the elements of a desired future need not be known in advance to a backcasting exercise. Instead, the participant should go through a process of learning and discovery and the desired future should be an emergent aspect of the process itself. He notes that while a participant may have specific goals in mind, the desirability of a given set of future conditions should not be fully determined beforehand. He asserts that this model of backcasting challenges the overly formalised, expert-determined approach because it is based on the emergence of ideas from the actual process of working in reverse chronological order. One manifestation of this type of 'second generation' backcasting is the 'soft energy path'. In this technique, it is the research team itself that articulates the criteria for choosing, and for evaluating alternative desired future states (Robinson, 2003).

The influence of expert-determined contexts are issues that will be revisited in the Shell illustration (see *3.4.1.2 Shell*). The following sections will discuss backcasting within the domain of environmental problem solving and its application in commercial contexts.

3.4.1 Backcasting in Environmentalism

The solution-finding nature of backcasting makes it an attractive technique for addressing environmental issues. *'Environmentalism'* in this respect refers to the broad spectrum of socio-political movements regarding concerns for environmental degradation, global warming and the protection of threatened species. Unsurprisingly, there are a growing number of environmentalist projects that use the backcasting methodology[29]. Notable examples include research groups such as:

- POLIS[30] who extensively use backcasting in their transdisciplinary research projects on *Ecological Governance and Water Sustainability.*
- The 'Transport Studies Unit' at the University of Oxford use backcasting to explore the possibilities of lower transport carbon emissions (Hickman et al. 2008).
- The Tellus Institute is an interdisciplinary, not-for-profit research and policy organisation focusing on ecological issues. Tellus often use scenario building and backcasting techniques in their research projects.

The succeeding sections will provide a few illustrations of how backcasting is used in environmental problem solving processes. I will place a particular focus on the way backcasting is influenced by its setting which is an issue that continuously re-emerges as a critical factor to the process. It emerges not only in backcasting literature such as Robinson (2003), ethical considerations (see *4.4.1 Ethics*) but also in the practical illustrations which follow (see *3.4.1.2 Shell)*.

3.4.1.1 THE NATURAL STEP AND BRIGHTWORKS

The Natural Step (TNS) is a non-profit organisation and international sustainable development charity founded in Sweden in 1989 by cancer research scientist Karl-Henrik Robèrt. It is currently active in nine countries and used by different types of organisations. The Natural Step is based on a backcasting approach to environmentalism, also referred to as 'The Natural Step Framework'. This framework is based on some basic rules of thermodynamics and a possible set of systems conditions for what they refer to as

[29] Backcasting, as part of a futures studies discourse, has a well-established position in Scandinavian research for the last 20-30 years. However, it is increasingly appearing in a number of pan-European projects, such as the Environmentally Sustainable Transport (EST) study by the OECD in 2000; the EU POSSUM (Policy Scenarios for Sustainable Mobility) study (Banister et al., 2000); the ViBAT-UK and ViBAT-London studies (Hickman et al., 2008); The Georgia Basin Futures Project (Robinson, 2003). This also includes work done by the Institute for Sustainable Futures, Pacific Institute, Global Scenario Group, Central Highlands Water (Australia) and Gold Coast Water (Australia). In 2006, the Capital Regional District Water Services which services the greater Victoria area in British Columbia (Canada), committed to a backcasting process that works from the year 2050 as a formal element of all future strategic water planning initiatives.

[30] The POLIS Project on Ecological Governance is a centre for research and action established in 2000 by the Eco-Research Chair of Environmental Law and Policy at the University of Victoria (British Columbia, Canada).

sustainability[31] (see Table 4). The Natural Step is closely related to future reflective backcasting in terms of its suggestion that backcasting can be used to contextualise systems conditions for environmental solution finding processes and it is therefore necessary to describe how the two approaches differ. However, there is very little information or literature that details exactly how The Natural Step framework is executed and how these fairly abstract principles can be applied. Consequently, I will review the work conducted by Brightworks as it demonstrates one interpretation of how The Natural Step principles are applied in practice.

Brightworks is an American-based consultancy. It provides a series of services that include eco-solutions consultancy work and LEED (Leadership in Energy and Environmental Design) certification. Brightworks also provide public and in-house training and backcasting workshops that are designed to help corporations become 'sustainable'. Brightworks (2008) cite the Natural Step framework as the basis for their approach to their 'sustainability program design' and 'process facilitation' services. Brightworks is a relevant and expedient case because their reputation is built on their usage of The Natural Step framework. They claim that The Natural Step is an underlay to their approach to environmentalism. I will review Brightworks' application as a way of describing how The Natural Step differs from the future reflective backcasting approach that I am proposing. The following extracts describe The Natural Step framework methodology and its interpretation by Brightworks.

[31] The term sustainability is used as a direct reference to the term used in The Natural Step framework, rather than as a term or approach that I endorse.

The Natural Step Framework (The Natural Step, n.d.)

"*This framework is a methodology that has three main components:*

1. The Funnel

The Natural Step method uses the funnel metaphor to help visualise the economic, social and environmental pressures. This is done in a way that highlights constraints and limitations such as diminishing natural resources in relation to population growth.

2. System Conditions

The Natural Step's principles of sustainability define the conditions that must be met in order to have a sustainable society. This begins with four scientific assertions:

- *Matter and energy cannot be destroyed (the 1st Law of Thermodynamics).*
- *Matter and energy tend to spread spontaneously (entropy, the 2nd Law of Thermodynamics).*
- *Biological and economic value (quality) of matter is in its concentration and structure.*
- *Net increases in material quality on earth are generated almost entirely by the sun-driven process of photosynthesis.*

Based on these four observations as well as a process of peer-revision and iterations, the Natural Step view of sustainability is reduced to what are referred to as the four systems conditions of sustainability. In the sustainable society, nature is not subject to systematically increasing:

- *concentrations of substances extracted from the earth's crust.*
- *concentrations of substances produced by society.*
- *degradation by physical means.*

and, in that society…

- *people are not subject to conditions that systematically undermine their capacity to meet their needs.*

3. Implementation

*How can the system conditions be applied to an organisation's everyday operations? TNS has developed and tested an ABCD (**A**wareness, **B**aseline Mapping, **C**reating a Vision, **D**own to Action) approach to help complex organisations to incorporate sustainability into their strategic planning and decision-making processes. It includes backcasting – framing goals with regards to a desired future outcome – and systematic step-by-step implementation, that provides benefits in the short-term, while retaining a longer-term*

perspective" (The Natural Step, n.d.)

Table 4: Brightworks

Brightworks Backcasting Framework (Brightworks, 2008)

"*1. Awareness – Sustainability 101*

The first step is to develop a basic vocabulary and understanding about sustainability – the scientific basis of sustainability, and how sustainability differs from 'green'. This is the platform from which the actual backcasting process can be developed.

2. Baseline

The next requirement is to understand in complete detail where you are today. To create a roadmap for organizational change or to establish a path to sustainability, one must first accurately and precisely describe the starting point - in all of its technical and resource flow dimensions - and identify areas for improved performance. we help our clients create a detailed Baseline Map, including inputs, internal processes, and outputs – product or service, and waste streams. In the case of a building design or master plan, the baseline consists of "how would you normally design it?"

3. Vision

Next, we help you establish what we call the "Full Sustainability Targets." We know where you are going. Over time, all organisations will either achieve Full Sustainability or vanish into obsolescence. Long-term targets must include climate neutrality, zero waste, and effective stewardship of all resources. But given limited resources and competing demands, prioritisation and careful identification of challenges and their solutions requires a systematic approach. Through a facilitated brainstorming process, we help our clients set visionary goals grounded in practical awareness of what can be done today, what can be a short term strategy, and what is better left as a long term target.

4. Plan

The next step is to create an action plan: What are the easy early wins, or the high-ROI [Rate of Return] investments? The strongest brand or market differentiation opportunities? What are the targets for year one, year five, and beyond? Who are the responsible parties

and what are the key metrics? Once a vision is established, we help your team identify strategies, obstacles, opportunities to overcome those challenges, and a systematic program to move from where you are today to your vision of a Full Sustainability. In short, we help our clients build capacity to develop comprehensive, integrated, and practical strategies to achieve visionary results" (Brightworks, 2008).

The Natural Step's use of thermodynamics and rules of systems conditions for what they refer to as a 'sustainable society' offer very precise but also reductionistic accounts of a possible configuration of such an existence. This almost formulaic exposition may be linked to Robèrt's scientific background. However, what is most striking about The Natural Step framework is its certainty about what sustainability looks like, and how to achieve it, especially in light of my previous discussion on sustainability (see *2.1.1 Sustainable Futures)*. In this respect, the Brightworks methodology illuminates how the fairly generic conditions from TNS could be applied. Brightworks' application presents some of the benefits of using The Natural Step framework. For instance, its attempt to provide a comprehensive view of the problem, encourage long term thinking and target problems by using a systemic approach. Similarly, 'climate neutrality' and 'zero waste' are creditable and ambitious long term objectives.

Brightworks base their framework on The Natural Step's ABCD (**A**wareness, **B**aseline Mapping, **C**reating a Vision, **D**own to Action) approach. Brightworks' interpretation suggests that the process should start by defining terms and work out constraints through 'technical and resource flow dimensions'. However, it is questionable whether the Brightworks approach is backcasting because it starts from the present rather than the future. For instance, Brightworks suggest that the first steps are to describe the starting point i.e. *"understand in complete detail where you are today"* (Brightworks, 2008). However, as with preferred futuring (3.3 *Preferred Futuring in Theory*), the need to start the process by detailing present circumstances makes it different from future reflective backcasting. As will be discussed further in section *3.7 Futures as Unlimited Scopes of Possibilities,* future reflective backcasting starts with a look beyond the problem by optimising preferred future states and talking around the solutions. This process could also encourage a systems oriented view which is necessary because of the complex nature of environmental problems.

3.4.1.2 SHELL

The application of backcasting by Shell shows the possible influence that the context and setting can have on the backcasting process itself. However, before describing Shell's application to backcasting in response to a possible energy crisis, I will first provide a brief introduction to the concept of scenario planning.

Scenario planning is a technique that has its roots in backcasting. It is a method that facilitates an explorative mode of thinking about the future. The first notable applications of scenario planning started in the 1960's by several multinational companies, however, RAND Corporation and Royal Dutch Shell plc[32] were among the very first users (Miola, 2008). Shell now has the leading role in using a backcasting methodology that involves stakeholders in idea generation in the scenario building process (Carlsson-Kanyama et al., 2008).

Rotmans et al., (2000) definition of a scenario is that it is the *"archetypal images of the future",* one that reflects different perspectives on past, present and future developments. Becker et al. (1982), on the other hand, suggest that scenarios could be considered as a description of a society's current view of a possible and desirable future societal situation as well as a series of events between current and future conditions. An alternative definition offered by Miola (2008) is that scenarios are a representation of visions/images of the future and courses of development organised in a systematic and consistent way. Banister et al. (2004), on the other hand, emphasises the differences between what could be considered as scenarios and images of the future/visions. They propose that while visions or images of the future are framed as static snapshots in time, scenarios are dynamic sequences of events (Banister et al., 2004).

However, the term 'scenario' could be used as a synonym for backcasting because, in most instances, scenarios are used as an end-point from which to work out how the preferred state could be achieved. An example of this is the definition formulated by Kahn and Wiener, 1967 (cited from the European Economic Agency, 2000). Kahn and Wiener (1967) define a scenario as *"hypothetical sequences of events constructed for the purpose of focussing attention on causal process and decision points."*

It is under the umbrella of this semi-backcasting usage of scenarios that Miola (2008) suggests that the starting point is to identify *predetermined* and *underdetermined* elements. Quoting Van der Heijden (1996), she further explains that the predetermined elements are the same in each scenario, they are the static constants that are unlikely to change. Conversely, the underdetermined elements are the unknowns that are elaborated into possible future developments, and thus result in future images. The notion of a 'predetermined' entity is a confusing proposition and neither Miola (2008) or Van der Heijden (1996) provide specific examples of what is meant here. Although one might question why anything within a future scenario should be predetermined? Beyond things like human mortality, it is difficult to understand the need for predetermined elements. I would argue that

[32] The Royal Dutch Shell plc is often known simply as 'Shell.'

the appeal of using a future-based scenario is precisely its openness, uncertainty and undetermined qualities which are the precise areas that open up so many possibilities.

Scenarios are also used for different purposes depending on the context of the process. For instance, Tom Ling (2002) creates a distinction between what he terms as the 'precautionary model' and 'visionary model' of scenario construction. He explains that scenarios which emerge from the precautionary approach, tend to envision potential negative future states that result from a certain chain of events. This approach is often taken in order to illustrate or make explicit the possible negative consequences of present actions and as a means of suggesting possibilities in counteracting these outcomes. However, the 'visionary model' presents the best possible future to determine strategies for ensuring its attainment.

The Shell backcasting format is neither explicitly 'visionary' nor 'precautionary'. In fact, Shell (2008), describe this exercise as a *"strategic planning approach."* Shell's application of this technique involves workshop exercises with elements of brainstorming and idea clustering (Carlsson-Kanyama et al., 2008). Shell insist that a participative approach which involves stakeholders is important to the process because it ensures that the scenarios are accepted as relevant and plausible by the people who will carry it out (Carlsson-Kanyama et al., 2008). In order to reach optimum results, Shell suggest that it is important to develop more than one scenario so the best ideas can be selected and used as platforms for developing and assessing strategies (Carlsson-Kanyama et al., 2008). Shell have embarked on scenario building processes, to produce two energy scenarios for 2050. The scenarios are called 'Scramble' and 'Blueprints' respectively:

Scramble (Shell, 2008)

"*Scramble reflects a focus on national energy security. Immediate pressures drive decision-makers, especially the need to secure energy supply in the near future for themselves and their allies. National governments' attention naturally falls on the supply-side levers readily to hand, including the negotiation of bilateral agreements and incentives for local resource development. Growth in coal and biofuels become particularly significant.*

Despite increasing rhetoric, action to address climate change and encourage energy efficiency is pushed into the future, leading to largely sequential attention to supply, demand and climate stresses. Demand-side policy is not pursued meaningfully until supply limitations are acute. Likewise, environmental policy is not seriously addressed until major climate events stimulate political responses.

Events drive late, but severe, responses to emerging pressures that result in energy price spikes and volatility. This leads to a temporary slowdown within an overall story of strong economic growth. Although the rate of growth of atmospheric CO_2 has been moderated by the end of the period, the concentration is on a path to a long-term level well above 550ppm. An increasing fraction of economic activity and innovation is ultimately directed towards preparing for the impact of climate change…." (Shell, 2008)

Blueprints (Shell, 2008)

"*Blueprints describes the dynamics behind new coalitions of interests. These do not necessarily reflect uniform objectives, but build on a combination of supply concerns, environmental interests, and associated entrepreneurial opportunities. It is a world where broader fears about life style and economic prospects forge new alliances that promote action in both developed and developing nations. This leads to the emergence of a critical mass of parallel responses to supply, demand, and climate stresses, and hence the relative promptness of some of those responses.*

This is not driven by global altruism. Initiatives first take root locally as individual cities or regions take the lead. These become progressively linked as national governments are forced to harmonise resulting patchworks of measures and take advantage of the opportunities afforded by these emerging political initiatives. Indeed, even the prospect of a patchwork of different policies drives businesses to lobby for regulatory clarity.

As a result, effective market-driven demand-side efficiency measures emerge more quickly, and market-driven CO_2 management practices spread. Carbon trading markets become more efficient, and CO_2 prices strengthen early. Energy efficiency improvements and the emergence of mass-market electric vehicles are accelerated. The rate of growth of atmospheric CO_2 is constrained leading to a more sustainable environmental pathway…" (Shell, 2008)

Table 5: Drivers for 'Scramble' and 'Blueprints' Shell Scenarios (Shell, 2008)

Drivers	Scramble	Blueprints
Choice Prices Efficiency technology Efficiency behaviour	Mandates Externalities not included Mandates necessity	Market driven but incentivised Externalities included Economic incentives & standards designed in

Oil & gas Coal Nuclear Electric renewables Biomass	Constrained growth Flight into coal Modest uptake Sequential - wind, solar Strong growth	Long plateau Coal not wanted unless clean Continued growth Incentivise early stage technologies Complements alternative fuel mix
Innovation Implementation Mobility Power IT	Strongly guarded National docking points Hybrids & downsizing Efficiency Supply optimisation	Extensively shared International tipping points Hybrids & electrification Carbon capture & storage Demand load management systems
Land use Pollution Climate / Biodiversity Water	Energy vs. food principle Important locally Background global concern Energy production & climate change impact	Sustainability principle Important Prominent local & global concern Factored into development frameworks

A few noteworthy characteristics emerge from the visions created by Shell. One of them being the overwhelming use of the language of markets such as *"efficiency measures"*, *"growth"* and *"economic activity"* (Shell, 2008). As shown in the table above Shell consider the drivers for a blueprint future to be economic incentivisation, market drivers and prominent local and global concern. In their own words, the ideal future state would "*build on a combination of supply concerns, environmental interests, and associated entrepreneurial opportunities*" (Shell, 2008). Ecological problems, on the other hand, will be solved by *"effective market-driven demand-side efficiency measures"* (Shell, 2008). Shell asserts that this would not be attained through altruism but through self-interest and economic opportunities. Aside from making the case for extensively sharing innovation rather than guarding it, I would argue that there is very little change in Shell's preferred future state. For instance, Shell foresees a continuation of the developed and developing nation dichotomy, where one might hope this concept no longer exists in 2050.

This is not to say that Shell's application of backcasting is not without merits. There can be immense benefits from looking at futures in terms of likely scenarios by trying to understand how markets would react to a severe oil shortage or how to find a way to prevent such a situation from occurring. A futuring approach that extrapolates from present trends, in the way Shell has done, may also provide a sense of credibility to the outcomes of the process.

However, the setting and context of Shell's backcasting could lead to solutions which reinforce rather than challenge existing systems. In the Shell example, the visioning process is contextualised by a setting in which there are strong commercial interests in energy ownership. In this sense, it is difficult to see how Shell could have come up with a preferred future that did not involve the continuation of corporate ownership and distribution of energy. In future reflective backcasting, preferred future scenarios are not intended to be a way of asserting present interests but as a way of questioning them before deciding which actions to take. In the section which follows, I will further describe how this reflexive use of futures can be achieved.

3.5 RECONTEXTUALISING SOLUTION CREATING PROCESSES

In this section I will build on the work produced by Donella Meadows (1999), in order to briefly describe how future reflective backcasting recontextualises solution finding processes. By this I am referring to the way future reflective backcasting provides participants a space to re-evaluate the belief systems and assumptions that contextualise an ecological problem. In her essay, *Places to Intervene in the System* Meadows (1999) reflects on her experience of working with, and modelling systems and produces a way of understanding which levers are the most effective at initiating systems change. She argues that leavers such as taxes, subsidies, standards and regulating negative feedback all produce among the lowest levels of effectiveness. Yet, today these are the main methods for affecting environmental change. Meadows, argues that the mind-set and paradigm levers are at the very top of the effectiveness scale. She proclaims, *"people who manage to intervene in systems at the level of paradigm hit a leverage point that totally transforms systems."* Although paradigms are the hardest to change they are also the most effective and there is nothing physical, expensive or even slow about paradigm change - it can happen in a millisecond (Meadows, 1999). However, she proposes that the most effective leverage point is to completely transcend paradigms altogether. In other words, one must always remember and be aware that everyone is subscribed to a particular belief system and lives in her or his subjective truths, but should try to be aware of this and continuously question their attachment to different paradigms (Meadows, 1999).

This type of reflexivity is possible in backcasting. At its very basic, backcasting allows problem solving to not be contextualised by the present systems that created them (Holmberg et al., 2000; Dreborg, 1996). This distance from the problem area creates the space for questioning certain belief systems and societal structures. The future reflective backcasting approach encourages its participants to challenge the values and assumptions around the topics under consideration. In the future reflective process, the preferred future fictions are employed as a means of encouraging this critically reflexive dimension. The value of working with a future fiction is the sharp juxtaposition it creates against existing

routines and ways of working. Future reflective backcasting therefore allows a degree of distance from the conditions that contextualised the original problem, thereby providing the space to critique and evaluate such conditions.

3.6 THE FUTURE REFLECTIVE BACKCASTING APPROACH

"Man as a planner must climb out of his involvement in present transactions to look beyond the horizon of the present and to bring back a vision of the future to modify the tempo, quality, and directions of his present transactions"

- Bennis et al. (1967, p. 427)

As has already been discussed in this chapter, some of the key concepts of backcasting can be traced back to Aristotle's influential theories and ideas expressed in teleology (see *3.4 Backcasting*). 'Telos' from Greek via Latin, meaning 'end' or 'purpose', teleology is the study of ends, purposes and goals. In teleological approaches, the outcome provides the meaning for all that has happened or that occurs (Hooker, 1999). According to Dreborg (1996) backcasting carries the principle of teleology (purposefulness) rather than simple causality because the initial vision sets-up an outcome driven chain of events. I have so far argued in this research that this mode of purpose driven backcasting is useful at conducting problem solving processes that are not contingent upon existing socio-economic conditions (e.g. see *3.2 Designing Towards Futures*). However, the future reflective approach to backcasting is not about imagining and executing desired outcomes but the use of outcomes as a means to re-examine the present.

Future reflective backcasting does not work from the premise that all processes are driven by the attainment of a pre-defined outcome. In future reflective backcasting, futures are not a destination but a context for reflection, although this idea may overlap with some teleological principles i.e. being contextualised by a future-condition. The primary objective is not necessarily to achieve the outcome but the way it allows one to explore opportunities for change in the present. Futures offer a useful space to critique existing values and re-evaluate actions in the present while also injecting creativity, optimism and excitement into the process. In this sense, I see future reflective backcasting as an 'opportunity offering exercise' and the use of a future state is merely a tool to facilitate this process.

The only attempt at introducing this type of future reflective aspect into the backcasting process is a relatively under-developed idea briefly mentioned in Tony Fry's book *Design Futuring* (2008). Fry suggests that scenario creation could be one aspect of a potential 'redirective' practice. He argues that scenarios require a *"critical imagination in which creativity cohabits with a sceptical view of sensational predictions and simplistic technology-driven solutions to complex problems. The narrative written has to be more than just a*

credible research tool as measured against the possible (rather than the plausible). It is not a presentational document, but a reference work" (Fry, 2008). Following the creation of this *"critically imagined"* scenario, Fry (2008) asserts that the design task is to *"design back from that moment."*

The key difference between Fry's (2008) proposal and future reflective backcasting is his emphasis on forecasting. His scenario building approach requires one to forecast likely events, for instance, he suggests that future-based design scenarios should be informed by environmental and climate risks. His reasoning for this is that scenarios need to show a general contextual awareness in relation to potential events. However, in my proposal of future reflective backcasting, I discourage any form of forecasting or trend awareness of the problem area as part of the process. As has been argued throughout this chapter (for example, *3.2 Designing Towards Futures*), it is necessary, at least in the first stage, to start the process with a limitless sense of what is possible.

Another contrasting point between future reflective backcasting and Tony Fry's (2008) scenario building proposal is his assertion that the future image needs to stay within the realm of *"credible fiction."* Fry (2008) argues that the scenarios should not *"stray into impossible fantasy but instead follow the only criteria which is that they have to work."* As has been elaborated in the opening paragraphs of this chapter, the emphasis of future reflective backcasting is not about developing credible future fictions to work towards. The envisioned scenarios should be radical and idealistic without any concern with practicalities or credibility as the focus should be on what is preferred. This is to broaden the scope of the discussions that take place after the initial ideation stage. The ultimate purpose of the envisioned scenarios are to be means of reflecting on present practices in order to refine, identify or discover what priorities and actions the participants need to take. In the following section, I will continue this discussion by addressing the issue of feasibility in the future reflective backcasting approach.

3.7 FUTURES AS UNLIMITED SCOPES OF POSSIBILITIES

Although futures are unconstrained concepts which present limitless possibilities, it is inevitable that human beings apply constraints when using and applying futures to their thinking. For instance, people are constrained by their existing knowledge, creative capacities, experiences and so on. However, I advocate the use of futures in their capacity as platforms of boundless scopes to be exploited for expanding a sense of what is possible, thinking beyond the problem under focus and, potentially, discovering unexpected solutions. Focusing beyond the problem might encourage a broader systems thinking which is necessary because of the complex nature of environmental problems. It might also be helpful to start the process by trying to think beyond systems which contextualise the issue.

Backcasting shows how using a future state as a starting point makes it possible to bypass shortcomings from problem solving procedures that focus on the problem in order to inspire solutions. For instance, focusing solely on the problem of peak oil has led to alternative energy sources from biofuels such as vegetable oil. However, because the focus is solely on the problem of peak oil, solutions such as biofuels do not account for other emergent problems. For example, biofuels do not address the inherent unsustainable nature of mobility systems or the over-reliance on oil to support every aspect of human industries. Biofuels have also proven to be counter-productive because it requires too much energy to produce and has a negative impact on global food supplies. Thus, problem solving mechanisms that focus solely on a *specific* problem can lead to a *specific* solution and such a narrow focus can fail to account for greater complexities or might even create new ones. In a future orientated approach, participants would ask, 'how do we see ourselves living without oil in the future?' Solutions that come out of this thought process would have to be comprehensive enough to account for system complexities rather than isolated symptoms.

The use of futures in future reflective backcasting is not aimed at plausibility or feasibility. The initial ideas are never intended to be realised, they only serve as a point of discussion. A basic requirement of the future reflective backcasting process is for the original visions to be continuously retuned. During this process, visions which go far beyond the point of comprehension or relevance would be dismissed or reframed until it served as a useful context for cogitation. I will return to this topic in section *6.3.2 Futures to Reinterpret the Present* where I will discuss some of the practical issues around how these principles are practically applied in the case studies used in this research.

3.8 NON – EXPERTS

Futures studies literature portrays experts playing a dominant role in backcasting. For instance, Banister et al. (2005) assert that backcasting *"requires expert input"*, Miola (2008) paraphrases Rotman's (2000) categorisation of different approaches to scenario building which offers a description of 'participatory scenarios' as one which requires the stakeholders to co-design scenarios with experts (Miola, 2008). Implicit in Miola's (2008) description is that even the notion of 'participation' within backcasting still needs to be executed under the guidance or approval of an expert. Similarly, one of Robinson's (2003) main critique of backcasting applications is that they tend to be expert-determined and over-formalised.

Experts can be a valuable source of experience and knowledge which can be useful when trying to tackle complex ecological problems. However, I propose the future reflective backcasting model as a framework for participants in their capacities as non-experts. Julian Rappaport's (1977) seminal community psychology text argues for turning resources and

control over decision-making to citizens, trusting that they, rather than professionals, know best how to improve their life circumstances. The position taken in this thesis is that there are no existing institutions, experts or approaches that can single-handedly solve environmental problems and this is why it needs to be democratised. In this research, I will also show how the model I am proposing is effective at helping non-expert participants who are mobilised to take part in environmentalism but unsure which actions to take. This participant type has been previously discussed in section *1.1.3 The Engaged-Uncertain Environmental Activist* and their subsequent feedback verifying the usefulness of future reflective backcasting is presented in Chapter 6: Data and Analysis.

3.9 SUMMARY

Visioning frameworks from Buckminster Fuller, Lawrence Lippitt and Marvin Weisboard, are presented as key examples of the preferred futuring approach. The preferred futuring techniques are not the same as backcasting because they require participants to start from the past or present before moving on to the future. All futuring processes that come under the preferred futuring approach need to have some grounding in the problem area or a grasp of the major trends. Backcasting is suggested as an alternative to preferred futuring approaches to environmentalism. It is different from preferred futuring because it does not necessitate the requirement to understand the problem or interpret the past. Backcasting does not require one to have an analysis of trends or the implications that present trends might unfold (Dreborg, 1996; Holmberg et al., 2000).

The widespread corporate and expert-led usage of backcasting in the field of futures studies has come under criticism by backcasting proponents such as John Robinson (2003). He proposes different ways of addressing this issue, for instance, introducing more community participation and 'social learning' elements into the backcasting process. Robinson (2003) also suggests another type of backcasting called 'second generation backcasting', in this approach, the visions are not allowed to be pre-determined by experts but must emerge from the process itself.

In this chapter I have also explained the reasons for the key components of a future reflective backcasting approach. I have discussed how the future reflective backcasting approach employs futures as a space to critique existing values and re-orient actions in the present. In future reflective backcasting, the primary objective is not necessarily to achieve the outcomes but the way preferred futures allows one to explore opportunities for change in the present. The future reflective model I am proposing is more suited to helping non-expert participants who are mobilised to take part in environmentalism but unsure which actions to take. Consequently, the future reflective backcasting model is aimed at people who participate in their capacity as non-experts.

Chapter 4: Methods

4.1 INTRODUCTION

This chapter details the research methods that will be used to obtain samples of future reflective backcasting from the selected case studies. The empirical process will focus on specific scenarios from each case. This research is made up of four case studies. The first three case studies suggest a series of techniques, methods and possibilities which exemplify practical applications that future reflective backcasting can build upon. These possibilities are synthesised into a final case study of workshops. Data from each case study will be captured through a combination of qualitative methods including semi-structured interviews, secondary material photo-narratives, and coded interview transcriptions.

In this milieu of qualitative methods, there are issues around reflexivity and researcher bias. However, the employment of a grounded theory approach necessitates that the data is analysed with no preconceived hypothesis. The limitation of researcher bias is further enhanced by generating a hypothesis through a transparent process which shows how the hypothesis emerges directly from the data.

The findings that materialise from this empirical process are validated by triangulating the data. The results are also internally validated through the use of grounded theory which requires that the findings are 'grounded' in the actual data. The outcomes of this research are not to be taken as findings which are generalisable to populations, communities or locations. Rather, the findings are to be taken as a set of substantiated aspects of the type of future reflective backcasting processes that have emerged from specific instances found in case studies. These substantive points are limited to the small number of case study scenarios that have been identified. Although the actual cases are few in number, when taken together, they provide a broad coverage of the possibilities for the practice of future reflective backcasting. The outcome of the case study analysis underpins the significant theoretical concepts that are used to suggest the characteristics of the future reflective backcasting workshop model presented in Chapter 7.

4.2 OVERVIEW

Table 6: Specific Area of Focus

Case Number	Specific Case Study Scenario	Analysis / Involvement
Case One	Cradle-to-Cradle (Herman Miller Mirra Chair Design Scenario)	Theoretical Analysis
Case Two	Transition Towns (Totnes EDAP Public Workshops)	Participatory
Case Three	Melbourne 2032 (Future Simulated Backcasting Methods)	Theoretical Analysis
Case Four	Workshops (Secondary School and 'Open' Workshops)	Participatory

Cradle-to-Cradle. The creation of preferred visions of the future is pivotal to the Cradle-to-Cradle approach. McDonough and Braungart (2002) declare a future where the concept of waste no longer exists. They engage commercial clients and inspire design teams by producing vivid scenarios of what a Cradle-to-Cradle future looks like. The specific area of interest in this case study is the Mirra chair design scenario, particularly how the design team accepted the no-waste challenge and how the vision translated into specific design objectives (i.e. ease of disassembly, use of recycled content, 'upcyclability'[33], use of 'safe' materials). The Mirra chair design scenario details how a goal-focused approach helped the design team transcend budgetary and practical dilemmas. It also led to different types of outcomes: the chair won several awards, it had the best sales record for any Herman Miller product and marked the beginning of a long partnership between MBDC (McDonough Braungart Design Chemistry) and the Herman Miller Company.

I review the Cradle-to-Cradle Mirra chair design scenario through theoretical analysis of official documents such as product material and technical specification, product literature, Herman Miller's annual reports and project design documents.

Transition Towns Totnes. The next case study scenario is based on the Transition Towns Totnes EDAP (Energy Descent Action Plan) group. The EDAP group enlists preferred,

[33] The ability of waste materials to be reused for something else of similar or better quality.

timescale-driven futures to suggest a post-oil way of existence. The group's primary task is to find a way of reducing (and eventually eliminating) the community's reliance on oil. In order to do this, EDAP employ a number of futuring strategies including the creation of new myths and the development of future based scenarios. However, the specific method that is of interest are the public workshops which allow local Totnes residents to consider what they would like Totnes to look like in the year 2030 and beyond. These public workshops allow for direct participation on my part, with the potential to interview people who are directly involved in these processes. The preferred futures which emerge from these public workshops, are also used by the EDAP team to create benchmarks and tools to measure progress in their efforts to achieve their visions which in itself raises questions about the appropriateness of such indicators. My consideration of appropriate measurements and the related concepts that emerge will be achieved through my direct participation in the EDAP backcasting workshops, formal and informal interviews with other participants as well as my access to official handbooks, primers and EDAP meeting minutes.

Melbourne 2032 is a relatively new practice and most of its processes are still at the ideational stage. It brings designers, academics and other professionals together in order to envision possible ecological future states for Melbourne in the year 2032 and beyond. The visions which emerge help to facilitate 'future simulated backcasting' processes. In a 'future simulated backcasting' approach, the preferred future state is embodied or expressed as if it were already in existence. An example of this is the technique of using 'future-simulated essays' where an essay is written from the perspective of someone who is living in a preferred ecological future state in the year 2032. This essay technique is similar to other methods that the Melbourne 2032 project employs. For instance, lectures where the presenter pretends to give a lecture from the preferred future state. By doing this the practitioner implicitly proposes possible means for transforming the current systems in order to make visions possible. The main interest and focus with this case are the future simulated backcasting methods. In this respect, the availability of relevant documents, essays and online material from the projects' comprehensive Internet portal will provide the basis of the theoretical analysis into their work.

Workshops. The final case study consists of a set of workshops that synthesise and build upon the processes and techniques presented in the first three cases. The nature of this case study will allow me to participate and experience the workshops for myself. Aside from collecting tangible materials produced at these workshops e.g. notes, drawings, photographs, action plans etc., it also provides the opportunity to interview participants who have directly taken part in a future reflective backcasting workshop.

4.2.1 Staged Moments of Knowledge Creation

The selected case study scenarios are representative of some of the theoretical positions argued for in this research. They are used to suggest patterns, provide details and substantive aspects of future reflective backcasting. The first three case studies present a series of methods and possibilities that are synthesised into a final case study made up of workshops. The workshops in case study four are set up to engender particular types of behaviours interactions, processes and outcomes in accordance with the principles discussed in this thesis and the ideas that emerge from the case study analysis. To this extent, the workshops present a dynamic experimentation with future reflective backcasting in real-life contexts.

4.2.2 Practice through Action Research

In this research, I will outline how preferred futures can be used to re-orient present actions and different modes of engagement in environmentalism. This will be done through an analysis of real-life case studies that depict different possibilities of this process and then by building on these illustrations to conduct a set of workshops. These cases are not to be taken as a unified whole or the totality of this approach but as different moments that reveal different things which will ultimately substantiate pertinent aspects of this practice, in the context of this research. This notion of practice can be considered as the application of theory in a way that suggests methods for realising new possibilities for backcasting.

Based on the techniques and methods from the initial three case studies, I create a set of workshops as a series of speculative experiments for self-selecting participants to engage in. In these workshops, participants are invited to work in certain scenarios, processes and situations as enactments of the future reflective backcasting practice. This practice orientated approach is about framing a set of situations, experiments, experiences and testing ideas through a series of encounters. It also presents an opportunity to imagine different possibilities of practice i.e. practice as a process of dynamic responses to continuously evolving situations. For instance, I found that I had to constantly configure and re-configure each successive secondary school workshop to accommodate a series of unexpected situations that were encountered.

A significant part of this research is conducted through action. This is at the core of the practical stance taken by this enquiry, in the sense that the objective is to present what can be done about environmental problems (theory-in-use) rather than theorising about what could be done (espoused-theory)[34]. In this respect, the discourse of action research is appropriate because of its emphasis on the idea of knowledge generation as a creative

[34] Argyris et al. (1974) use the term '*espoused theory*' to refer to what people say they do and *'theory-in-use'* to describe what people actually do.

process which emerges through the experience and application of theory. It recognises that knowledge is not only the outcome of a cognitive activity but can be arrived at, or generated through intentional and unintentional experiences. My involvement in the workshops in case studies 3 and 4 are predicated on this experiential paradigm of action research. These moments unfold within the context of co-productive, networked groups and communities. The hands-on exploration of the participatory workshops endeavour to create supplementary understandings that present new perspectives on the initial theories presented at the beginning of this thesis. For example, my experience of taking part in the EDAP public workshops helped me to identify under developed possibilities in their practice, in a way that would not be possible by looking at the data alone.

4.2.3 Emergent Theories Grounded in Data

Grounded theory (Glaser and Strauss, 1967) is a way to explore actualities in the 'real world' by analysing data with no preconceived hypothesis. This is achieved by seeking out the concepts behind the actualities by looking for codes and categories that emerge directly from the data (Allen, 2003). Glaser and Strauss claim that the theories that emerge from this process are truly 'grounded' in the data because it comes from the data and nowhere else (Allen, 2003). The result of this process is a set of concepts that help to identify substantive aspects of the practice under exploration.

The most problematic area of grounded theory is its requirement to not have any preconceived hypothesis or biases. My position as a participant-interpreter within the case studies will be clearly stated within the following sections (see *4.4.2 Reflexive Self*). In fact, it is questionable whether it is possible to be completely free from preconceptions when conducting any kind of research. For instance, a seemingly unfocused interview will require the researcher to have some basic questions and/or discussion points as well as a rudimentary rationale for selecting a particular interviewee. However, this is not what Glaser and Strauss meant, they are referring to a preconceived bias, dogma or mental baggage (Allen, 2003) which in this research may be taken to be preconceived ideas about how people would react to an opportunity to participate in co-creative processes of designing preferred ecological futures. This type of preconceived bias is minimised in this research because I conducted the open workshop in relatively neutral and generally unfocused contexts. In addition to this, I attended and participated in the public workshops in case study two (EDAP workshops) and case study four (the open workshop) with no preconceptions of how they would turn out.

Potential researcher biases are also taken into careful consideration when conducting interviews, as will be detailed in the following sections. The interview dialogue focuses on the participants' experience of the futuring exercises. The objective is not to confirm the

investigator's presumptions of the processes studied but to enable the interviewee to give an account of their experiences in their own words and highlight issues they consider to be significant to their experience of the process.

4.3 METHODS

Table 7: Research Methods Overview

	Case 4 (b): Open Workshop	Case 4 (a): Secondary School Workshops	Case 3: Melbourne 2032 Project	Case 2: Transition Towns Totnes	Case 1: Cradle-to-Cradle
Secondary Material			⊙	⊙	⊙
Workshop (Creation)	⊙	⊙			
Workshop (Participation)	⊙			⊙	
Semi-Structured Interviews	⊙			⊙	
Photographed Material	⊙	⊙		⊙	

4.3.1 Semi-Structured Interviews

In-depth and semi-structured interviews are conducted with 2-3 people from each participatory case study scenario. These interviews are intended to provide personal subjective participant perspectives on the backcasting processes as well as substantiate some of the theoretical positions that emerge. Adopting grounded theory as a framework for analysing data means that the initial interview questions are general, non-specific and open-ended e.g. how did you find the workshop? What do you think about the timescales that we

used? This type of open and general questioning also allows the interview to proceed in an informal conversational manner. Subsequent questions will seek to expand and probe specific aspects of initial answers, particularly answers that suggest thoughts and ideas relating to the futuring activities. However, interviewee's are also given the opportunity to steer the conversation and highlight which areas they consider to be significant.

As a data gathering technique, one of the main weaknesses of the interview method is that the small numbers of respondents cannot be taken as representative, even if great care is taken to select direct subjects of the study (Hakim, 2000). This limited representation makes it difficult to validate. However, semi structured interviews only make up part of this research enquiry and the feedback from interviews will support and substantiate data that emerges from other research methods. The interviews used in this research are not to be taken as representative views but as subjective perspectives from specific people who have taken part in different forms of backcasting. Furthermore, people's own explanation of the situation in their own articulations is a useful way to generate rich data that can be triangulated while also adding validity to the findings (also see *4.4.3 Triangulation*).

Interviewing is not an easy option. Denscombe (2003) asserts that it is fraught with hidden dangers and can fail miserably if there is improper planning, preparation and a sensitivity to the complex nature of the interview process. One way that I plan to mitigate some of these potential hazards is to employ some simple review mechanisms such as 'collegial feedback'. This involves informally sharing interview procedures and results with colleagues and using their feedback to redesign and improve on subsequent interviews. Reviewing each interview process in this way will also help me to identify weaknesses in my own style. In accordance with the grounded theory approach that has been employed, interviews are transcribed in straight verbatim. This includes every single utterance such as um, uh, et cetera, it will also include repetition, pauses as well as an indication of intonation.

The information from the interviews will be regarded as being the 'truth' in the sense that participants are regarded as being honest. However, there may also be inaccuracies in their responses. Gillham (2000) posits that there can be a discrepancy between what people say about themselves and what they actually do, similarly, what people *know* may have little relation to what they *do*. According to Jackson et al., (2003), people develop personal stories in forms that they would be happy to tell others and this idea is similar to what Argyris et al. (1974) term as '*espoused theory*' (what people say they do) and *'theory-in-use'* (what people actually do). There is also the potential problem of the Hawthorne Effect which is used by Roethlisberger and Dickson (1964) to describe how research in particular social settings can change the behaviour and attitudes of participants. However, despite being weak on internal validity, interviews can be high on external validity, because if the individuals are interviewed

in sufficient detail, the results can be taken as true, correct, complete and believable reports of their views and experiences (Hakim, 2000).

4.3.2 Secondary Material

The Cradle-to-Cradle and Melbourne 2032 case studies will be primarily explored through theoretical analysis, for practical reasons, most of this data will be obtained through secondary sources. The practical reasons for this is that Cradle-to-Cradle is an international project and I do not have direct access to their work and the same applies to the Melbourne 2032 project which is based in Australia. Fortunately, there are several academic articles, books, conference papers and Internet resources from both cases, and this makes up the core of the data that I use to aid my analysis into these cases. The availability of secondary data in the Transition Towns Totnes case study also enables me to contextualise and corroborate certain details.

4.3.3 Photograph as Narrative

Although the primary focus is on the backcasting process, it is inevitable that individual stories will emerge. These personal stories materialise from a variety of sources including informal conversations, interviews as well as primary and secondary data. These types of anecdotal accounts provide insights into issues around empowerment, engagement, motivation, networking and opportunism. As a result, when visiting locations, attending discussions or observing processes, especially in the case of Transition Towns Totnes, permission will be obtained to take photographs. Where permitted, these pictures will be used to inform the description of a case or substantiate certain aspects of the backcasting processes and the photos will be placed online at www.coroflot.com/practice-experiments

4.4 ETHICS AND VALIDITY

4.4.1 Ethics

Ethical concerns arise from several aspects of this research but one area of significant consideration is the process that involves human subjects, specifically the workshops. The participatory workshops in case four are intended to have a certain degree of ecological validity. They are presented as 'real' workshops that will explore opportunities for social activism in the present by using preferred future states rather than an exercise linked to a PhD research. As a participant in these workshops, I declared my research interests to other participants and explained how the outcomes would be incorporated into this thesis, however, my involvement in the workshop itself was primarily as a participant not researcher. In other words, as the researcher my role was to design and set up a workshop that engendered particular types of methods, processes and interactions; as a participant my role was to experience it.

There is a general understanding that people should not suffer as a consequence of their involvement in research and this extends to physical harm, confidentiality of information and psychological harm (Denscombe, 2003). As is now standard with most research studies, the identities of all participants that have taken part will be concealed during the data analysis and workshops are not designed to harm people in any obvious physical or psychological way.

However, a considerable area of ethical concern for this type of research is the issue of 'design ethics'. Specifically in relation to the practice of creating, spreading and influencing possible futures. This is considered to be an ethical issue because futures are context dependent. I will elaborate this idea with the following quote from Jacque Fresco (2006), "*when you try to think about the future, remember this, the process with which you think about things is based upon indoctrination - what you are given by your society. So your range of thought is limited by the dominant values of your society*." Some of the ideas presented in this statement were reinforced by my experiences in the participatory case studies. It is not just dominant cultural values, prejudices, personalities and creative capacities that become more apparent, futures also reflect the settings in which they are conceived. For instance, capitalist enthusiasts McDonough and Braungart (2002), describe a Cradle-to-Cradle future state that is predicated on a 'green', safe, no-waste, ethical form of capitalism. Community based Transition Towns Totnes present future fictions based on local independence, resilient communities, small-scale and neighbourhood owned green initiatives. The academic and professional contexts of the Melbourne 2032 led to glimpses of a possible future Melbourne that has tougher regulation, a stronger role for professionals, designers and experts.

Consequently, the main ethical concern is the inability to control the contexts in which this approach could be used, specifically contexts that might produce obvious dangerous outcomes e.g. fascist groups. It is undoubtedly impossible to account for all the nuanced forms that future reflective backcasting may take or contexts it might be applied to. The inability to control the usage of future reflective backcasting is one concern, however, another concern is the unpredictable nature of using futures to influence the present. It is towards this end that one might ask whether it is possible to have an ethics of the future? This is not necessarily in the 'intergenerational equality sense that is often conjured up when discussing a possible ethics of the future such as Binde (2000) and Jonas (2006) but a consideration of how one devises an ethical course of inventing futures itself. In this respect, futures by their very nature exist in a tense position of generating unpredictable consequences.

Future reflective backcasting creates contexts where participants interrogate the consequences of their visions and reflect on the implications their visions will have on present and future practices. Although unforeseen consequences are unavoidable, the need for participants to envision the best ethical and equitable outcomes is structurally necessary to the future reflective backcasting process.

4.4.2 The Reflexive Self

The information gathered from each research process will be represented in an interpretative manner rather than a literal or reflexive one. There is an acceptance that there will be a negotiation between my aspirations to provide full and detailed descriptions of events as they actually exist but an awareness of the reflexive nature of qualitative research and my unavoidable influences on the whole research process (Denscombe, 2003). In this respect, I consider that my contributions to these processes are implicit. The research produces a series of socially constructed situations and I am part of this construction.

4.4.3 Triangulation

The processes under investigation need to be both examined and explored through a variety of complimentary methods. The variables are such that they cannot be easily identified (Creswell, 1998) but need to be sought out with a variety of research methods. Coined by Denzin (1970), *'triangulation'* refers to the use of several different research methods to examine the same problem (Hall et al., 1996). Using a variety of data collection techniques enables the problems associated with one strategy to be compensated for by the strengths of another (Hall et al., 1996). Furthermore, seemingly incompatible methods such as interviews and document analysis, each offer a distinct set of strengths and limitations that are markedly different yet potentially complementary when combined together (Morgan, 1993). This method of triangulation is considered to be a useful mechanism to help gain a comprehensive understanding of the complex layers involved in the case studies. Triangulation also serves as a useful means of validating the results by reducing discrepancies because the data that emerges from different methods are also used to corroborate each other.

4.4.4 Validity and Generalisability

Validity is the reliability of the data collection procedures (internal validity) and the extent in which people external to the project can relate to the results (external validity i.e. *generalisibility*). This chapter so far has illustrated a number of methods that will be employed in an attempt to review and maintain internal validity e.g. 'collegial feedback' and data triangulation. Internal validity will be further enhanced by evidenced multi-document narratives and detailed coding processes which will enable the reader to see how conclusions are reached. The transparent coding processes will also allow the reader to

assess whether claims are both credible and fairly represented. Moreover, employing qualitative methods such as semi-structured interviews are useful for external validation. According to David and Irene Hall (1996), the use of interviews with a handful of informants may be criticised for being low on internal validity but high on external validity because they relate to people in everyday settings.

One point at which the case study approach is most vulnerable to criticism is in relation to the credibility of generalisations made from its findings (Denscombe, 2003). All of the case studies used in this research are to be taken as specific instances rather than a means of generalisation. As Yin (2003) suggests, it would be difficult to generalise from single incidents or scenarios. Any form of generalisation deduced from the case studies is limited to theoretical positions rather than populations, communities or locations. The case studies used in this research do not attempt to gain absolute generalisability but used to identify significant theoretical concepts that are compositional parts of a future reflective backcasting workshop process.

4.5 SUMMARY

This thesis has so far outlined the necessity and potential for a future reflective backcasting process. This chapter suggests a set of research methods that will be used to obtain samples of future reflective backcasting from the selected case studies. The empirical process will focus on specific scenarios from each case. The methods for obtaining data will include a combination of qualitative methods such as experimental workshops, semi-structured interviews, secondary material and photo-narratives. Using a combination of methods will not only create a richer and fuller picture, but it will also allow the results to be substantiated, enabling the emergence of substantive theories (Glaser and Strauss, 1967) The multi-document narratives also allow for the possibility of empirical triangulations thereby enhancing internal validity by reducing discrepancies.

The first case study is the Herman Miller design scenario that depicts how Herman Miller used a backcasting approach to design and develop their first Cradle-to-Cradle product: the Mirra chair. The second practice is from the EDAP (Energy Descent Action Plan) group who are part of the Transition Towns initiative in Totnes, Devon. This group employs public workshop to produce a series of future scenarios, timescale driven objectives and benchmarking procedures to implement their vision of a post-oil existence. The third case, the Melbourne 2032 project, presents glimpses of preferred ecological future states. These glimpses are used to facilitate future simulated backcasting techniques. This technique involves conjuring a future state or embodying a future-self and presenting ideas from that perspective. The intention is to build on the explicitly future orientated approaches to environmentalism presented in these case studies. This will be achieved by conducting

creative workshops that build upon the methods and techniques depicted in the first three case study illustrations.

Chapter 5: Case Studies

5.1 INTRODUCTION

In proposing a future reflective application of backcasting there are a few examples that will be drawn upon. I have selected contemporary case studies to provide vivid illustrations of the possibilities of a future reflective backcasting approach. This chapter explores each case study in detail. It explores the different levels of complexities, intricacies as well as the contradictions contained in the cases. I will critically examine how Cradle-to-Cradle, the Melbourne 2032 project and Transition Towns Totnes have adopted backcasting processes as a way of engendering solutions to environmental problems. The final case study is made up of workshops which depict an amalgamation of the ideas presented in the previous cases in a way that expands and improves on the possibilities they present.

The case study approach is the most appropriate way to explore these possibilities because it allows the concepts to be examined in a real-life context and enables the results to be triangulated. These case studies are prototypes, rough cut versions of potential applications of future reflective backcasting. However, the cases are not to be taken as a unified whole or perfect exemplars and each case study presents an exposition of different possibilities.

The rationale for this chapter is to use the case studies to show how they shape and inform the future reflective backcasting practice. In specific terms, I will be looking at how different organisational structure respond to environmental threats, the techniques deployed in their backcasting strategies and the way outcomes are measured. This analysis will be used to inform the recommendations produced at the end of this thesis. The recommendations presented in the final chapter of this research will help to suggest the appropriate settings, contexts, strategies, areas of sensitivity and techniques of moderation required for a future reflective backcasting process.

5.2 THE CASE STUDY APPROACH

I consider the case study approach to be the most appropriate way of exploring the issues raised in this research. This is primarily because it has the distinct advantage of permitting the research topics to be examined in real-life contexts. By offering practical demonstrations of the theoretical concepts, the case study approach helps to bridge the gap between theory and practice. It also allows for a dynamic exploration and experimentation with the main research topics which are important to this study because the variables are such that they are not readily available and need to be sought out. The benefits of the case study approach to this research outweigh the criticism that it lacks rigour, systematic procedures and impartiality (Yin, 2003). As a platform for data collection, it provides the opportunity to look at

parts of the problem that can not be addressed by other research approaches while also enabling topics to be studied in their 'natural settings' (Denscombe, 2003).

The *Cradle-to-Cradle* case has been selected because it proposes that design can solve all ecological problems. Cradle-to-Cradle appeals to stakeholders within government and commercial sectors because its proponents, William McDonough and Michael Braungart, advocate commerce as the catalyst for change. Crucially, Cradle-to-Cradle goes beyond the rhetoric of change and has produced tangible manifestations. My focus is on its implementation in the design and development of the Mirra chair by Herman Miller. Looking at Cradle-to-Cradle in this context provides insights into how the vision is practically applied. The specific area of interest in the Mirra chair design scenario is the way success is benchmarked. The evaluation of the Mirra chair raises issues about the type of assumptions made when trying to determine the successful outcome of a goal-driven approach such as backcasting. I will use the Mirra chair design scenario to review and critique practical methods for assessing whether the result is the intended one as well as how progress can be benchmarked along the way.

The *Transition Towns* movement provides a more lifestyle-oriented approach in envisioning preferred ecological futures. Design is only one tool in a multi-pronged approach that caters for the economic, political, and socio-cultural dimensions of dealing with ecological issues. Using Transition Towns as a case study provides me with the opportunity to interview people who are actively involved in co-creating preferred ecological futures as well as the chance to personally witness outcomes. This case also provides the research opportunity to review outcomes against the benchmarking tools[35] produced alongside the original visions. Another area of focus in this case study are the public workshops created by a group in Transition Towns Totnes called the EDAP (Energy Decent Action Plan). The EDAP produce egalitarian public workshops in which preferred future states are already being used as a point for re-evaluating present practices. This presents a significant area of potential because the use of futures to critically re-examine present circumstances is central to future reflective backcasting. However, after attending the EDAP workshops, I found their approach to be sometimes overly critical which allowed participants to feel pessimistic about their ability to take actions (see 5.4.3.1 *My Experience*).

Melbourne 2032 presents a combination of life-style approaches, policy intervention and academic involvement. It covers a set of disparate practices which originate from an academic research and visioning project in Australia at the Victorian Eco-Innovation Lab (VEIL). This case suggests a series of potential future simulated backcasting methods. In a

[35] Benchmarking tools such as the 'oil vulnerability audit' see *6.3.6.1 Success Indicators*.

future simulated backcasting approach, the preferred state is embodied or expressed as if it were already in existence. The Melbourne 2032 project use these techniques to propose actions that can be taken, for instance, they simulate preferred futures to suggest new ways of using renewable energy, new policy targets for reducing carbon emissions and how to increase current levels of recycling. However, I will focus on the merits and potential of the future simulated backcasting methods to communicate backcasting processes and the results of the project rather than the solutions they suggest.

The following sections will critically assess these cases while identifying which processes present significant points of potential for future reflective backcasting. These issues will then inform the creation of workshops in a final case study of workshops in which I will test and expand upon the possibilities identified in the first three cases.

5.3 CASE ONE

CRADLE-TO-CRADLE – DISSECTING THE VISION

Conservative estimates suggest that each year the UK produces around 434 million tons of waste[36] in the UK, yet there is still no effective waste management mechanism. Landfill sites were originally designed to deal with hazardous materials but have become the final destination for the vast majority of household and commercial waste. Only a small proportion of this waste is recycled or composted, while the rest is either buried or incinerated. Waste is a critical environmental problem especially as more and more of it is being produced. Unsurprisingly, there are several design movements concerned with addressing the role of design in waste production. For instance, 're[design]' is a community of designers who highlight ideas and products that will avert the landfill. Another example is *Sustainable Everyday* (Manzini et al., 2003) which provides visions of how people can live within a service economy, resulting in significant reductions in waste. There are also many design proposals that seek to eradicate wastefulness by enhancing emotional attachment to products, for instance *Emotionally Durable Design* (Chapman, 2005) and design for the A*ffective Sustainability of Objects* (Borjesson, 2006).

Cradle-to-Cradle advocates total waste elimination through biomimicry and closed-loop distribution processes within economic systems. It is based on the premise that environmental problems stem from 'bad design' and should therefore be solved by designers. Cradle-to-Cradle is an important case study in this research because it is a design practice that is employing a form of backcasting to address environmental concerns. Crucially, Cradle-to-Cradle evokes preferred future states as a means of interrogating the efficacy of present practices. Cradle-to-Cradle future states are used by McDonough and Braungart (2002) to critique Cradle-to-Grave paradigms of producing hazardous materials and its waste of natural resources.

The following sections will examine the Cradle-to-Cradle vision with regards to its application in the area of waste elimination. I will also critically examine some of the more contradictory elements of Cradle-to-Cradle and highlight problems involved in its application. For instance, it presents itself as a reformist strategy but would require a significant amount of upheaval from present systems and structures. However, the primary focus will remain on the design processes that typify a potential future reflective backcasting practice and exemplify the theoretical positions argued for in this research. Accordingly, the final section will present a description of the Mirra chair design scenario conducted through a partnership with Cradle-to-Cradle and the Herman Miller Company. This will look at the more practical issues

[36] Estimates per year for years between 1999 and 2002. From the Department for Environment, Food & Rural Affairs (DEFRA), Environment Agency and Water UK (Environment Agency, 2006).

involved with implementing the Cradle-to-Cradle vision and suggest areas of specific focus that will be re-evaluated during the data collation stage.

5.3.1 Designing with love for the future[37]

"*Imagine a world without pollution and waste: products are made from materials that are beneficial for humans and their surroundings. Imagine a world where humans can be glad that their actions benefit those around them and the constraints to reduce, minimise, and decrease according to the current "Cradle-to-Grave" paradigm are a distant memory.*"

- The EPEA (Environmental Protection and Encouragement Agency[38]
Vision Statement

As the above statement suggests, Cradle-to-Cradle proposes a state in which all human activity creates nutrients for ecology. William McDonough (2003a) describes a state of existence in which food, water and energy are supplied from a variety of "*solar-powered, biologically-based, photosynthetic systems*." In this vision, solar energy would be generated from rooftop gardens and countryside windmills (McDonough, 2003a). Synthetic and natural fibres, polymers and energy would move in regenerative cycles between the city and countryside (McDonough, 2003a). The Cradle-to-Cradle vision is based on closed ecological and economic loops as indicated in the following statement, *"…the Cradle-to-Cradle vision: we have to transfer business and industry into circular processes. As long as Waste equals Food just like in nature, and as long as the economy equals the circular idea of the eco-system."* (Vandist, 2007).

William McDonough and Michael Braungart's interest in optimising a preferred future state is reiterated throughout their literature. For instance, McDonough (2009) asserts that the Cradle-to-Cradle design practice is aimed at facilitating an 'environmentally and economically intelligent future'. Similarly, the necessity to redesign 'unhealthful' production and economic systems stem from his pledge to protect the health of future generations. Specifically, the pledge posed in his question *"how do we love all the children of all species for all time?"* McDonough (2005). His answer to this is the necessity to systematically remove hazardous and harmful materials, from all products and production processes (McDonough, 2005).

[37] 'The phrase 'designing with the future in mind', translated in Japanese (McDonough, 2003a).

[38] The Environmental Protection and Encouragement Agency (EPEA) was set up by Michael Braungart and the agency is based on the Cradle-to-Cradle principles.

5.3.2 Cradle-to-Cradle Material Flow

Imagine a product like a nutrient, a house like a tree, a city like a forest.

– William McDonough & Michael Braungart (2002)

William McDonough and Michael Braungart (2002) proclaim that a design revolution is necessary to make their visions a reality. Designers would need to start producing objects that are 'alive' and as natural as a tree. If this process were scaled up, cities would become like natural ecologies; they would grow, breathe and receive energy from sunlight (McDonough and Braungart, 2002). McDonough and Braungart's projects[39] provide several examples of how this could work with their signature trademark of placing grass, plant and crops on rooftops (e.g. Figures 9 and 10 below). Their claim is that green roofs provide ecological benefits: they serve as a way to generate solar energy for the whole building and protect part of the original inhabitants such as insects and birds (McDonough, 2003a). McDonough (2005) also claims that this brings people closer to nature by making them more aware of how they fit into the local ecology.

Figure 9: Ford Rouge Centre

[39] For instance, work produced through McDonough and Braungart's joint consultancy called MBDC (McDonough Braungart Design Chemistry).

Figure 10: Ford Rouge Centre Roof

Cradle-to-Cradle proposes closed ecological loops as one path towards achieving a state of 'zero-waste'. This forms the foundation of the Cradle-to-Cradle design framework, a concept of cyclical material flow that is based on two key principles:

(i) Biological Nutrient is the first theory that 'Waste=Food'. This states that all products and materials categorised as being biological nutrients need to flow effectively within ecological systems. In other words, products must be either biodegradable or easily assimilated back into nature. The consequence of this is that biological nutrients need to be considered as food for other living systems, and like natural systems, products would also generate energy from the sun.

(ii) Technical Nutrient is based on the premise that there are non-biodegradable materials that cannot be assimilated back into nature. Therefore, these materials would be re-used as they become a 'product of service' meaning that they would be infinitely recyclable. For instance, people buy a television for entertainment, not for ownership and the burden of its disposal. Under this principle, products like this would be licensed rather then sold. Aside from avoiding the landfill, the technical nutrient principle also requires products to be

'healthful' for human beings and the environment i.e. not contain any harmful chemicals. This is presented as a win-win solution: business will get to retain materials and resources, consumers are no longer burdened with disposal or harmed by its toxins, materials are averted from the landfill and products become infinitely resalable (McDonough and Braungart, 2002).

One issue that this framework highlights is the far-reaching implications that Cradle-to-Cradle would have on the existing manufacturing and supply chains. For instance, how would it be possible to phase out unsafe materials that currently exist, without a change in legislation or significant consumer demand? There is also the potential impossibility of creating existing products without using hazardous materials. The scale of upheaval is not to be underestimated. In this system, the vast majority of products, materials and chemicals that currently exist would not meet the standards set by Cradle-to-Cradle. The Cradle-to-Cradle emphasis on material safety is an attractive prospect but creates an immediate limitation of material choice. Additionally, it could have some unexpected outcomes, for instance, it could create a black market for certain unsafe products.

On the other hand, I would argue that it is useful to start the process by making bold ambitions in order to expand the scope of possibilities. A more modest goal could limit expectations thereby limiting the level of change that is possible. Additionally, ambitious outcomes could be phased in or even tested on a small scale to show its viability. This has already been demonstrated through the library of Cradle-to-Cradle certified materials, called the *Material Connexion*. The library contains over 5000 materials that can be accessed online (Figure 11) or in person at one of the sites in New York, Bangkok, Cologne and Milan (Figure 12). The necessity to find alternative safe materials has also proven to be profitable and a great source of creativity during design processes. A good example of this is the development of the Mirra chair, where finding alternative materials led to the creation of patentable technologies (Rossi et al., 2006).

Figure 11: Material ConneXion Online

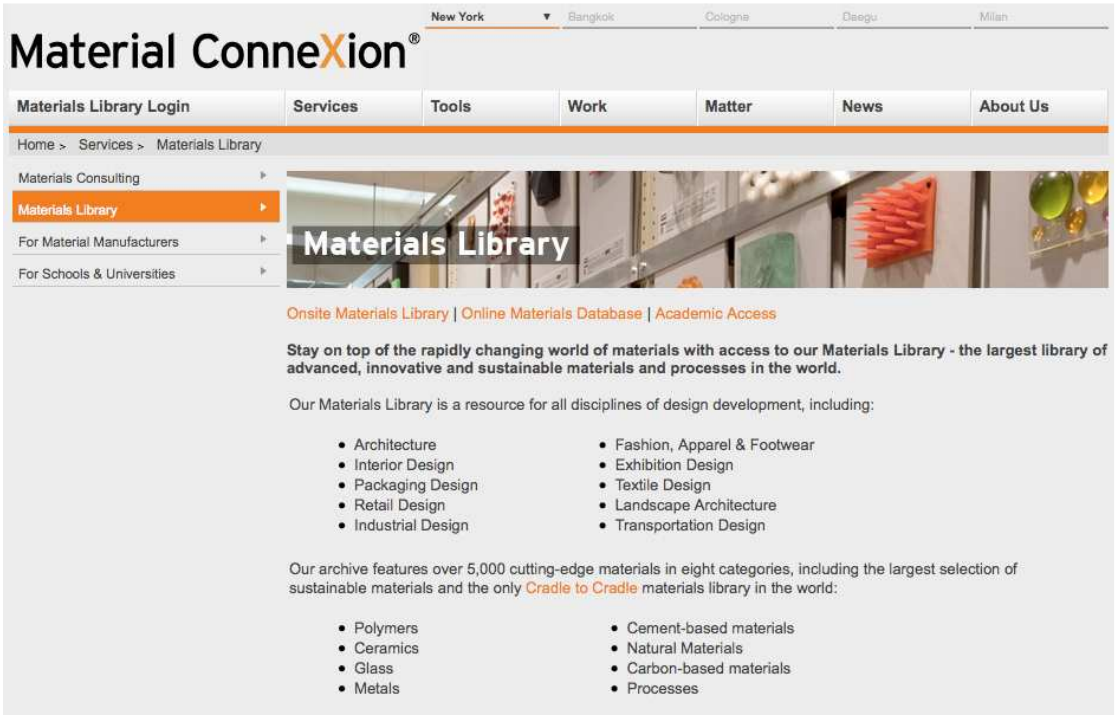


Figure 12: Material ConneXion Library, New York

5.3.3 From Rhetoric to Reality: The Herman Miller Company

The Herman Miller Company is a good example of how the Cradle-to-Cradle vision translates into a real-life context. The company is an international furniture designer and manufacturer that has a long history of ethical and environmental awareness as well as an ambitious corporate responsibility programme. Herman Miller is relevant to this research because they have worked with William McDonough since the early 1990's and it is a company that has fully embraced the Cradle-to-Cradle philosophy.

The company executed policies of environmental concern long before the current levels of corporate interest. For example, as far back as 1989, Herman Miller launched an Environmental Quality Action Team (EQAT) to create environmental targets and preside over a number of other concerns as shown in Figure 13. Herman Miller is also a member of several green organisations such as the Five Winds International, Institute for Market Transformation to Sustainability and International Design Centre for Environment (IDCE). Aside from this, the 2007 *World Better Report*[40] boasts a 50% reduction of solid waste to landfill and declares that Herman Miller receives 27% of its energy from renewable sources.

Figure 13: Herman Miller EQAT Model

Herman Miller has gone through the Cradle-to-Cradle certification process. The company also commissioned McDonough's team to design a 295,000 square foot factory near its headquarters in Michigan (McDonough and Braungart, 2001). This site was designed to create a workplace with a restorative impact on the local ecology while still meeting the needs of all Herman Miller employees. The Cradle-to-Cradle and Herman Miller partnership

[40] World Better Report, Herman Miller Company (2007).

produced a building that purifies and restores its own wastewater. By replanting native trees and flowers on the roof, the building provides a habitat for local species of birds, plants and insects (McDonough and Braungart, 2001). This project is used by McDonough and Braungart (2001) to make a commercial case for this type of architectural project and they claim that one outcome of focusing on the well-being of workers and better working environments is an increase in productivity (McDonough and Braungart, 2001). According to McDonough and Braungart (2001), Herman Miller produced an extra $50 million worth of furniture and gained a 24% increase in employees within a year of moving into the new building. These economic and ecological arguments show one dominant view of how a 'successful' outcome might be measured. This type of model which links increased profit to a beneficial impact on nature is a persuasive win-win presentation of outcomes. However, this measurement does not show a number of other important factors that are necessary to counter-balance some of the figures that have been provided. For instance, it would be helpful to see the amount of natural resources that were initially disturbed, displaced, wasted or irreparably destroyed in order to develop the construction project in the first place. The beneficial outcomes to nature presented in the figures produced by McDonough and Braungart (2001) would then need to be subtracted from the initial amount of destruction in order to get a more realistic picture of what positive impact they actually had. This example also shows the potentially misleading impact that an overwhelmingly one-sided form of measurement can create.

I will continue this discussion in the following section, where benchmarking will be considered in the context of a detailed practical example of measuring the success of a Cradle-to-Cradle product called the Mirra chair.

5.3.4 The Mirra chair Design Scenario

Herman Miller's very first Cradle-to-Cradle product, the Mirra chair, exemplifies how the original 'zero-waste' future state and ideologies can be incorporated into a product design context. The design and development of the Mirra chair provides an insight into some of the challenges faced, the compromises made and the practical issues encountered when delivering a Cradle-to-Cradle product. I will focus on how the original vision is broken down into actionable goals and how success is benchmarked. I will also use the Mirra chair design scenario to discuss the merits of a goal-driven approach, such as backcasting, and how this type of approach is expanded by future reflective backcasting.

The following account of the Mirra chair design process is based on an academic article from Rossi et al., (2006)[41]. According to Rossi et al. (2006), the starting point for the design and development of the Mirra chair was to create a set of goals. The product had four standards to meet: (i) all its materials must be safe for human and ecological consumption, (ii) where possible, materials should come from recycled content (iii) the product should be easy to disassemble (iv) the product must be able to be reused for another product of similar or better quality (Rossi et al., 2006). The first goal of safe materials proved to be problematic in its implementation. Part of the chair was originally designed to be made out of PVC (polyvinyl chloride), however PVC does not meet Cradle-to-Cradle standards because it contains harmful carcinogens and dioxins. In addition to this, Herman Miller had also received requests from customers to phase out PVC (Rossi et al., 2006). This meant that the chair had to be completely re-designed and alternative materials sought. PVC was eventually replaced by Thermoplastic Urethane (TPU) at a slightly higher cost, however, this cost was later compensated by savings elsewhere (Rossi et al., 2006). The design team also ensured the use of safe materials through a measurement of a *'material chemistry score'* by checking the chemical constituents down to the parts per million (ppm). The Mirra chair has 180 components in total, as a result, Herman Miller needed to collate material information from over 200 suppliers (Rossi et al., 2006). This necessitated several face-to-face meetings and 're-education programs' for their entire supply chain (Rossi et al., 2006).

The third goal, 'ease of disassembly' was broken down further with questions like: how easy is it to detach each component? Would the component retain (or increase) in value? How quickly and easily can the chair be disassembled? The final product was marked against all these questions and given a score of 93% (Rossi et al., 2006). Although it is possible to obtain the chair and independently verify how easy it is to disassemble, it is not so clear how their score of 93% was actually achieved as well as the validity and rigour of the methods used.

[41] The authors include: Mark Rossi, a research fellow at the University of Massachusetts Lowell; Scott Charon, a member of the Design for the Environment team at Herman Miller; Gabe Wing, Herman Miller's Design for the Environment manager; James Ewell, the director of consulting at McDonough Braungart Design Chemistry (MBDC).

Figure 14: The Mirra chair

According to Rossi et al., (2006), a similar scoring process was employed to measure the final product against four key areas of: chemical content, recycleability, disassembly and upgradeability. When all the different sectors were brought together, the final overall DfE (Design for the Environment) score for the Mirra chair was 80% (Rossi et al., 2006). Unlike assessing ease of disassembly, the chemical content and 'upgradeability' is almost impossible to independently verify. Although the available documents present, in some detail, key areas that make up this score, there is no information about the measurement tools, conditions or procedures. In addition to this, the non-disclosure agreement that Herman Miller provided to its suppliers (Rossi et al., 2006) means that it would be very difficult to assess the chemical make up of the individual parts of the chair. Hence, a basic issue of this sort of approach of measuring success is the ability for someone external to the context to independently verify the results.

The Mirra chair went on to gain a plethora of awards including a Good Design Award[42], a Silver Award[43] and it was selected as one of Fortune Magazine's *25 Best Products of the Year 2003*. After the relative success of the chair, Herman Miller made a commitment to produce at least 50% of Cradle-to-Cradle certified products by 2010 (Rossi et al., 2006).

[42] From the Chicago Athenaeum Museum of Architecture and Design.

[43] From the Industrial Design Excellence Awards (IDEA).

The design and development process involved in producing the Mirra chair is one symptom and manifestation of the Cradle-to-Cradle future vision. Finding a path towards the vision meant that Herman Miller needed to conduct interviews and education programs for over 200 members of their supply chain but it also led to them finding new opportunities, for example, the creation of new patentable technologies (Rossi et al., 2006). From a financial perspective, the original budget did not increase because expensive materials (e.g. TPU that replaced PVC) had been offset by finding cheaper alternatives elsewhere (Rossi et al., 2006).

However, a main point of interest is the advantages of what Rossi et al., (2006) describe as the goal-driven approach. They postulate that using this approach pushed the design team to strive beyond what was thought to be achievable during the development of the Mirra chair. Rossi et al. (2006) contrast its effectiveness against tool-driven approaches such as the LCA (Life Cycle Analysis). They assert that in the tool driven approach, the tool itself becomes the objective. A goal-driven approach shifts the objective from what the tool is capable of measuring to what is desired (Rossi et al., 2006). According to the account provided by Rossi et al., (2006), the goal-driven approach appears to have led to results that are sufficient at meeting the expectations and needs of Herman Miller.

Future reflective backcasting is not a goal driven approach in the sense that the process does not start with the creation of objectives which is then followed by efforts to achieve those objectives. Instead it encourages a continual process of revisiting and, if necessary, re-imagining preferred future state as spaces for re-contextualising, formulating and reformulating solutions throughout the whole process, not just at the beginning. This approach is useful when dealing with complex problems, the objectives are not clear and there is an uncertainty about which actions to take. Consequently, this future reflective process could be difficult to practically apply in a context similar to the one depicted in the Mirra design scenario. In the commercial context of Herman Miller, there would have been the need to closely manage the process because of limited time and budgetary resources. Therefore a continuous iterative process of re-visiting preferred future states and re-configuring actions in accordance with new discoveries might not have been possible during the implementation and completion phases of the Mirra chair development. However, non-hierarchical community contexts offer settings that are more conducive to this continuous reflective process.

The next section will detail how a non-hierarchical community context allows the opportunity to continually revisit and refine original objectives. The relatively loose structure of the Transition Towns community model presents a setting that is not contextualised by tight

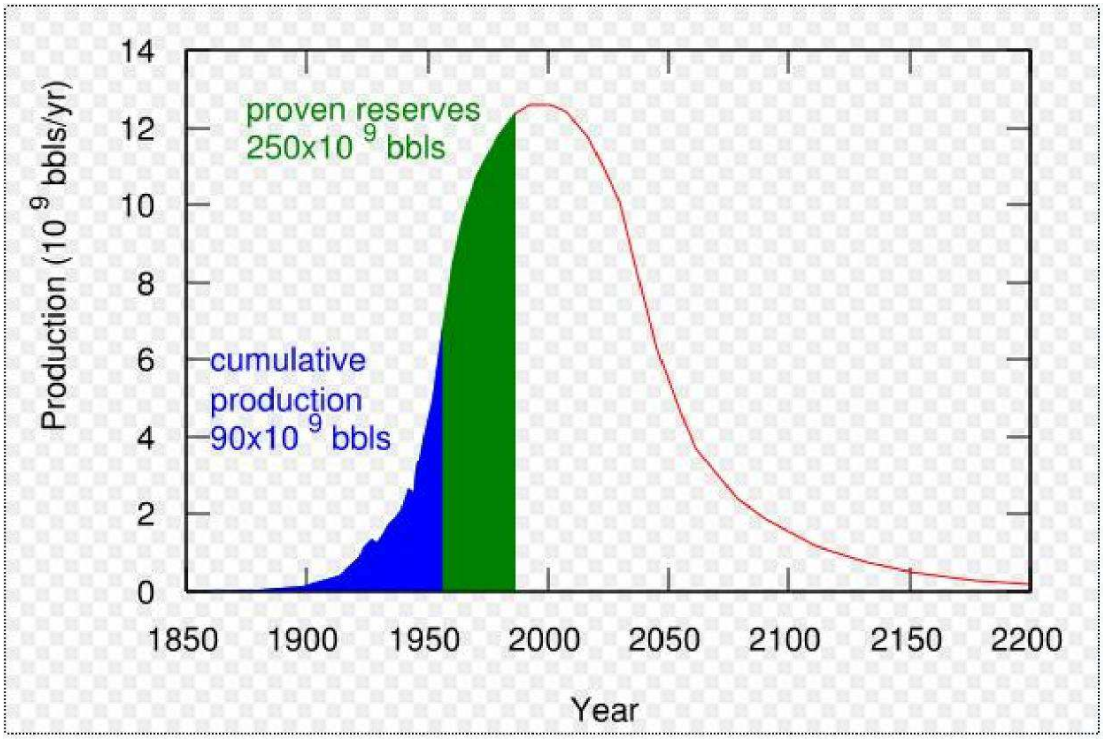
deadlines and commercial obligations. The next case study offers a different set of possibilities for future reflective backcasting.

5.4 CASE TWO

TRANSITION TOWNS TOTNES: A POST-OIL FUTURE

Based on Hubbert's peak theory, 'peak oil' refers to the height of oil extraction, after which it becomes more difficult, energy intensive and as a result no longer cost-effective to find good quality oil. Hubbert correctly predicted that America would peak between 1965 and 1970 and his model (Figure 15) has been fairly successful at predicting oil peak in other countries.

Figure 15: Hubbert's Peak Oil Plot



According to his model, the world has already reached its peak oil moment which means that we are currently on the downward spiral. The consequence of this has already become apparent to many with fluctuating oil and energy prices. A key challenge raised by the issue of peak oil is that almost every single aspect of an industrialised society, such as the UK, has been built on the assumption that there will always be cheap and readily available oil at our disposal. Therefore, the consequence of losing this resource is almost impossible to comprehend. Despite its apparent inevitability and growing urgency, responses have been slow with most alternative solutions[44] concerned with trying to maintain current lifestyles rather than questioning over-dependency on oil.

[44] 'Alternative solutions' such as biofuels, renewable energy sources and energy efficiency measures.

One response to dealing with the problems that stem from concerns over ecological problems like peak oil are small-scale decentralised eco-villages. The Beddington Zero Energy Development (BedZED) is the UK's first and largest purpose built carbon-neutral eco-village. These types of communities are growing in popularity across the UK[45]. One variation of this is the Transition Towns model where communities try to become living examples of a post-oil existence.

"*Totnes is the UK's first Transition Initiative, that is, a community in a process of imagining and creating a future that addresses the twin challenges of diminishing oil and gas supplies and climate change, and creates the kind of community that we would all want to be part of.*"

- Transition Towns Totnes (2008)

As the statement above suggests, Transition Towns use preferred versions of a post oil future as a way to propose opportunities for social transformation. The first Transition Towns that was set up in a small rural village called Totnes in Devon, has developed a bewildering array of projects to achieve this vision. This has led to the creation of 10 groups that look at a number of different areas including transportation, food, education, health, well-being and local economies. The residents of Totnes run these groups which provide a forum for a series of co-creative processes and different solutions to emerge. Solutions that have emerged from these forums include community run projects such as the Totnes Rickshaw, Community Health and Well-being Gardens and the Totnes pound.

The Totnes pound in particular adds another layer onto the objective of achieving a resilient local economy as a way to attain independence from oil. This type of local currency is intended to be an alternative to what authors of the *Transition Initiatives Primer*, Brangwyn and Hopkins (2008) consider to be globalised debt based currency systems. They suggest that one remedy for this is a community that is self-sufficient. Brangwyn and Hopkins (2008) argue that the creation of a local currency strengthens local economies by keeping generated wealth within the community. So far, over fifty local businesses have signed up to accept the Totnes pound. The community also generates money through a variety of

[45] These projects are 'low impact developments' and this term encompasses an array of permaculture, off-grid, eco-community and self-built dwellings (Fairlie, 1996). For instance, Ashley Vale, is a small community of 26 eco-houses designed and self-built by local residents in response to a developers attempt to take over their brownfield site. However, in most cases the main objective for these self-built communities was to find a way of reducing energy consumption. For instance, Tinker's Bubble near Yeovil in Somerset focuses on low energy impact and living and its residents rely on their surrounding natural resources to provide them with food, shelter and a livelihood. The Kings Hill field above Glastonbury in Somerset is the first place to be given permanent planning permission for low-impact dwellings and it is completely off grid. Several similar projects exist, such as Cae Mabon in North West Wales, Hockerton Housing Project in Nottinghamshire, the Earthship in Brighton and the Findhorn Spiritual Ecovillage in Scotland.

activities including: training courses, materials, events, tools, books and publications. Another part of Brangwyn and Hopkins' (2008) description of *'local resilience'* is a community that grows its own food and reforms its infrastructure as a way of using less energy. In order to facilitate this, the Transition movement provides 'reskilling' programs and courses that include a variety of topics such as natural building, loft insulation, herbal walks, food growing and home energy efficiency (Brangwyn and Hopkins, 2008).

The Transition movement presents a multi-pronged way of re-organising communities to deal with ecological problems. It provokes change on several different levels, as shown in the examples above (i.e. Totnes Rickshaw and the Totnes Pound). A movement of this magnitude and complexity warrants a thorough investigation, however, it is not in the research scope or available resources to conduct such a lengthy analysis. As a result, this section will explore specific backcasting strategies used to envision post-oil futures and how these ideas inform their practice. I will place particular emphasis on processes that are explicitly future-focused and driven by timescales. For instance, I will look at the strategies that include creating new myths through imaginary newspaper articles and the development of future scenarios in the Energy Descent Action Plan (EDAP) group as a way to timetable and benchmark progress. Specific activities from the EDAP group will also be highlighted as areas that will be further investigated in the fieldwork phase of this research.

5.4.1 Alternative Myths

"*Let the villages of the future live in our imaginations, so that we might one day come to live in them.*"

- Mahatma Ghandi

Transition Towns founder Rob Hopkins (2008), considers visioning to be a critical component of the Transition Towns movement; he proposes that their objectives can only be achieved once they have a clear idea of what the outcome will look like. He asserts that it is necessary to create lucid visions that are both realistic and desirable, and further posits that visioning is a powerful means to counteract despondency. For instance, he argues that visioning could be a powerful approach for environmental campaigners who have become accustomed to campaigning against what they don't like rather than suggesting what they would like to see (Hopkins, 2008).

The Transition Handbook (2008) presents one visioning method called *Transition Tales Visioning*. I will describe this method based on the classroom example provided in the book. According to the *Transition Handbook* (2008), this exercise was conducted in two sessions at King Edward VI Community College. The first session was aimed at explaining what peak oil is, where oil comes from, its link to socio-political problems and how oil is currently used

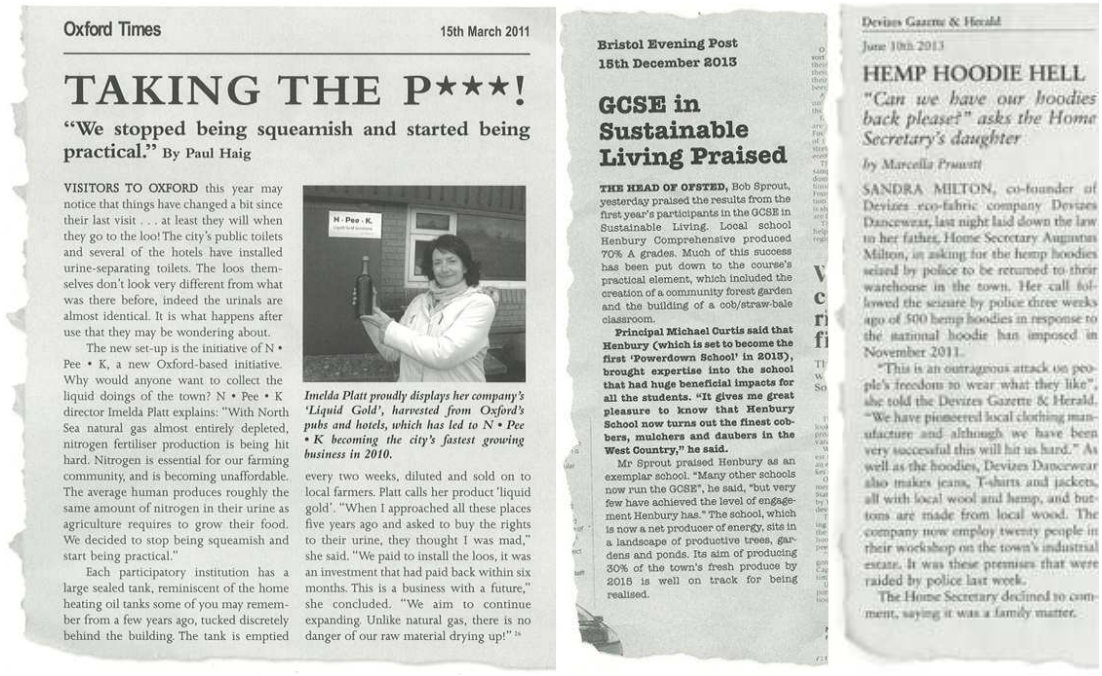
in Totnes. This session also prepared the students to think of what life could be like beyond oil dependency. The students were asked a series of questions such as: what would you look forward to? What would you miss? The second session put them through a number of exercises to enable them to think creatively and imaginatively. This exercise involved students spending one minute talking about a stick without repetition or deviation. After this initial preparation stage, students were then given a series of scenario-based activities to perform e.g. creating imaginary news broadcasts. This was all done with the objective of creating new myths that suggest what a preferred future might look like. Some of the student performances are available to view online through the following hyperlink www.youtube/v/9c6ubbq4Hzo&rel=1

Figure 16: The Totnes News 2030

Creating a news broadcast or future newspaper articles (Figure 17)[46] depicting preferred future states present a method of simulating or enacting possible visions. These types of future simulated methods feature heavily in the Melbourne 2032 case study and I will return to this topic later in this thesis (see *5.5.2 Future Simulated Backcasting Methods* and *6.3.3 Communicating the Future-Thing*).

[46] The figures shown are samples of unattributed imaginary newspaper articles featured in the *Transition Handbook* (2008).

Figure 17: Newspaper Articles from the Future



Oxford Times — 15th March 2011

TAKING THE P★★★!

"We stopped being squeamish and started being practical." By Paul Haig

VISITORS TO OXFORD this year may notice that things have changed a bit since their last visit . . . at least they will when they go to the loo! The city's public toilets and several of the hotels have installed urine-separating toilets. The loos themselves don't look very different from what was there before, indeed the urinals are almost identical. It is what happens after use that they may be wondering about.

The new set-up is the initiative of N • Pee • K, a new Oxford-based initiative. Why would anyone want to collect the liquid doings of the town? N • Pee • K director Imelda Platt explains: "With North Sea natural gas almost entirely depleted, nitrogen fertiliser production is being hit hard. Nitrogen is essential for our farming community, and is becoming unaffordable. The average human produces roughly the same amount of nitrogen in their urine as agriculture requires to grow their food. We decided to stop being squeamish and start being practical."

Each participatory institution has a large sealed tank, reminiscent of the home heating oil tanks some of you may remember from a few years ago, tucked discretely behind the building. The tank is emptied every two weeks, diluted and sold on to local farmers. Platt calls her product 'liquid gold'. "When I approached all these places five years ago and asked to buy the rights to their urine, they thought I was mad," she said. "We paid to install the loos, it was an investment that had paid back within six months. This is a business with a future," she concluded. "We aim to continue expanding. Unlike natural gas, there is no danger of our raw material drying up!" [26]

Imelda Platt proudly displays her company's 'Liquid Gold', harvested from Oxford's pubs and hotels, which has led to N • Pee • K becoming the city's fastest growing business in 2010.

Bristol Evening Post
15th December 2013

GCSE in Sustainable Living Praised

THE HEAD OF OFSTED, Bob Sprout, yesterday praised the results from the first year's participants in the GCSE in Sustainable Living. Local school Henbury Comprehensive produced 70% A grades. Much of this success has been put down to the course's practical element, which included the creation of a community forest garden and the building of a cob/straw-bale classroom.

Principal Michael Curtis said that Henbury (which is set to become the first 'Powerdown School' in 2013), brought expertise into the school that had huge beneficial impacts for all the students. "It gives me great pleasure to know that Henbury School now turns out the finest cobbers, mulchers and daubers in the West Country," he said.

Mr Sprout praised Henbury as an exemplar school. "Many other schools now run the GCSE", he said, "but very few have achieved the level of engagement Henbury has." The school, which is now a net producer of energy, site in a landscape of productive trees, gardens and ponds. Its aim of producing 30% of the town's fresh produce by 2016 is well on track for being realised.

Devizes Gazette & Herald
June 10th 2013

HEMP HOODIE HELL

"Can we have our hoodies back please?" asks the Home Secretary's daughter

by Marcella Prawitt

SANDRA MILTON, co-founder of Devizes eco-fabric company Devizes Dancewear, last night laid down the law to her father, Home Secretary Augustus Milton, in asking for the hemp hoodies seized by police to be returned to their warehouse in the town. Her call followed the seizure by police three weeks ago of 500 hemp hoodies in response to the national hoodie ban imposed in November 2011.

"This is an outrageous attack on people's freedom to wear what they like", she told the Devizes Gazette & Herald. "We have pioneered local clothing manufacture and although we have been very successful this will hit us hard." As well as the hoodies, Devizes Dancewear also makes jeans, T-shirts and jackets, all with local wool and hemp, and buttons are made from local wood. The company now employ twenty people in their workshop on the town's industrial estate. It was these premises that were raided by police last week.

The Home Secretary declined to comment, saying it was a family matter.

SUSSEX EXPRESS
1 February 2017

TRANSITION TOWN LEWES: A VISION OF THE FUTURE

By Mavis Happen

Last Saturday Lewes celebrated winning the 2017 Synergen Town of the Year award with a festival at the North Street Centre that included a Southern Solar[1] disco and a local produce feast. Lewes was among 965 entrants for the award, for the 'most creative energy descent programme[2] and improvement of living standards'. The judges were particularly impressed with the depth and effectiveness of the town's '2020 Vision', which was adopted unanimously by the Council in 2008,[3] along with the Climate Change Strategy, written by the Sustainability Team in 2006 and Zero Waste Target[4] reached in 2012.

'We're really proud of our achievements,' said Cllr Billie Turner of the transition committee. 'It's been a lot of work, but exhilarating. Of course, the floods of 2000 and 2008, and the hurricane of 2010 really helped focus our minds. That and oil prices hitting $150 a barrel a while back.'

Jewel in the crown of the town is the North Street Centre, five hectares of land at the heart of Lewes's 2020 Vision. Youth worker Tomsa Stevenson pointed out the riverside ecovillage. 'They're on stilts to be flood-flexible. All 200 houses sold really fast. It was the first development in the UK to be a fossil-fuel neutral build,[5] and because half were affordable housing, many of the people living there work in the North Street Centre too.' There's now a ten-year waiting list for the car-free ecovillage;[6] a recent survey put residents at the top of the UN Happiness Index.[7]

'The biomass plant over there was put in around 2015 to turn fast-growing willow from the floodplains into electricity,' Tomsa continued. 'That willow soaks up the flash floods we were starting to get a few years ago. The launch of the community wind farm (Lesco – Lewes Energy Supply Company[8]) made us one of the first towns to export electricity to the national grid.'

'Over there by Furniture Now,[9] Plumpton has an urban agriculture training centre. Those raised beds have been producing 40 tons of food per hectare for 8 years now. Most of it goes to the big weekly riverside market and the dozens of local produce shops around town, and any surplus goes to Lewes Preserves. This, along with the twenty-odd CSA (Community Supported Agriculture[10]) farms in the area, Lewes Allotments 2020, and the council's Home Grown initiative, means that 75% of Lewes's fruit and vegetables are grown[11] within 5 miles of the town, just as it was this time last century. The jury is still out as to whether the supermarkets in the town will win their legal action against smallholders preferentially supplying the local markets.

The North Street Centre has become the transport hub for Lewes, linking the biodiesel bus station, cycle station,[12] working horse stables and car club depot. Car ownership[13] in Lewes is now well below the national average ratio of 1:4.

'Ten years ago, we had had a developer pitching to build intensive high-rise housing, car parks and a chain store centre in North Street. Our progressive council ran a weekend Appreciative Enquiry[14] summit for that site, and found that people were very concerned about the environment. That form of effective consultation resulted in our 2020 North Street vision for a transition future with low-impact development that allowed the possibility of flooding.

'Fortunately, our District Council unanimously adopted that 2020 Transition Strategy for North Street at the end of 2007. Things could have looked very different!'

HELLO! March 27th 2029

AS THEY MOVE INTO THEIR FABULOUS NEW NATURAL HOME

DAVID & VICTORIA BECKHAM

TELL US WHY HAPPINESS IS A WARM COB BENCH

David Beckham last night carried his wife Victoria over the threshold of the home they have built for their retirement, and told *Hello!* Magazine that they were "delighted, really thrilled. It's the most gorgeous house we've ever lived in. It's so us."

Two years ago, David, 54 and Victoria, 55, decided to retire early and to focus on their passion, growing heirloom vegetable varieties. Last week, when this reporter visited, the back of the house was full of potted herbs, cuttings and trays of seedlings brought from their previous garden. David has also set himself the aim, before he reaches 60, of mastering the art of hot composting.

The couple's house takes the new fashion for small, compact and well-designed spaces to a new level. Built with 3-feet thick cob and hemp walls, the thatched house is, like Posh Spice in her heyday at the turn of the century, curvaceous and alluring, the couple deciding at an early stage that they didn't want the house to contain any corners. "We wanted a house which was dead cheap to heat, used local materials and stuff, was off-the-grid, and where walking into each room felt like walking into a hug. Corners are all very well on a football pitch," David jokes, "but since my retirement I certainly don't want them in my house!"

Victoria excitedly adds, "We've got solar panels, a masonry stove thing for heating, a really cool composting toilet and a fridge which works without electricity, just by drawing cool air through the ground. It's all really clever."

With their sons now grown up, David and Victoria decided three years ago that they only needed enough space for the two of them. "We wanted a house that fitted us like a glove," David tells *Hello!* Magazine. "As we designed it, using clay models, our architect kept pushing us to think smaller, smaller, all the time. Some of his ideas were amazing, the sleeping loft over the kitchen, the drawers in the stairs, the niches and alcoves, they were all his input."

The house puts the couple at the forefront of the fashion for small and well designed homes. Katie and Tom Cruise recently tried six months in a yurt, but found the winter months hard going and in the end felt drawn back to their three bedroom straw-bale house. Chart-topping singer Letitia Lloyd is experimenting with Earthships in Essex, and Charlotte Church's roundhouse in Wales is a highly individual celebration of hemp construction.

Back at what David and Victoria, still clearly deeply in love after 31 years together, call their "Love Shack", David is sitting on the cob bench he helped to create. "Look at it", he says, "it's so sculptural. After a hard day mulching the garden, I love sitting on this bench. Look,

David's gardening books adorn this gorgeous cob niche in the Beckham residence.

I've my gardening books in this niche here, and when we fire up the stove, the air runs through and warms the bench. What more could I want?"

What more indeed. David and Victoria are, as ever, fashion trailblazers, darlings of a post-petroleum age. Snuggled up together on their heated bench with a bowl of fresh mixed salad from the garden, David muses: "When I look back at photos of us twenty years ago, given all that has happened since, I have to wonder, as I sit here on my warm cob bench, 'What were we thinking?'"

I propose that the imaginary newspaper articles present 'pockets of futures' that embed themselves as possibilities in the present. A few weeks after seeing these articles in the book, I found an article in the Metro newspaper about the Transition Towns movement. What struck me was how the article below (Figure 18) could have been something that emerged from one of the 'transition-myth-creation-processes'.

Figure 18: Metro Newspaper Article

28 METRO Wednesday, September 10, 2008 www.metro.co.uk

Town that's printing its own money

BY FRED ATTEWILL

IT'S one way of beating the credit crunch – print your own money.

Which is exactly what one historic market town has done to try to protect its economy and encourage people to shop locally.

Traders and residents in Lewes, East Sussex, yesterday saw the launch of their own pound note. Up to 10,000 Lewes Pounds have been printed, each with a face value of one pound sterling.

The notes can be purchased from four outlets in the town and are redeemable in most of its shops.

'The idea is to encourage as many local people as possible to shop locally,' said town mayor Michael Chartier.

'Lewes has a tradition of small shops and hasn't got a large number of major chain stores that other towns have. It has traditionally been the small shops that have given Lewes its unique appeal.'

The scheme is a step back into the past for Lewes, which had its own currency between 1789 and 1895. It will operate for a year before being reviewed.

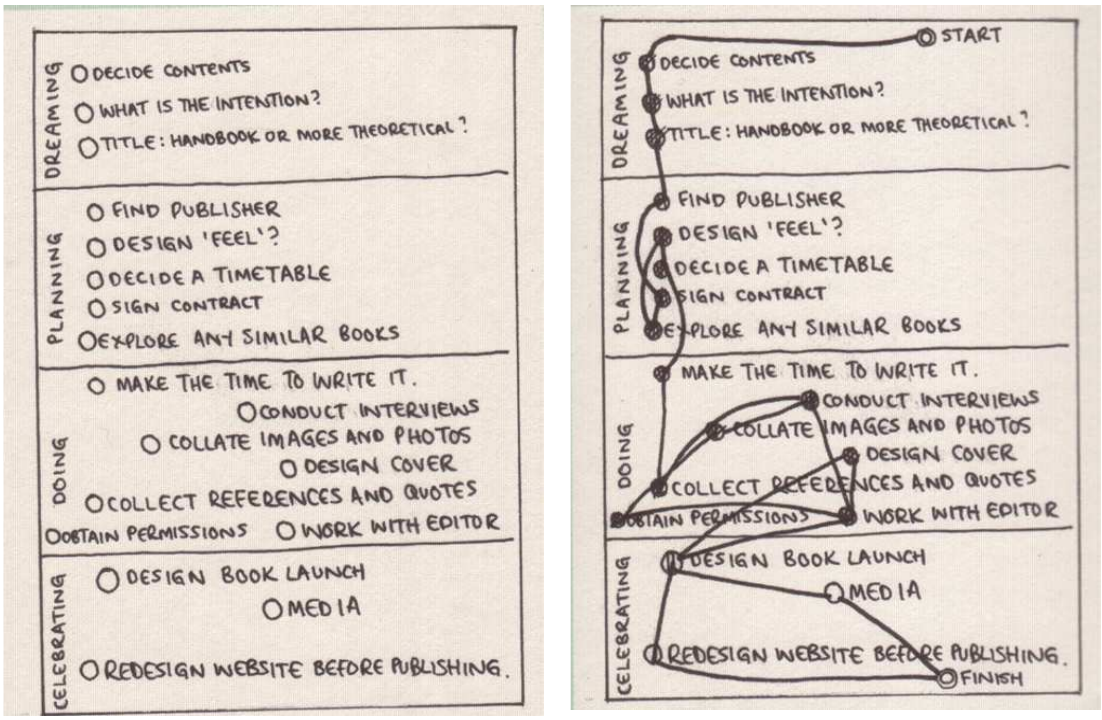
Oliver Dudok van Heel, of the Lewes Pound group, said: 'You'll always need a national currency, but it's a question of promoting what can be done locally.'

Complementary currencies are already operating elsewhere.

In Totnes, south-west Devon, local money has been running for a year. The US town of Berkshire, Massachusetts, has 1million Berkshares in circulation.

Another visioning tool is a checklist developed by John Croft from the Gaia foundation. The list divides a project into four key sections: dreaming, planning, doing and celebrating as some basic parameters for identifying and listing tasks (Hopkins, 2008). The final step is to cross hatch circles next to tasks that have been started and fully colour tasks that have been finished as shown in Figure 19. The figure below is the example provided by Rob Hopkins to depict the process that he used to produce the *Transition Handbook* (2008), however the method can be used for any task. Although the participant is asked to celebrate each time one of the objectives has been achieved, it is designed to be an on-going tool until the whole project is complete.

Figure 19: Futuring Checklist



The methods described in this section highlight the several future-oriented practices that the Transition Towns movement employs to create strategies for addressing environmental concerns. However, the most relevant method, in the context of this research, is the work from one section of the Transition Towns in Totnes. This group has devised workshops to carry out a form of backcasting which I consider has the potential to be a future reflective one. The following sections will detail what this process involves, my experiences of the workshops as well as how I suggest the original format could be improved upon.

5.4.2 Alternative Narratives

"*We'll create a collective vision of how Totnes could be in say, 2030, then we'll figure out which pathways will best take us there."*

- Transition Towns Totnes (2008)

One of the groups working within the Transition Towns in Totnes is the EDAP (Energy Descent Action Plan) group. The EDAP division is tasked with exploring likely routes or pathways to reduce the towns' dependence on oil. In order to do this, they design exercises to help participants engender preferred notions of future scenarios as a way of enabling them to think beyond existing constraints. The EDAP group use backcasting in public workshops to help participants envision what Totnes could look like in the next 20+ years. EDAP members then use the ideas and visions produced by workshop participants to put

together scenarios for possible futures. Table 9 and 10 below are two examples of scenarios based on the outcomes of EDAP public workshops in Totnes.

Table 8: Future Scenarios from the EDAP Meeting (11 March 2008)

"Scenario One. Business as Usual

The population continues to increase and Totnes expands. More houses are built. The town reaches a critical size where it is attractive to chain stores, (B&Q etc) start to move in on the edges. The High Street is threatened and moves more towards pound shops and so on. There is pressure for widened roads and bypassing. More car parks. Pressure increases on schools and on health services. Residents become increasingly dependent on cars as house prices rise and they need to work outside the town. Service sector employs people from surrounding towns like Torquay and Paignton. Divide between rich and poor increases. Fear of urban future.

Scenario Two. Extreme Weather – Rapid Change

Massive acceleration in climate change. Extreme weather, floods and drought, reduce food production, increases in malaria, reductions in tourism, fire destroys trees, railway line is lost, ends commuting culture, houses in some areas in Totnes become uninsurable, people move to higher ground. Will it be a consensual adaptation making new land available or will it lead to gated communities on higher ground? Like the War, new prefab buildings at Dartington.

Possible Scenario 3. 'Enlightened Transition'

South Hampshire Council decide that they need to take a proactive approach to the building of resilience and the cutting of carbon emissions. Government supports this work and adopts the Zero Carbon Britain report. Planning identifies land for urban food production and exempts it from future development. Decentralised energy grids are put in place, and 'National Earth Repair Service' for 18 year olds provides a lot of labour for power down projects. Massive programme of retrofitting in Totnes is completed in 2025 and all new buildings are built to local PassivHaus standard.

Possible Scenario 4. 'The Growth of the Grey'

Here the population of those over 60 living on their own continues to grow and this places more and more demand on public services. People who have moved to Totnes because they like it as it is become an obstacle to more adventurous development and planning.

Possible Scenario 5. 'Hold onto your Hats!" The Recession That Never Ends

A major economic recession begins in 2008 which deepens and worsens, with occasional fluctuations, for the next 20 years. Many people in Totnes who work outside the town lose

their jobs, and many who bought houses at the top of the property boom fall into negative equity. There is high unemployment, and some businesses in the town, especially those at the luxury end of the scale, go out of business. Money for large infrastructure projects begins to dry up. Number of people in receipt of benefits grows. More people who live in Totnes take what jobs there are in Totnes. The Government introduces a scheme to support people in starting their own 'green' businesses, and many new innovative businesses start up. The Sustainable Business Park and its incubator units are a key part of this. Bankruptcies increase and more people offer themselves for volunteering on projects. Local currencies emerge, as do Time Banks and so on. A local economy of repairing, making and mending emerges. Schools become food producers. Car traffic falls."

Table 9: EDAP Future Scenarios from Public Workshops (n.d.)[47]

"*One. Business as usual; Peak Oil Gloom. 'Progress' continues unabated. High investment in roads and airports etc. Manufacturing crippled. Energy Rationing. Waste disposal very expensive - incineration widely considered an energy source. Frequent power cuts. Economic growth continues to be the national primary goal. Unemployment rises. Poverty and homelessness increases. Social unrest.*

Two. Enlightened Transition: Resilient Communities. Strong community response sustains an even economy. Investment from all sectors enables development of broad range of renewable energy supplies. Local suppliers overtake supermarket chains in sales. Massive decline in imports and exports. Cycle lanes replace car lanes. Electric buses and trains run on renewable energy. Smart homes with zero energy, emissions or waste. Community gardens, allotments, orchards and woodlands are part of everyone's life. 4 day working week. Higher employment levels. Happier, fitter and more skilled society.

Three. Hitting the Wall; Climate Change Catastrophe. The full reality of runaway climate change brings its wrath of poverty, bankruptcy, homelessness and misery. Survivalists, religious fanaticism and increasingly fascistic political regimes become a familiar part of life. Heat waves, storms and droughts frequent. Fishing stocks collapse. Population declines. Waves of refugees from southern Europe arrive. Major extinctions in the natural world. Water rationing. Society under severe stress.

Four. The Impossible Dream: Techno-fix. As yet unknown technology provides significant solutions to the energy crisis. Tradable Energy Quotas (TEQs) a part of life. High investment

[47] This content is obtained from an undated resource from the Transition Towns Totnes website http://www.transitiontowntotnes.org/?q=EDAPscenarios - accessed 15 July 2010.

in wind farms and smaller scale renewable energy systems. Deep underground carbon sequestration sumps drilled. New planning legislation over-rides visual amenity and conservation concerns. Large techno structures abound. Energy efficiency is high. Energy prices soar. Traffic congestion and road rage familiar scenes."

The ideas presented in the tables above suggest nuanced scenarios that do not simply give a polarised view in which one future is wholly bad or good. For instance, the idea that an on-going recession can increase voluntarism and reduce car usage, while on the other hand, an 'enlightened transition' could also enforce a National Earth Repair Service for 18 year olds.

After the EDAP group have produced a series of scenarios, the next stage is to identify pathways towards what they consider to be the most attractive future state. The group do this by breaking down the vision into more manageable objectives and the result of this process is a timetabled plan for weaning Totnes off oil over a 20-year period. From a broad perspective, the task is two fold: (i) to reduce the amount of energy that is used in Totnes and (ii) for the town to generate as much of its own energy as possible by using renewable technology (Transition Towns Totnes, 2008). The EDAP then point towards specific objectives for the immediate to short-term future (i.e. 1-2 years) which are:

(i) Help create the energy section of the EDP (Energy Descent Plan).

(ii) Begin creating some of the obvious renewable energy technology infrastructure.

(iii) Encourage people, businesses and organisations to engage in reducing the energy usage in their lives, and do what they can now (Transition Towns Totnes, 2008).

This basic action plan produced by the EDAP group will be returned to during the analysis stage (see *6.3.6 The Definition of Success* and *6.3.6.1 Success Indicators*). When revisited, these plans will be used as a basis to examine the relationship between future scenarios and how they are used by the Transition Towns movement to suggest ways of evaluating the outcomes of the process.

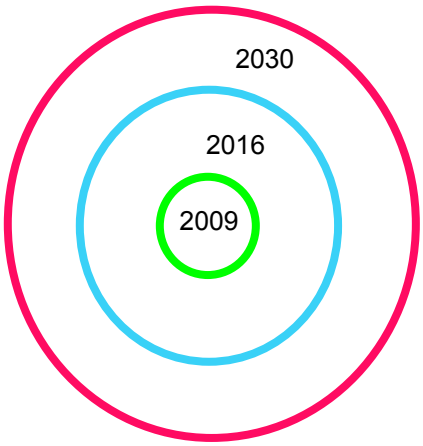
5.4.3 The EDAP Public Workshop

As mentioned in the previous section, the EDAP group organise public workshops to facilitate backcasting exercises. The following descriptions of how the workshops take place are based on my experiences of taking part in four separate EDAP workshops.

All EDAP workshops are theme related i.e. health, transport, well-being, education etc. The public workshop typically starts with a brief introduction to how the Transition movement is trying to address issues of peak oil and climate change. After the initial briefing, participants are given post-it notes and asked to write down an ideal future scenario related to the

workshop theme. They are also presented with post-it notes with ideas written by participants from previous workshops. In doing this, they are given the option to pick up one of the post-it notes from the previous workshops and / or use their own ideas to take back to a small sub-group that comprises of 3-5 people. Each member of the group places their post-it note in a concentric circle diagram (see Figure 20). Participants are asked to place their post-it notes on the diagram so that it corresponds with which year they think their idea can come into fruition e.g. something that will happen in 2020 will be placed along the scale in-between 2016 and 2030.

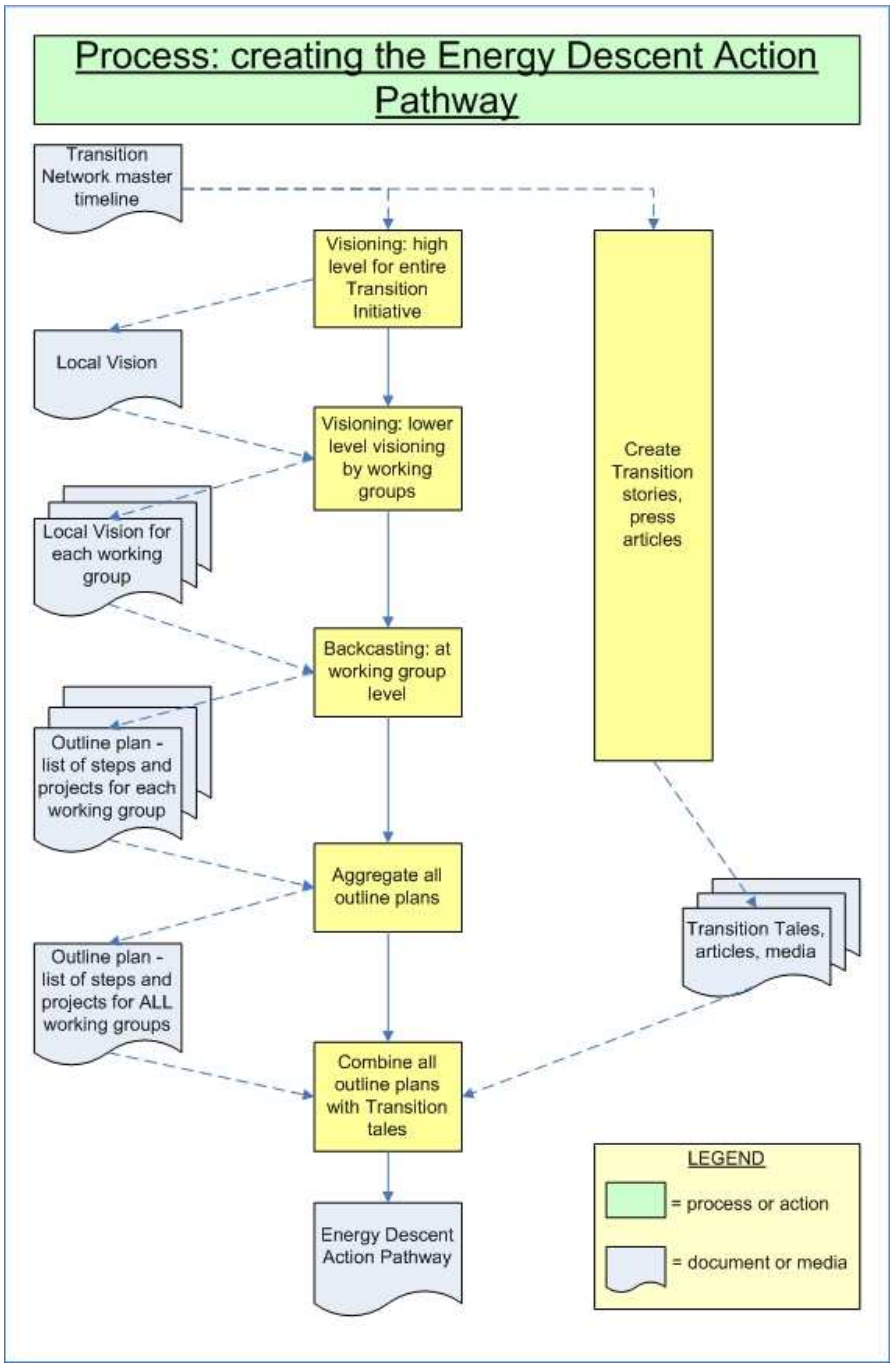
Figure 20: EDAP Workshop Time Frame Diagram



After doing this, each person presents their idea to the rest of the small sub-group and suggests what steps need to be taken before their vision can be realised. Participants are urged to discuss the idea in terms of who, how, where and when (year). Where possible ideas for the development across a number of years leading to the visions, actions, and projects should be linked and clearly marked as such on the diagram.

Several public workshops on a variety of themes help to provide details of a 2030 vision to 'transition towards'. All the ideas are combined to make up preferred scenarios and ultimately feed into the Transition Towns Totnes EDAP strategy as shown in Figure 21.

Figure 21: EDAP Process Diagram (Brangwyn, 2008)



5.4.3.1 MY EXPERIENCE

Given the location and its demographic, it is not surprising that most of the participants were middle class in terms of having professional backgrounds and being relatively affluent. However, what was surprising was the enormous diversity between the participants. For instance, I met practicing artists, ex-university lecturers, boat-makers, pensioners, post-graduate students as well as self proclaimed eco-feminists and hippies. This diversity also

extended to age with a varied mix of different generations being represented. This variation of participants contributed to the sessions (that I attended) being both radical and thought provoking. Fellow participants suggested everything from community run allotments providing free food, free solar powered public transport to edible food packaging.

However, one noticeable consistency was the small number of people who attended each session. Between 8-12 people attended each workshop, but this is considered to be a *"poor attendance"* by the organisers as indicated in their meeting minutes (EDAP Meeting Minutes 12 November 2008). This low interest from Totnes residents and low attendance was also an issue mentioned by many of the attending participants and there was a sense of frustration that more of the local community were not involved. This was further compounded by a feeling that the people who actually attended were the 'converted'. Consequently, there were many re-occurring conversations in different sessions about how to get more people interested.

Another significant point of frustration that emerged from the Totnes workshops was the issue of time. Some participants were enthusiastic and motivated to start working on the future fictions that they produced but lamented on the fact that modern life had too many demands in terms of children, work, social commitments etc. One participant proclaimed that when designing futures, they also needed to design or invent time to make change possible.

Although the process was generally engaging and led to remarkable ideas, there were a few issues that I found problematic with the workshop format. The first issue was that discussions tended to frequently go off track and I felt that each sub-group would have benefited from a facilitator or someone who was responsible for steering the conversation back when it drifted off. Another issue was the anti-climactic feeling after each workshop and the lack of immediacy, in terms of bringing the ideas into fruition. Primarily, this is because the visions from local public workshops need to go through a series of processes before becoming part of the final energy descent action plan (see Figure 21).

Once the preferred future states had been decided, participants instinctively began to question the efficacy of present practices in helping them achieve the vision. The instinct to use alternative futures to challenge present modes of practice was a characteristic of every session I attended. This could be indicative of the type of person that would attend such an event (see *1.1.3 The Engaged - Uncertain Environmental Activist*). The participants I encountered were people already questioning existing societal structures and its capacity to adequately deal with complex ecological problems.

The use of preferred futures to critique present practices is the precise point in which a backcasting process has the potential to become a future reflective one. For example, one participant proposed an idea for free solar powered public transport and this raised a group discussion about how transportation is presently organised. During this discussion, another participant argued that transportation is as essential as healthcare or education and therefore should be free at the point of need. However, in the EDAP public workshops, these types of conversations very quickly became pessimistic as participants tended to focus on all the potential barriers for change. Focusing on barriers in this way meant that discussions would end on a 'there-is-no-point-in-bothering' note. I felt that it would have been helpful to have a subtle method for trying to take people from a pessimistic critical position to a motivated solution finding one. In future reflective backcasting, this type of solution finding approach would be used to propel the participants to focus on what actions to take in the present.

5.5 CASE THREE

THE MELBOURNE 2032 PROJECT: VISION DRIVEN CHANGE

The Melbourne 2032 project is an academic undertaking by VEIL (Victorian Eco-Innovation Lab) funded by the State of Victoria and the Faculty of Architecture, Building & Planning at the University of Melbourne, Australia. Director of VEIL, Chris Ryan (2007) explains that the exercise starts with the questions: *"how do we stimulate not just technological innovation but social innovation?" "How do we stimulate change?"* VEIL attempts to address these questions by focusing on visions of alternative futures. Implicit in this approach is the objective to change perceptions of what an ecologically sustainable future could look like (Ryan, 2007). VEIL is currently in partnership with Australian universities including Monash, RMIT (Royal Melbourne Institute of Technology) as well as the University of Melbourne. However, according to Ryan (2007), VEIL is also trying to widen out to other universities, but it maintains a strong focus on involving design schools/departments. This is because the VEIL project members see designers as being able to bring forward visions that show how the city of Melbourne might proceed towards addressing environmental destruction as well as how to initiate change that is vision driven (Ryan, 2007).

One of the projects conducted under VEIL is the Melbourne 2032. It consists of a team of people including designers, academics, members of the government and other professionals. These participants are tasked with envisioning 'glimpses' of Melbourne in 25 years time. The glimpses provided in this initial stage then become a series of projects spread across the partnership universities. The Melbourne 2032 project is a relatively new practice and most of its processes are still at the ideational stage with no clear evidence of actual manifestations of their ideas.

However, the specific area that is of interest in the context of this research is how the Melbourne 2032 practice is leading to a series of creative techniques in which glimpses are created through a method that I have termed future simulated backcasting. The future simulated backcasting technique involves, conjuring a future state or embodying a future-self and presenting ideas from that perspective. Future simulated methods are used to explore which actions to take and how to intervene in present systems. This is a significant point of relevance because it presents a way of dynamically exploring and expressing a preferred future state. Future simulated backcasting techniques, inspired by the Melbourne 2032 project, were used in the workshops conducted in this research and proved to be useful ways in helping participants articulate inchoate ideas (see *6.3.3 Communicating the Future-Thing*). In the following sections, I will detail how future simulated techniques are deployed within the Melbourne 2032 practice.

5.5.1 Glimpses of 2032

Based on Chris Ryan's (2007) description of the Melbourne 2032 project and online resources[48], I understand that disparate activities across different universities and initiatives contribute to the initial visioning process. This has led to a wide spectrum of visions that includes everything from re-designing houses to waterless washing. The figures below are some examples of the ideas and questions that are emerging.

Figure 22: Knotting In Ceres: What if Houses Grew the Energy they needed?

Figure 23: Future Primitive 3007 Tent
Is the Enduring Solution the Least Permanent?

Aside from visual depictions, there are also several emerging scenarios. Chris Ryan's (2006a) 'Urban Colonies' scenario highlights the main areas of interest and concern for the

[48] The online resource that I am referring to here is the Melbourne 2032 project website: http://www.ecoinnovationlab.com/glimpses/91-melbourne-2032

research group at VEIL. The scenario below describes a potential future state for Melbourne in 2030:

"*Urban Colonies: Investment in technology primarily focuses on minimising environmental impacts. Good environmental practice is at the heart of economic and social policies; sustainable buildings, distributed power generation and new urban planning policies have created compact, sustainable cities. Transport is permitted only if green and clean - car use is still energy expensive and is restricted. Public transport - electric and low-energy - is efficient and widely used. Competitive cities have the IT infrastructure needed to link high-value knowledge businesses with IT, supporting transport systems and networked virtual communities. Rural areas have become more decentralised, effectively acting as food and bio-fuel sources for cities. Consumption of energy, water, materials have fallen. New environmentally driven service systems have increased systems of leasing, renting, sharing of goods and the service sector is now an even stronger part of the economy. Efficient resource use is now a fundamental part of the tax system and disposable items are less popular. Improved urban design, organised to minimise the need for travel, is a response to environmental concerns and climate change, but also driven by the desire for everyday social contact and the need for consumers to be closer to systems of production. Cleaner technologies and low-carbon-emission energy create an environmental benefit, but the overall economic focus is more local and regional/city-based than global, with low-to-medium economic growth. Societal benefits accrue from a society integrated more at the local level. People in this scenario are environmentally aware and more careful in their use of resources, attracted to diversity of solutions and the resilience and security that comes from networked decentralization*" (Ryan, 2006a).

Another glimpse of a possible Melbourne in 2032 is 'The ReDesigner' scenario produced by Mark Richardson, a contributor to the project from Monash University. He suggests that re-designing will be the job of future designers. Richardson (2007) paints a picture of a future state in which re-designing will be driven by the necessity and requirement of companies to take back their products at the end of its life so that the individual components can be recovered, refurbished and ultimately reused. In his vision, product ownership would remain with the producers in a closed-loop model that is not too dissimilar to Cradle-to-Cradle. He explains that this 'design revolution' will be initiated by people who are already re-designing objects scavenged from mass-produced products but suggests that this trend erupts almost like a parasitic industry. In this future state, the open-source support network created by the *"scavengers"* develops into locally produced components and sub-assemblies resulting into a *"local customised product"* (LCP) (Richardson, 2007). Large companies will recognise the opportunity to sell unwanted *"new-used"* components, thereby creating new business models

as well as the necessity to reform design education so that it supports this new type of design culture (Richardson, 2007).

Of particular interest is the pervasive presence of trend analysis that is part of the envisioned futures produced by the Melbourne 2032 project. Ryan's 2006a article constantly refers to events that have already happened or activities that are currently taking place. For instance, the 'icon building' of Council House 2 (CH2) in Melbourne completed in 2006, was cited by Ryan (2006a) as an example of a government-initiated trend that kicked-off a period of innovation in sustainable buildings between 2005-2015. He also suggests that this trend had subsequent influences on the private sector (Ryan, 2006a). Similarly, Richardson's (2007) notion of 'redesigning' is not an original concept. The term 'redesign' has already been used by many others, most prominently by a community of designers to describe the process of designing products that are not harmful to the environment or, in their own words, 'designers who don't want to make the landfill'. Although he does not explicitly mention any of these established redesign practices, Richardson (2007) expands on these existing trends by detailing how this practice would extrapolate into a future state and eventually become a mainstream practice.

Melbourne 2032 practitioners combine extrapolation with predictions and speculations about what might happen in the future. For instance, Ryan (2006a) proclaims that the turn towards a 'green Melbourne' would be driven by public concern and an outcry over worsening environmental situations such as water shortages. He links people's willingness to act as a characteristic that is based on an enhanced sense of self-interest but also the need to be 'seen to be doing something'. For Ryan (2006a), this self interest also extends to a sense of being a 'good environmental citizen', where owning a wind turbine is a badge of honour and all green products have an *"iPod effect"*. However, the public outcry that Ryan (2006a) predicts may or may not happen. A public outcry on the scale Ryan (2006a) is suggesting has not happened so far despite the growing awareness of environmental degradation and worsening environmental situations. It is therefore not unreasonable to consider that such an outcry might also not happen in the future. I propose that it would be better to design futures in terms of systems and processes, rather than relying on a critical mass of people to develop enhanced self-interests. Although Ryan's (2006a) article suggests a series of systems that he proposes for a future Melbourne, it might be unhelpful to base the progress towards desired changes on anticipated public reactions. The public might not react or they may react differently to the way that is expected. Rather than hoping for the public to take on a certain attitude, I recommend that participants of a future reflective process focus on devising proactive strategies that would mobilise publics. This is because the future reflective backcasting approach is intended to be a proactive one in which participants

decide on what actions to take rather than using futures as way of extrapolating or speculating on what might happen in the future and designing around predicted outcomes.

5.5.2 Future Simulated Backcasting Methods

The *ReDesigner* proposal and other visions are used as a basis of exploring possible *"trajectories of change"* in order to create and identify possible points to intervene in the system as a way of enabling change that is *"vision driven" (*Ryan, 2006a). Their application of this 'vision-driven' change is done with a series of techniques that I have termed 'future simulated backcasting' i.e. embodying and/or simulating a preferred future state as a way of exploring which changes need to occur in the present to make the visions a reality. The concept of future simulated backcasting is not the same as visioning. In a visioning approach such as scenario building, the preferred future state is presented as a theoretical concept. However, in a future simulated backcasting approach the idea is expressed as a concept that is already in existence, typically presented from a first person perspective and/or by embodying that preferred future state. An example of this future simulated backcasting approach is presented in Richardson's (2007) article. Richardson's (2007) article demonstrates his ideas with the use of fictionalised characters and he describes his proposals for the future as events that have already taken place. This type of technique is used in the Transition Towns Totnes case study for creating imaginary news broadcasts and newspaper articles depicting preferred future states (*see 5.4.1 Alternative Myths*).

Another example of a future simulated method is the creation of 'future simulated essays'. The following excerpt is from an essay written by Chris Ryan, supposedly from the year 2032. *"Following a well understood pattern in technological and social development, it is clear that the shape of Melbourne over these past 25 years was affected by a 'disruptive paradigm' that was to fundamentally change ideas about the organisation of systems of production and consumption, and the infrastructure needed to support sustainable economic activity" (Ryan, 2006a).* In the same article, he proposes 're-localisation' as a critical shift towards an ecologically balanced Melbourne (Ryan, 2006a). He suggests that diverse localised solutions will be an important component of economic development in the future. This would involve the creation of new sustainable systems at a local level, including new systems of water, waste, food, transport and housing. He proposes that this is something that will be actively supported by the Victoria state government and then later followed by its federal-state relations (relations that are developed in the later part of the century) (Ryan, 2006a).

Figure 24: Future Simulated Essay from 2032

Melbourne 2032:

Looking back over the last 25 years

[Edited extract from an internal report of the Victorian Department of Eco-Innovation and Sustainable Living (DEISL), January 2032: "Melbourne: the dynamics of change and the impacts of various policy approaches: learning from the revolution of the last 25 years?" by C. Ryan, Senior Policy Analyst.]

1. Introduction.

Sometimes we need to be reminded just how profoundly different Melbourne is in 2032, in its structure, in its economic base and in the nature of daily life, from the City that it was at the turn of the century.

Many of the significant changes to Melbourne over the last 25 years can be understood in retrospect as the outcomes of certain critical events as well as the changing nature of community concerns, over the intervening period. These events and concerns shaped the way that social, political and technological developments unfolded during and after the decades 2000-2020.

Another step taken by Chris Ryan using a future simulated backcasting exercise is to explore possible futures by evoking fictionalised future characters. One example of this are lectures in which Chris Ryan pretends to be his future grandson 'Jim Junior' and gives the presentation, in character, describing what life is like in an ecologically balanced Melbourne in the year 2032. In the presentation, he paints a picture of a future in which a service economy is flourishing, benefiting his (Jim Junior's) company. This company is said to provide everything from 'waterless washing' to repairing renewable products such as solar panels and wind turbines. However, Jim's most successful undertaking is the urban gardening sector. 'Jim's Mowing' company leases residential garden space for horticultural purposes including food growing. Jim claims that the food grown in this way contributes to a significant proportion of the total food consumed in Melbourne (in 2032) and suggests that the business might be expanded to incorporate 'Jim's Rooftop Gardening'.

Figure 25: Future Simulated Presentation from 2032[49]

Visions - Prof Chris Ryan As Jim's Son From Jim's Mowing At The Sustainable Cities Round Table, 28 May

Posted in Events, Models, Research, Sustainable Cities Round Tables, Visions by Ferne Edwards on June 13th, 2008

Professor Chris Ryan, director of the Victorian Eco-Innovation Lab (VEIL) gave a futuristic presentation at the recent **Sustainable Cities Round Table on Sustainable Food Systems**, 28 May. Titled, â€œ*From Jims mowing to Jims sowing*â€ and based on the VEIL Hub visions to consider what a sustainable Melbourne could look like in the year 2032 (to learn more about this visit http://www.ecoinnovationlab.com/activity/?p=6), Chris took on the role of Jim's grandson who in 2032 would have extended the business to include sustainable features! This presentation certainly impressed the audience. View for yourself below!

The future simulation techniques and visions that emerge from the Melbourne 2032 project present a particular point of potential for future reflective backcasting to build upon. The methods of simulating or embodying a preferred future state is a useful way of exploring and communicating future possibilities in an interactive, dynamic and engaging way. Future reflective backcasting encourages its participants to start the process by proposing radical ideas even if the ideas seem implausible (see *3.7 Futures as Unlimited Scopes of Possibilities*). Imagining such radical proposals can sometimes not only be difficult to envision but also difficult to articulate. However, simulating future states can help to overcome some of these barriers as demonstrated in the workshops carried out later in this research (see *6.3.3 Communicating the Future-Thing*). In section *6.3.3 Communicating the Future-Thing I describe* how metaphors and simulations can be used during the ideation process to give details to ideas, consider the potential consequences of the preferred future state and serve as an inchoate proposition until a clearer description can be obtained during the future reflective backcasting process.

[49] Original video footage can be viewed online at http://www.sustainablemelbourne.com/visions/visions-prof-chris-ryan-as-jims-son-from-jims-mowing-at-the-sustainable-cities-round-table-28-may/

5.6 CASE FOUR - WORKSHOPS

The fourth and final case study consists of a series of workshops that are designed to facilitate an exploration of the methods and possibilities presented in case studies 1, 2 and 3. These workshops were executed in loose and relatively unstructured contexts, with no pre-conceived ideas about what to look for or what will emerge. This is in line with the grounded theory approach taken in this research, a model which requires that the researcher does not second-guess the likely outcomes of the fieldwork process. The objective of these workshops was to provide platforms for participants to imagine and create specific future scenarios of what they would consider to be a preferred ecological future state. In the open workshop conducted with adults, participants were also asked to juxtapose the preferred state to the present one, in order to discuss issues around the problem, critically reflect on present states and identify points to intervene in present systems.

5.6.1 Secondary School Workshops

An unexpected opportunity arose to work in secondary schools which made it both possible and expedient to pilot elements of the workshop format in schools. The age group and school contexts posed design challenges. The first issue was to decide how to assimilate relatively theoretical ideas into an engaging, accessible format for children. With no previous teaching experience, another challenge was how to deliver the workshops, deal with unexpected situations yet still conduct a process that is relevant to the research. The experiences and sense of confidence gained from creating these school workshops had a positive impact on the final 'open workshop' conducted with adults. The school workshops were particularly useful in helping me to better understand how to design a space that was engaging, yet also engendered particular types of behaviours, interactions and processes that are relevant to future reflective backcasting.

The schools that eventually took part were self-selecting in the sense that they were the few who responded to a letter (Appendix B) that I sent to approximately 50 Goldsmiths partnership secondary schools. The schools that were interested provided me with a participant base that consisted of a cross-section of different types of schools (e.g. comprehensive, single sex and city academies) and gave me access to pupils from different ages (11-15), genders, ethnicities, socio-economic backgrounds and academic abilities.

My role as a temporary resident designer within these schools created the opportunity to set up workshops. The lesson structure that I developed (Table 11) revolved around the students working on a series of possible ecological future scenarios that depict what 'green' futures could look like. Students were asked to respond with radical and creative ideas for potential products, services or lifestyles that they would like to see in a possible 'green' future. They were also given the opportunity to create their visions within a context of their

own or a pre-defined scenario that I had provided e.g. *In the year 20_ _, I will be _ _ years old and we will never have to cut down any trees* (Table 11). I also gave the students freedom to respond in any medium or presentation style e.g. a magazine/newspaper article, a book cover, poster, song, painting, poem, a short comic strip, documentary, news broadcast, movie and so on.

Although I do not endorse the term 'sustainability' (see *2.1.1 Sustainable Futures*), I found it both expedient and necessary to use this term while conducting the school workshops because both teachers and students were very familiar with the concept. The term proved to be an invaluable way of setting up a coherent workshop format that built on existing knowledge and familiarity that students had with the concepts of 'sustainability', 'green' and 'eco-friendliness'.

Table 10: Individual Project

Part One Pick **ONE** of the following statements and complete it with a future year that you would like to work from. (i) In the year 20_ _, I will be _ _ years old and we will never have to cut down any trees. **OR** (ii) In the year 20_ _, I will be _ _ years old and nothing is ever thrown away because everything is re-used. **OR** (iii) In the year 20_ _, when I'm _ _ years old, all the water we use is recycled and none of it is ever wasted. **OR** (iv) In the year 20_ _, when I'm _ _ years old, petrol cars no longer exist because we have an alternative method of transport.
Part Two Design something that shows how the statement you have selected would work in your chosen future year.
EXAMPLES OF INDIVIDUAL PROJECTS (This section is given to teachers but not to students) *In the year 2020, everything is re-used and nothing is ever thrown away* that is why people make and customise their own clothes by re-using old garments. The vision is of a

poster for a “garment exchange shop” in the year 2020.

In the year 2025, petrol cars no longer exist because public transport is free and solar powered. The vision is a short comic strip that describes a typical bus journey in 2025.

In the year 2016 all the water we use is recycled and none of it is ever wasted” because we have a new home device that turns all waste water into clean water. The vision is the front cover of a manual for using and installing this device.

In the year 2013, everyone has special self-cleaning, re-usable containers for buying things like milk, butter and juice which is re-filled at the supermarket. The vision is of a 2013 newspaper article about this product. (Articles can be very rudimentary i.e. only consisting of a headline, sub-headings, placeholder text and pictures).

In the year 2018, people prefer to live in special bio-degradable tents rather than in houses because they can move their home to a different place every night. It also saves energy and resources. The vision is a chart topping song OR best selling poem produced in 2018 about what this lifestyle feels like.

5.6.1.1 SAMPLE LESSON PLAN

CLASS: Suitable for key stages 3 & 4

RESOURCES REQUIRED: Technical equipment – PowerPoint projector and access to the Internet.

EXTRA MATERIALS: Scenarios/ideas of possible futures, imaginary newspaper articles, posters, online footage of a 2030 news broadcast created by secondary school children in Devon etc.

Workshop One

Structure	Groupings	Activities
Stage 1 (Introduction)	Whole class	INTRODUCTION. Start off with a very brief introduction about what the workshops will involve i.e. thinking about what sustainability means and designing their own idea for a sustainable future.

Stage 2	Small groups Whole class	WHAT IS SUSTAINABILITY? Put students into small groups of 3-4 and give each group 10 small cards with the following items written on each card: flowers, photocopy machines, McDonald's restaurant, a car, a recycling bin, a television, energy efficient light bulbs, plastic bags, wind turbines and bicycles. Ask groups to divide cards into two categories of 'sustainable' and 'unsustainable' items. When they have finished, ask each group why they placed particular items in particular categories. Use their answers to build up a picture of what sustainability means.
Stage 3	Whole class and small groups	WHY DO WE NEED TO BE SUSTAINABLE? Use a future event like the 2018 World Cup or 2016 Olympics to get them to think about a specific point in the future. Ask them to calculate how old they will be when this event happens. Get them to think about what they will be doing e.g. work, study etc. Afterwards, put them into small groups and give each group a map of London and a corresponding question (which will be read out to the whole class): **Group 1** *We currently lose 1.5 acres of rainforest every second[50], how many trees do you think will be left in London at the 2018 World Cup?* Ask group 1 to remove trees from their map. **Group 2** *Every year London produce's more than 18 million*

[50] Source: World Culture Pictorial (2009).

	Whole class	*tons of waste*[51]*, if this is not recycled, how many more rubbish bins and landfill sites will we need in London when the 2016 Olympics happen?* Provide group 2 with little pictures of rubbish bins and landfill sites and ask them to add it to their map. **Group 3** *What would London look like in 2016 if we have 40% more cars on the road?* Provide them with little pictures of cars and ask group 3 to add it to their map. **Group 4** *In London, we use about 4 billion plastic bags*[52] *every year, some of this ends up in oceans, rivers and lakes, what could London look like in 2018 if we keep using and throwing away this many plastic bags?* Ask group 4 to add pictures of plastic bags to their map. Afterwards, tell them to look at their modified maps and ask students (at random) questions like: What do you think London would smell like if this happened? What kind of health problems would this situation create? Play the first 3 minutes from an animated school project that looks at the problem of rubbish, traffic congestion and plastic bags (http://www.youtube.com/watch?v=iI1IokqmDi0). Use this animation to talk about why it is helpful to use points in the future to think about solutions.

[51] Source: Greater London Authority (n.d.)

[52] Source: Environmental Graffiti (n.d.)

Stage 4	Whole class Small groups	SUSTAINABLE FUTURES. Present a series of examples that adults have produced to suggest what a sustainable future could look like. These examples include: imaginary newspaper articles from the future, scenarios, posters and TV news broadcasts from 2030 etc. Also, use these examples to suggest a variety of different ways to present ideas when creating their own visions in the next stage. Get them to re-group and ask each group to pick one of the examples that has just been presented. Ask students to make <u>two</u> lists. The first will be a list of <u>3 reasons why their selected future is sustainable</u> (e.g. it will create less waste) and the second is a list of <u>3 ways that they can make the idea possible</u> (e.g. designing a new way of buying food that doesn't involve unnecessary packaging). Select students at random to read out something from each list. Their feedback will be used to start a discussion about how it is possible to make ideas a reality. This will be done with real examples. For instance, revisiting some of the examples shown earlier in the workshop that later became real products.
Stage 5	Individual project (Rest of the Workshop) *Students will start working on their projects in the first*	INDIVIDUAL PROJECT. <u>Part One</u> Pick ***one*** of the following statements and complete it with a future year that you want to work from. (i) In the year 20_ _, we never have to cut

	workshop in order to discuss any uncertainties or get technical help if necessary.	down any trees. (ii) In the year 20_ _, everything is re-used and nothing is ever thrown away. (iii) In the year 20_ _, all the water we use is recycled and none of it is ever wasted. (iv) In the year 20_ _, petrol cars no longer exist because we have an alternative method of transport. <u>Part Two</u> Design a vision of the future that shows how the statement you have selected would work in your chosen future year. <u>Part Three</u> Write a small description that explains what the vision is, how it works and at least 2 ways that your ideas can become possible in reality. *Hand in sheets that cover all the information for part three will be supplied.* HAND-IN REQUIREMENTS • The vision should be presented in a digital format e.g. word document, PowerPoint presentation, music file, a digitally created image, photograph(s) etc.

		• It could also be any product from that year e.g. a magazine / newspaper article, a book cover, poster, painting, poem, a short comic strip, documentary, news broadcast, movie etc. • File size should be no bigger than 1MB • Work will be collected at the second workshop. *With permission, their work will be showcased online.*

Workshop Two

Structure	**Groupings**	**Activities**
Stage 1	Whole class	SUMMARISE WORKSHOP ONE*. Briefly talk about what happened in the first workshop, asking questions along the way e.g. Why did we do that? What did we say about that?
Stage 2	Small groups and whole class.	FEEDBACK. Put students into small groups of 3-4 and give each group a different question to answer such as: was it helpful to think about the future as a specific year? If you had to organise these workshops, what would you change? Ask each group to give their views to the rest of the class.

		With permission, this conversation will be recorded so that it can be later transcribed and used to improve subsequent workshops.
Stage 3	Individual project (Rest of the Workshop)	FINISH INDIVIDUAL PROJECT. Use the rest of the workshop to assist students in finishing their individual projects. Students that finish early will be asked to do one of the following activities: • SUCCESS CRITERIA. Think of different ways to measure how successful your vision is (e.g. people stop using petrol cars OR rubbish bins no longer exist.) • If you were going to sell this vision to your **parents** what kind of things would you say to convince them? • If you were going to sell this vision to someone in the **government** what kind of things would you say to convince them? *(Answers provided in bullet points)* If everyone finishes their project early, then each student will present their individual project to the rest of the group. * Students who missed the previous workshop will be given a summary sheet of workshop one.

A total of 5 workshops were held at 3 separate secondary schools which included the following:

5.6.1.2 HABERDASHERS' ASKE'S KNIGHTS ACADEMY

Haberdashers' Aske's Knights Academy (HAKA) overtook Malory School as part of the Labour government's City Academies initiative. HAKA is Downhams City Academy in Lewisham and the school is sponsored by the Worshipful Company of Haberdashers (in federation with Haberdashers' Aske's Hatcham College). There are currently two other separate 'Aske' schools in London.

The workshop took place on the second day of two consecutive 'Environment Days' where the whole school suspended normal classes in order to take part in creative green awareness activities including games, quiz's and fashion shows. I was given a whole morning (8.30am to 12.30am) to work with a small group of 15 pupils. This group consisted of a mixture of Year 7, 8's and 9's (i.e.11-13 year olds) in a class that was roughly 75% girls.

5.6.1.3 SEVEN KINGS HIGH SCHOOL

Seven Kings High School is a mixed-sex comprehensive. It is a specialist school in science, technology and language. My main contact was the Head of Design and Technology and he was incredibly enthusiastic about green issues. He had commissioned recycling bins to be used throughout the whole school and collaborated with his students to build a small green area with ponds, wildlife and plants. This green area is predominantly, used by science and biology students who monitor the local ecology and wildlife as part of their classes and personal projects. The workshop that I conducted took place in two separate two hour Design and Technology classes with a small group of 15 pupils in Year 10 (i.e. 14-15 year olds) in a class that was 99% boys.

5.6.1.4 WALTHAMSTOW SCHOOL FOR GIRLS

Walthamstow School for girls is a single sex community comprehensive secondary school in inner city London that holds a specialist status in mathematics and computing. I was given a group of 20 and 25 pupils in two consecutive 1 hour Design and Technology workshops. The group itself was made up of Year 8's (i.e. 11-12 year olds).

5.6.1.5 OUTCOMES

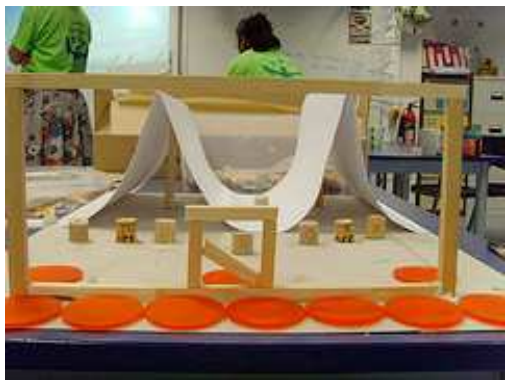
At the end of the 3 workshops, I received over 40 different ideas and proposals for preferred future states. Most of the ideas produced by students presented new technological products and systems. This may relate to the fact that a popular way of viewing futures is through the lens of technological advances. At the end of each workshop, the students were put into small groups and asked to give feedback on how they found the process. The vast majority

of students described how they enjoyed the workshops and liked that it made environmentalism enjoyable although they still had doubts about what would happen in the future and uncertain about their ability to affect positive change.

The table below is only a small selection of the ideas that the students produced at the workshops. A full gallery of the students work, including their comments and descriptions is posted online at
www.coroflot.com/practice-experiments/secondary_school_workshops_june-july_2009

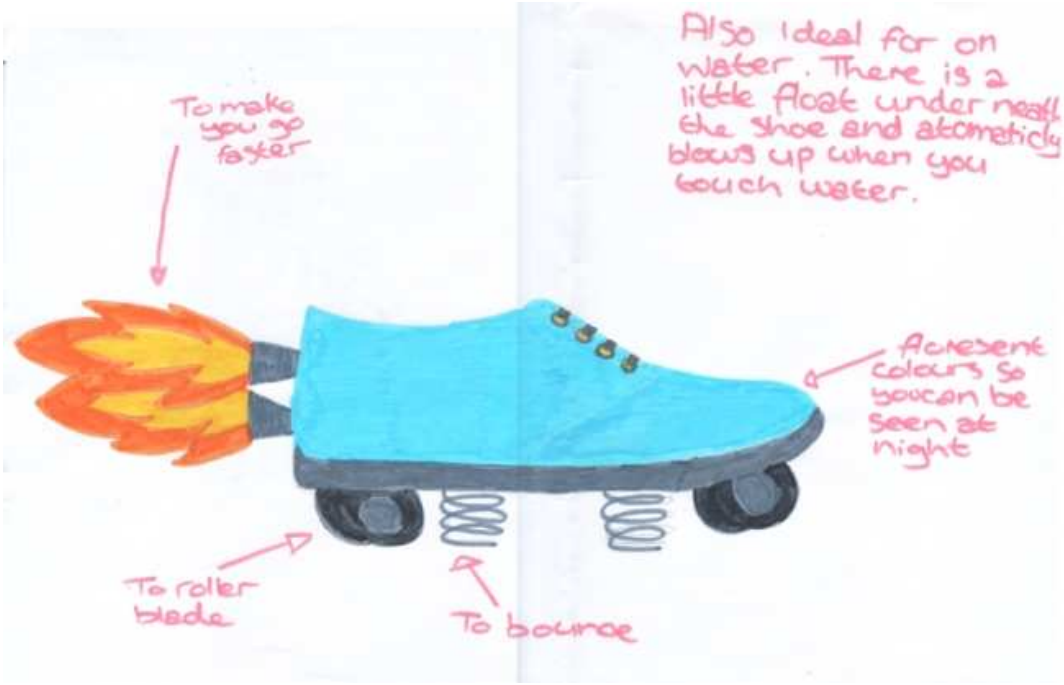
An analysis into some of the outcomes of the secondary school workshops will be discussed in the following chapter (Chapter 6: Data and Analysis). During this analysis, it will be possible to discuss the issues raised at the workshops in the context of data produced from the other case studies used in this research.

Table 11: Secondary School Student Futures

The Finestone – Year 8 Student	*Living in Tents* - Collaboration between 2 Year 7 Students
"*The car runs on dead creatures, plants and old rusty objects. It has a pipe that sucks the objects so you don't have to pick them up. It's made out of rocks, sand and rubbish that has had the smell taking out of it and animal skin (don't worry the animal died first!)*."	"*In the future we will live in biodegradable tents. Each street will be a row of tents and you can just pick up and move houses whenever you like*."
	

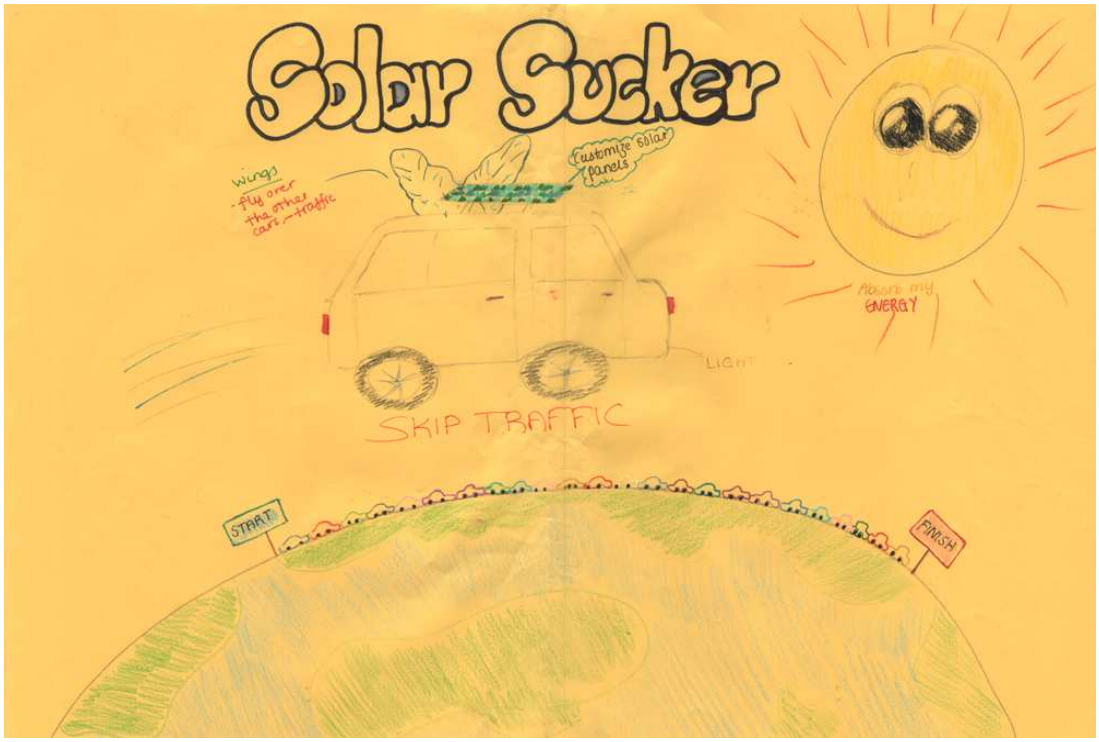
Special Shoes - Year 8 Student

"*You use them instead of a car. They can float on water, they have springs so you can jump with them and also wheels to skate.*"



The Solar-Sucker – Year 8 Student

"*During the day it doesn't use the stored energy but the energy it is absorbing. The reserved energy is used in the night. The top of the car is covered in solar panels. Faster drive, less weight. It has wings, so you can skip long traffic – fly over the unsustainable cars*."



5.6.2 The Open Workshop

The open workshop is an exercise that builds on the findings from the case study analysis into the first three case studies. One significant outcome that emerges from the analysis so far in this thesis is the impact that the setting can have on the backcasting process (see sections *3.4.1.2 Shell* and *5.3.3 From Rhetoric to Reality: The Herman Miller Company*). The table below illustrates some of the key differences between the hierarchical, expert-led settings and the egalitarian, community-led examples used in this research:

Table 12: Comparison of Different Workshop Settings

Hierarchical, expert-led settings.[53]	*Egalitarian organisational structures.*[54]
Organised around the needs of professionals and experts.	Self-organised workshops that accommodate participant's needs and/or changing circumstances.

[53] Based on the Shell, Brightworks, Cradle-to-Cradle and Melbourne 2032 illustrations.

[54] Based on the illustrations from the Transition Towns movement and EDAP public workshops.

Outcomes likely to be a fixed design brief[55].	The emergence of loose adaptable objectives.
Hierarchical decision making.	Decisions are reached consensually.
A tendency towards certainty.	A tendency towards questioning existing societal structures, environmental approaches and belief systems.

Based on these distinctions, I propose that settings which strive for egalitarianism are more suitable to the type of future reflective backcasting advocated in this thesis. The egalitarian, collaborative settings illustrated in the EDAP public workshop model allow and encourage each person to take equal part in the process irrespective of their knowledge, status or expertise. The EDAP model shows how such a setting is conducive to group collaboration in a supportive environment for people to discuss radical alternative futures. The Totnes workshop model also portrays how participants operating in an egalitarian setup instinctively use futures to critically assess presents systems and structures (see *5.4.3.1 My Experience*). For these reasons, the open workshop was conducted in a setting in which there a no explicit hierarchies and decisions are made consensually by all the workshop participants.

5.6.2.1 OPEN WORKSHOP PREPARATION

My involvement with an activist group called the *Culture Jammers* created the opportunity to conduct a workshop in an egalitarian organisational context. The organiser of the group was extremely interested in the secondary school workshops and had considered doing something similar with members of her group. Given this interest, it became possible for me to organise an 'open' workshop ('open' to her group and the general public) that would follow the future reflective backcasting principles outlined in this thesis.

Publicising this workshop was done through several different channels. The publicity deliberately targeted people who were already sympathetic towards environmental issues or those who were disenfranchised from mainstream systems e.g. self proclaimed hippies, anarchists, eco-feminists, etc. It is not in the scope of this research to persuade people to take up environmentalism or activism and it was more practical to focus on people who were likely to be interested in this type of workshop. The interest shown by the *Culture Jammers* also meant that it was practical to make it an open themed event rather than one that simply focused on environmental issues. Opening up the workshop like this also meant that the workshop did not alienate potential participants who had different concerns.

[55] Based on the Cradle-to-Cradle, Shell and Brightworks illustrations.

I advertised the workshop on activist websites such as www.indymedia.org and www.protest.net. I produced posters and flyers which were handed out at activist bookshops like the Freedom Bookshop in Whitechapel, Housmans Bookshop in Kings Cross and Bookmarks in Bloomsbury. I also produced an online blog to provide information about the event:
(http://designingfromthefuture.wordpress.com/2009/06/03/designing-from-the-future-workshop-1st-august-2009/).

Table 13: Publicity Leaflet

In 2030…

- In 2030, the government is no longer in 'Power' but in 'Service'.

- In 2030, there is only a market for morally and environmentally sound businesses.

In 2009 at 3pm on Saturday the 1st of August a public meeting is being held so that we, the people, can design the future that we want to live in.

Focusing on the year 2030, the meeting will be an opportunity to imagine preferred futures and share our ideas with others.

The first stage is to let our imaginations run wild.
The second stage is to work backwards with the question in mind: What needs to change in the present systems to help make this happen?
The third stage is to decide what we can do **now**.

'Designing from the future' is an idea started by people who believe that it is time to stop focusing on what is wrong with the world and begin to focus on what we want the world to look like. We are inviting people to dream and reconnect with a youthful wishful thinking that is often hard to find in our cynical, bureaucratic, mechanistic and 'rational' belief systems.

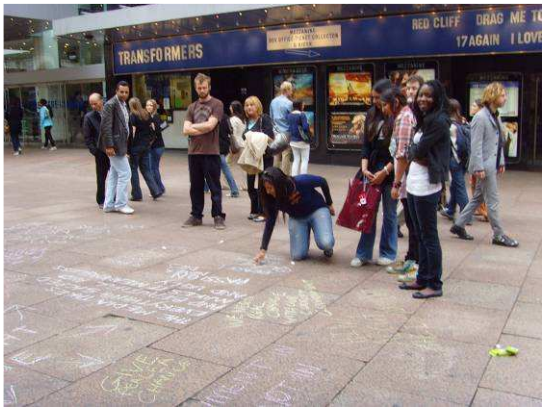
Please contact us at designingfromthefuture@gmail.com for details about the location of this event.

http://designingfromthefuture.wordpress.com

Another way of finding potential participants was during activism in public spaces, specifically one activity nick named 'chalking'. 'Chalking' was inspired by the work of the Infinite Possibility Organisation who carried out a 'Chalk4Peace' campaign. The process involves writing down ideas, thoughts and messages with chalk on the pavement. The *Culture Jammers* adopt this method as a form of protest and have used it in several London public spaces including Trafalgar Square, Monument Bridge and the Southbank Centre.

I took part in one of the chalking protests at Leicester Square. I expected opposition and confrontation, but instead I was met with interest and curiosity. In fact, ordinary members of the public joined the group and took part in the demonstration. Consequently, this public intervention was also used to hand out leaflets and invite people to the open workshop.

Table 14: 'Chalking' Demonstrations



5.6.2.2 THE WORKSHOP PROCESS

Weeks of canvassing led to a three hour workshop that was made up of a total of nine people. The group was made up of three male and six female participants who were between the ages of 21-65 and came from different ethnic backgrounds. The group included an IT professional, office workers, a pensioner, an unemployed self-proclaimed anarchist, undergraduate student and practicing artist. Two of the participants found out about the event through online advertising and brought friends, while others had either found out about it during the chalking protest or had seen a leaflet at a bookshop. The people who attended came with a variety different concerns, everything from globalisation, corporate power, sexism to environmental degradation and climate change.

The open workshop format borrowed heavily from the Transition Towns Totnes EDAP futuring workshops described earlier in this chapter (see *5.4.3 The EDAP Public Workshop*). The process started with some pre-written future scenarios and ideas on post-it notes. Pre-written ideas were necessary to help initiate visions and liven up the initial quietness at the beginning of the workshop. During the EDAP and secondary school workshops, I noticed that some people found it very difficult to walk into a workshop and immediately create radical ideas without some sort of stimulation. Participants at the open workshop were then asked to either pick one of the pre-written post-it notes or write down their own idea for what they would like to see in the future. This workshop was not theme related, so people had the opportunity to create futures on any topic i.e. health, education, transport etc.

After choosing and/or creating possible future ambitions, participants were asked to divide themselves into smaller groups of 2-3's. The creation of smaller groups is intended to help people who are not confident in speaking in a large group. This group structure also creates the opportunity for participants to work in small theme related groups so that they are with people who have similar interests.

Within these small groups, each person was asked to describe their future vision(s). Participants were encouraged to make this as specific as possible i.e. in terms of what, where and when (year). Rather than simply working out a path towards achieving their visions, participants were asked to use the preferred future states to discuss and reflect on what needs to change in present systems. This stage is important because it sets the context for the 'reflective' aspect that is important to future reflective backcasting. In backcasting, this phase would simply be about working out which steps need to be taken to achieve the desired outcome. However, the articulated preferred future state in the future reflective backcasting workshop is to be used as a means for understanding and identifying what needs to change. The way this question is framed is crucial. Asking, the question *'how do we get there'* invites answers that are concerned with goals and objectives. On the other hand, the question, '*what needs to change'* is a way of opening up a discussion that is implicitly about implementation but also elicits a re-consideration of the efficacy of existing systems and an identification of present structures that need to be transformed. The way these exchanges actually play out is presented in section 7.*3 Future Reflective Scenarios*.

The final requirement was for each group to have a facilitator that would gently bring back the conversation into focus as well as keeping the conversation optimistic i.e. focus on what *is possible* rather than focus on everything that is not possible. To help maintain this optimistic perspective, I provided jars of sweets labelled 'optimism pills', 'positive thinking pills' and 'creativity pills'[56] which were to be offered to people who started to discuss something negative or defeatist. This method proved to be a very successful and light-hearted way of encouraging discussions to take place in the realm of opportunism and optimism.

[56] This is similar to a technique of using 'Contagious Optimism Pills' by the Architect, Mike Davies CBE.

Figure 26: Ideas for 2030 on Post-it Notes

Figure 27: Creativity, Optimism and Positive Thinking Pills

After each sub-group had finished, they were asked to feedback their ideas to the whole group. The objective was to use this larger group discussion as a way for everyone to share ideas, collaborate, start alliances and network. It was also intended to be a moment for people to identify possible actions that could be taken in the present to begin to implement the necessary changes that had been identified.

Figure 28: The Open Workshop

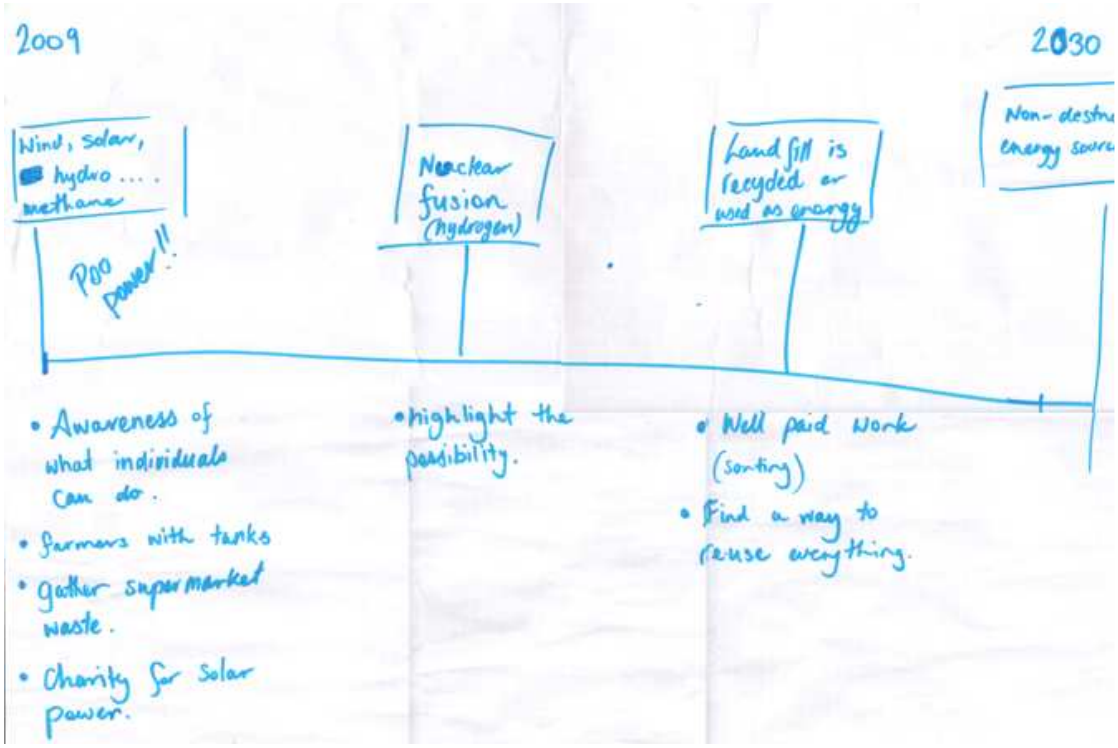
5.6.2.3 MY EXPERIENCE

At the start of the workshop, one of the participants remarked, *'if there is no environment, there is no future'* and said that he would like to work with other people who were interested in environmental futures. I joined this small sub-group of four people (including myself) which was facilitated by another participant that took all the notes as well as drawing up a loose action plan (Figure 29). I offered some suggestions about how the action plan could be drawn, based on my experiences in Totnes, but I generally took a passive role in the organisation and facilitation of this sub-group. I was, however, an active participant and presented some of my own personal ideas for possible environmental futures and attempted the future reflective backcasting processes.

As with the experiences from the EDAP public workshop in Totnes, the open workshop participants instinctively began to question how the visions could come into fruition. This led to pessimistic conversations about the possible barriers that would prevent the realisation of the preferred future states. I was prepared for this, and the props (such as optimism pills) were very effective at turning potential pessimism into a quest for action. After an initial period of polite discussions, we (myself and the other participants) soon found ourselves flowing with enthusiasm and ideas. I personally experienced a sense of contagious optimism

and creativity as each person's idea was broadened, deepened, strengthened and improved by other participants. It was my experience that people were able to envision futures more concretely and imaginatively after their ideas were discussed and encouraged by other participants. This also meant that the preferred future seemed more viable after a sense of 'what is possible' had been expanded and reinforced. Rather than individual futures, all futures and ideas organically merged into one big future scenario and the group put together a tentative action plan. The future scenario and action plan then became the basis of a discussion around the related topics and issues. After analysing the consequences and conditions for those futures to materialise, the group changed their minds about what changes are necessary and re-imagined the original preferred future state (see 7.*3 'Future Reflective Scenarios'*). Figure 29 is the outcome of the collaborative group future reflective backcasting process that incorporated all of the visions created by the group members. A larger version of the image below, which is more legible, can be viewed online at http://www.coroflot.com/practice-experiments/2030-open-workshop-august-2009/11

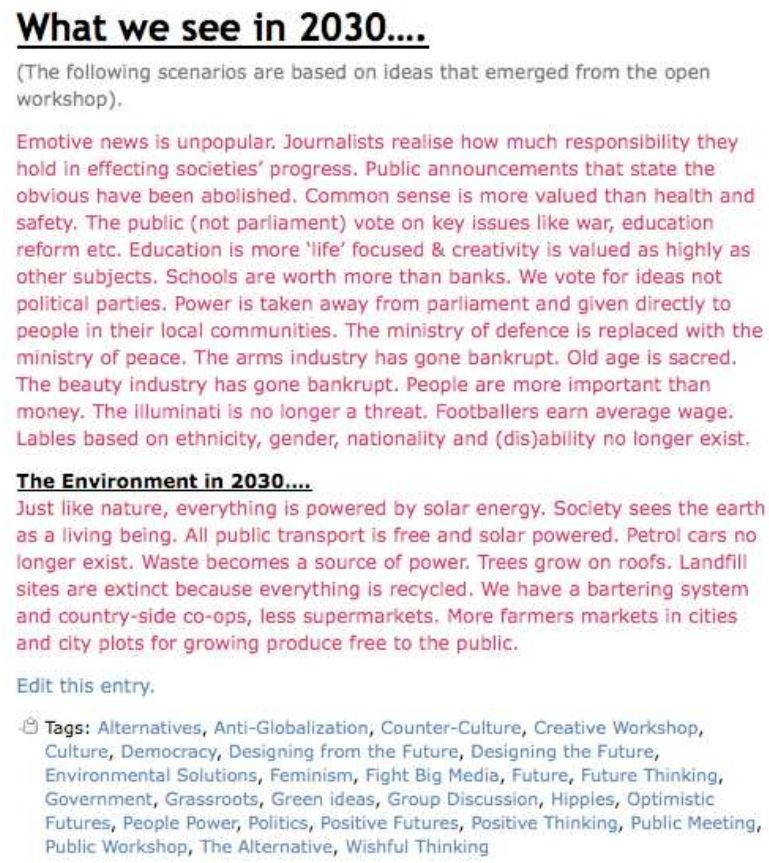
Figure 29: Open Workshop: Environment Sub-Group Action Plan



5.6.2.4 POST-WORKSHOP

After the workshop, I posted a compilation of the discussions and loose action plans on the blog and circulated it to all the attendees. All the post-it notes of future visions created at the start of the workshop were collected and used to construct a scenario for 2030 (see Figure 30). I also used the loose action plans and some individual notes taken by the participants in the 'environment sub-group' to form the basis of a more detailed action plan (see Table 17) which is also posted on the blog.

Figure 30: What we see in 2030….



What we see in 2030....

(The following scenarios are based on ideas that emerged from the open workshop).

Emotive news is unpopular. Journalists realise how much responsibility they hold in effecting societies' progress. Public announcements that state the obvious have been abolished. Common sense is more valued than health and safety. The public (not parliament) vote on key issues like war, education reform etc. Education is more 'life' focused & creativity is valued as highly as other subjects. Schools are worth more than banks. We vote for ideas not political parties. Power is taken away from parliament and given directly to people in their local communities. The ministry of defence is replaced with the ministry of peace. The arms industry has gone bankrupt. Old age is sacred. The beauty industry has gone bankrupt. People are more important than money. The illuminati is no longer a threat. Footballers earn average wage. Lables based on ethnicity, gender, nationality and (dis)ability no longer exist.

The Environment in 2030....

Just like nature, everything is powered by solar energy. Society sees the earth as a living being. All public transport is free and solar powered. Petrol cars no longer exist. Waste becomes a source of power. Trees grow on roofs. Landfill sites are extinct because everything is recycled. We have a bartering system and country-side co-ops, less supermarkets. More farmers markets in cities and city plots for growing produce free to the public.

Edit this entry.

Tags: Alternatives, Anti-Globalization, Counter-Culture, Creative Workshop, Culture, Democracy, Designing from the Future, Designing the Future, Environmental Solutions, Feminism, Fight Big Media, Future, Future Thinking, Government, Grassroots, Green ideas, Group Discussion, Hippies, Optimistic Futures, People Power, Politics, Positive Futures, Positive Thinking, Public Meeting, Public Workshop, The Alternative, Wishful Thinking

The following table is the full text from the diagram above.

Table 15: What we see in 2030….

What we see in 2030….
(The following scenarios are based on ideas that emerged from the open workshop).
Emotive news is unpopular. Journalists realise how much responsibility they hold in

effecting societies' progress. Public announcements that state the obvious have been abolished. Common sense is more valued than health and safety. The public (not parliament) vote on key issues like war, education reform etc. Education is more 'life focused'. Creativity is valued as highly as other subjects. Schools are worth more than banks. We vote for ideas not political parties. Power is taken away from parliament and given directly to people in their local communities. The ministry of defence is replaced with the ministry of peace. The arms industry has gone bankrupt. Old age is sacred. The beauty industry has gone bankrupt. People are more important than money. The illuminati is no longer a threat. Footballers earn average wage. Labels based on ethnicity, gender, nationality and (dis)ability no longer exist.

The Environment in 2030….
Just like nature, everything is powered by solar energy. Society sees the earth as a living being. All public transport is free and solar powered. Petrol cars no longer exist. Waste becomes a source of power. Trees grow on roofs. Landfill sites are extinct because everything is recycled. We have a bartering system and country-side co-ops, less supermarkets. More farmers markets in cities and city plots for growing produce free to the public.

Tags: Alternatives, Anti-Globalization, Counter-Culture, Creative Workshop, Culture, Democracy, Designing from the Future, Designing the Future, Environmental Solutions, Feminism, Fight Big Media, Future, Future Thinking, Government, Grass roots, Green Ideas, Group Discussion, Hippies, Optimistic Futures, People Power, Politics, Positive Futures, Positive Thinking, Public Meeting, Public Workshop, The Alternative, Wishful Thinking

Table 16: Detailed Action Plan

2009	2012	2020	2030
STAGE 1 Clarify our message(s) and which ideas we want	Nuclear Fusion (Hydrogen)[62] is regularly discussed	Everything in the landfill is either recycled OR used as	Everything is powered by a non-destructive source of

[62] This is not the same as the current approach of nuclear fission, which splits atoms to make energy but creates dangerous waste. In *'fusion'*, atoms are combined to create energy without producing harmful nuclear waste.

to spread. Start doing research into things like nuclear fusion, generating energy from waste, gathering waste from supermarkets, permaculture[57], crop rotation[58] and using human waste for energy (poo power!) Think about how to present and spread the information (e.g. leaflets, subvertising[59], chalking[60], brief cases for goal posts[61] etc.) STAGE 2. Start a charity to raise money for more people to have solar panels. Create a network for people to share ideas, information, get help,	in the mainstream. Wave power[63] is used more often.	a source of energy. Jobs such as landfill sorting etc. are very well-paid and have a high-prestige.	energy. For example, the national grid is re-powered with something like solar energy. Everything is re-used and landfills have become extinct.

[57] Permaculture is a combination of the words '**perma**nent agri**culture**'. Permaculture is a way of modelling agricultural systems on the relationships found in natural ecologies in order to maximise the productivity and health of the land.

[58] Crop rotation is the process of growing different types of crops in a sequence of seasons in order to balance the fertility needs of some crops but also avoid harm to soil nutrients.

[59] *'Subvertising'* is the process of making spoofs or parodies of political slogans and corporate publicity in order to change its message.

[60] *'Chalking'* is a protesting method that involves writing down messages on public pavements with chalk.

[61] This protesting method involves playing football in a public space and using a briefcase as a goal post.

[63] Creating energy through the generation of waves.

start alliances, collaborations etc. Guerrilla gardening, start small allotments, start small-scale projects. Learn to grow our own food. Become more self-sufficient and less reliant on supermarkets. Start a political party. Not with the intention to get elected but as a way to discuss issues in mainstream public discourse.			

The group started to consider how to put some of these ideas into practice during and immediately after the workshop. For instance, the group agreed upon locations to start guerrilla gardening and started the registration process to become a charity that will raise money for solar panels to be provided in fuel poor areas. My involvement with the *Culture Jammers* also led to the creation of a political party that will campaign on some of the issues raised at the meeting. The party is called 'What if' and is intended to be a protest party that will challenge the status quo by suggesting radical alternatives.

However, it also has to be said that the initial enthusiasm created by the workshop very quickly died down. It has been very difficult to maintain interest and continuous involvement towards implementing the ideas. On-going participant involvement has been minimal at best. This raises issues about how to evaluate the success of this workshop beyond immediately identifiable actions. In the following chapter (see *6.3.6.2 The Effects of a Future Reflective Backcasting Workshop*), I will propose a possible success criteria for a future reflective backcasting workshop that will evaluate it in terms of how it enables creativity, learning, opens up opportunities, suggests new networks for collaborations and helps people decide what actions to take in the present.

5.7 SUMMARY

This chapter provides a detailed description of the case studies that illustrate the potential for future reflective backcasting. It serves to identify the specific instances that will be revisited during the data collation stage. The case study approach is useful because it provides real life manifestations of the ideas that can be interrogated, dissected and probed. Some of the case study instances such as the Transition Towns Totnes EDAP public workshops and the final workshops in case study four also allow for me to directly participate in the process. In addition to this, the Cradle-to-Cradle Mirra chair scenario and Melbourne 2032 project provide rich sources of secondary data.

Case studies can be criticised for lacking in rigorous structural procedures, with too much room for researcher bias. However, the benefits that the case study approach offers to this type of research outweigh these criticisms. It allows the empirical explorations to be situated in the actual settings of the backcasting processes. The materials, understandings and experiences gained create a set of cross-reference points, suggesting which issues re-occur and therefore warrant further investigation.

In this chapter, I critically explored each case study by focusing on specific areas that are relevant to the objectives of this research. The first case, Cradle-to-Cradle presents how backcasting can be used to create a set of priorities to design and develop a new product (the Mirra chair) for Herman Miller. The Mirra chair design scenario is used to show how some settings might not be conducive to a future reflective backcasting process. This is in the sense that the future reflective backcasting approach encourages a continual process of revisiting and, if necessary, re-imagining preferred future states as spaces for re-contextualising, formulating and reformulating solutions throughout the whole process, even during the implementation phase. In the commercial context of Herman Miller, in which there are budgetary and resource limitations, it could be difficult and possibly inappropriate to carry out a continual reflective process.

The Melbourne 2032 is a project that brings together design professionals, government representatives and academics in order to envision possible ecological future states for Melbourne in the year 2032 and beyond. Proponents of the project, such as Professor Chris Ryan, explore the visions that emerge from the initial ideation stage through a series of future simulated backcasting processes. I consider these techniques to be a possible method for interrogating and presenting preferred future states in the future reflective backcasting approach.

The next case study scenario is the Transition Towns Totnes EDAP (Energy Descent Action Plan) group, who enlist preferred, timescale-driven futures to suggest a post-oil way of existence. I focus on the EDAP public workshops which enable Totnes residents to envision future based scenarios. I participated in the public backcasting workshops. Based on my experience of participating in the workshop, I suggest that the format used in these workshops display possibilities for how a future reflective backcasting workshop could operate. However, the EDAP public meetings also present some significant areas of weakness. For instance, I felt that the workshops lacked a facilitator to co-ordinate the sub-groups. The workshops required some moderation techniques to help prevent and/or manage moments when participants became pessimistic about the ideas ever coming into fruition or the possibility that they could achieve anything worthwhile.

The final case study consists of a set of workshops that builds upon the processes and techniques presented in the first three cases. It is from these final workshops that I receive participant feedback and base recommendations that I produce in the final chapter of this thesis.

Chapter 6: Data and Analysis

6.1 INTRODUCTION

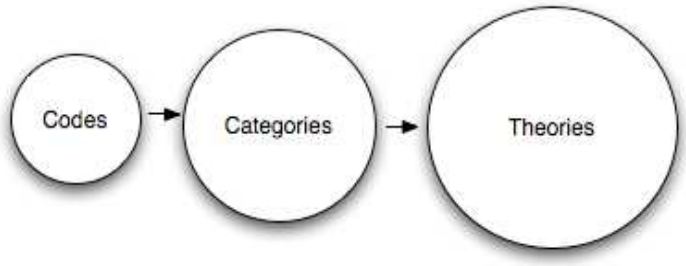
This chapter will present the key variables that have emerged from the case studies under exploration. Grounded theory methods of coding and substantiation are employed to dissect and analyse the data obtained from the participatory case studies: Transition Towns EDAP and the case study four workshops. Grounded theory is particularly useful because it ensures that theories emerge directly from the data. The theories that emerge from this process are substantiated by data triangulated from different primary and secondary sources.

The participants of these workshops provide significant insights into the value of a future reflective backcasting practice. According to interview responses, the process does not necessarily remove all the uncertainties and insecurities of dealing with ecological problems. It did however, help them to generate ideas in ways that were unexpected, broadened their perception of possibilities and provided them with a means of seeing beyond obstacles. Some participants even found it helpful to re-use the future reflective backcasting workshop format in their profession. Others found that it helped them to overcome anxieties over their lack of knowledge, time, resources and expertise by suggesting opportunities for networking and collaborating. The substantive aspects of participant experiences and secondary data highlighted in this chapter underpin and inform the characterisation of the future reflective backcasting workshop model that will be put forward in the next chapter.

6.2 CODING

The grounded theory approach to data analysis involves a process of seeking out the concepts behind the actualities by looking for codes, then concepts and finally creating categories which lead to theories. This is based on the original suggestion by Glaser and Strauss (1967) who propose a structural process of codes -> concepts -> categories -> theories. In my application of grounded theory, I consider a code to be a short description of the content of a sentence, phrase or cluster of related sentences from the interview transcript. A concept is a cluster of codes that are similar in theme and subject matter. A category is a cluster of related concepts. A theory is an insight or hypothesis based on the evidence provided in the categories which emerge from the coding process. However, in applying this method to my data analysis, I dropped the ‘concept’ stage because it led to over-analysis and created unnecessary repetition. Hence, the coding process was modified accordingly:

Figure 31: Coding Process



I coded the interviews by working through each participant interview transcript and extracted what I considered to be important comments that were relevant to their experience of using backcasting. The relevant comments were taken out in chronological order, in the sequence of how they actually occurred in the transcript itself and this is so the reader can easily see which statements were decided upon. I then created a code that concisely described the main message of each statement before clustering the codes together into a category. The categories that emerged from this process were used during my data analysis to show patterns and re-occurring issues that link participant experiences, secondary material and primary data that emerged from the four different case studies.

6.2.1 Participants 'H' and 'W'

The following table shows the emergence of concepts from the first semi-structured interview conducted with two active members of the Transition Towns Totnes EDAP group who have taken part in the experimental futuring activities. For instance, they have both taken part in the EDAP public workshops and 'future-myth–making' exercises such as creating future newspaper articles (see Figure 17). The interviewees are a couple in their 60's and have been involved with the Transition Towns Totnes EDAP group since it started in September 2006. They are also central members of the small Totnes community and have close personal links to the group organisers, including founder Rob Hopkins. The full transcript of this interview is in the appendices. For practical reasons, the Transition Towns Totnes case study is referred to as 'T_x' during the coding process. When there are comments from both participants in direct succession (in the 'extracts from the interview' column in the table below) this represents the exact sequence of how the conversation actually occurred in the interview.

Transcription Keys:
W – Participant 1
H - Participant 2
"xyz" said in the form of a quotation/speech

[xyz] descriptions of actions that took place

[xyz] my insertion to clarify a statement

(…) represents omitted text

… indicating an interrupted statement

– represents a slight pause and/or a change in thought

Table 17: Codes from Case Study T - Joint Interview with Participants 'H' and 'W'

ID	Extracts from the Interview	Code
T_x1	H: well it was right on our doorstep, it was right in our faces. W: (...) there was a poster for a meeting, so we turned up H: yes, they were literally just up the road	Very accessible
T_x2	W: well it's been very jolly	Positive experience
T_x3	W: we've met a younger age group (…) meeting younger people has been really good H: some of the meetings are now almost completely people that we haven't met before	Opportunity to meet different types of people
T_x4	W: small section of the town	Low participant rate
T_x5	H: local council (…) have been, I must say remarkably resistant	Opposition from local authority
T_x6	H: the last year there has been burn out, now who can we get to help us with this? W: Get the man power (…) because it needs full time on it (…)	Needs more man power
T_x7a	W: the human mind's capacity to generate ideas has got no relation to its capacity to carry them out in any effective sort of way. So it's inevitable, really, that it takes time to sift them out and say *"well we can't be doing all this"* or somebody else may be doing it as well	Prioritisation of ideas

T_x7b	W: can only be doing or having only a limited number of things of all the possibilities and, you know, you can only be living in one place at one time	Prioritisation of ideas
T_x8	H: I don't. I must say it's a thing you have to do a lot	Backcasting needs practice
T_x9	H: so thinking holistically involves, well, just a huge amount of time	Holistic thinking takes time
T_x10	W: I mean what we're doing is just speculative thinking and we're not- nobody paying us to do it, the sort of amateurishness of it or the 'voluntariness' of it is an essential part of it really (…) the initial thing of it I think has to be voluntary (...)	'Amateurishness' and 'voluntariness' are essential
T_x11	H: that's the worst thought completely- make people think there is nothing they can do about it therefore there is no point in doing anything so it just gets completely sidelined and this is the positive look and that's the way to make sure that at least we can do something.	Positive outlook can counteract despondency
T_x12	H: In the end, if it all goes pear-shaped and we get extinct, well we didn't give it our best shot. Because we didn't start it nearly early enough. But we personally are not going to be there at the extinction (…)	In acceptance of possible negative outcomes
T_x13	H: it's not too difficult to do 2030 because well to do 2015, 2012 is much more difficult because you've actually got to do it (…) now you actually have to. It's no good thinking about it, you've got to get on and do it… where as 2030 you can confidently put that there and know that there is probably someone else who is going to (…) H: so the timescales I think are (…) the nearer	Medium to long term timescales are easier because short term timescales require immediate action

	they are to you I think the more (…) you shy off it because it means you've actually got to do something	
T_x14	W: but also, I think *"well how old will I be then and what will I be like and how will I fit in"* (…) I mean we are in our 60's now so in 20 years time you know we will be mid 80's (…) if you move into a different physical kind of thing H: Zimmer frame around W: (…) you do think to yourself, well you know a lot of old people haven't got enough time and how will people treat us?	Age related consideration of futures
T_x15a	W: Inclusiveness (…) nobody's left out, social justice	Inclusiveness is a 'successful' outcome
T_x15b	H: I'd probably say that actually we don't need to do that. We shouldn't do it (…) I'd much prefer to do is to name some things as successes as we go along (…) *"was that a success or not?*" and I would much prefer to say *"no we had to do it and we did it, we got on with it"*	We shouldn't think in terms of 'success' but name some things as successes
T_x16	H: I think probably a block to spreading it out to everybody is (…) only conveniently displayable in things like graphs and pie charts but people do not understand them … they complain constantly (…) "*I hope you're not going to give us any graphs*." Can't read them (…) basic scientific concepts in particular presentation of information (…) You can present the information in numerical form and present it in other forms and it's easy enough to present	Better visual presentation of information and ideas are needed

Table 18: Emergent Categories from Case Study 'T'

Code	Category
Very accessible (T_x1) Positive experience (T_x2) Opportunity to meet different types of people (T_x3) Positive outlook can counteract despondency (T_x11)	Positive experiences
Low participant rate (T_x4) Opposition from local authority (T_x5) In acceptance of possible negative outcomes (T_x12)	Challenges
Prioritisation of ideas (T_x7a, T_x7b) Needs more man power (T_x6) Backcasting needs practice (T_x8) Holistic thinking takes time (T_x9) Better visual presentation of information and ideas (T_x16)	Practical issues
'Amateurishness' and 'voluntariness' are essential (T_x10)	Necessary component(s) of practice
Medium to long term timescales are easier because short term timescales require immediate action (T_x13) Age related consideration of futures (T_x14)	Temporality
Inclusiveness is a 'successful' outcome (T_x15a) We shouldn't think in terms of 'success' but name some things as 'successes' (T_x15b)	How to define 'success'

6.2.2 Participant 'M'

Interviewee 'M' is a third year design student studying for a BA at Goldsmiths who has carried out future workshops with primary school children in Sweden. Her interest is in the fallacy of predictions and the use of futures as a way to re-orient people's experiences in the present. Although there is no specific subject matter for her future workshop experiment, it is similar to the secondary school workshops that I produce in case study four. Hence, this interview was invaluable in terms of informing how I developed the lesson plans, workshop exercises and my general strategies for engaging a younger audience.

Table 19: Codes from Interview 'M'

ID	Extracts from the Interview	Code
M_x1	I am also trying to be absurd with it and trying to prove that the future isn't something regular that can be predicted that much, it is a kind of complicated issue.	Futures are too complicated to be predicted
M_x2	It's actually more rooted in the present, ironically, then in the future I am trying much more to shape the children's experiences and shape their confidence in creativity rather than just trying to shape what's going to happen. It's more about constructions and thoughts.	Intention to shape children's confidence in creativity rather than focusing on what's going to happen in the future
M_x3a	Originally, I did think of time limits a bit but the more I worked on this project the more- this isn't very good.	Uncertainty over which timescales to use
M_x3b	There where no timescales for any of those. Initially a few months ago, when I was thinking about my project, I was thinking should I think about 100 years? 500 years? Or 2 years?	Uncertainty over which timescales to use
M_x4	Oh no this is based in the future, it could have been 50 years, 100 years or 200 years. I deliberately didn't specify. I just wanted it to be quite (inaudible). This is quite interesting because they are taken out with no context.	Preference for open-ended futures

Table 20: Emergent Categories from Interview with 'M'

Code	Category
Futures are too complicated to be predicted (M_x1)	Futures can not be predicted
Intention to shape children's confidence in creativity rather than focusing on what's going to happen in the future (M_x2)	Futures to inform ideation
Uncertainty over which timescales to use (M_x3a) and (M_x3b) Preference for open-ended futures (M_x4)	Temporality

6.2.3 Participant 'D'

Participant 'D' is a practicing artist and student liaison officer at a London college who took part in the 2030 open workshop. He instigated the creation of an 'environment sub-group', by declaring that he wanted to work with other people who were interested in focusing on ecological futures. Consequently, he was considered as the facilitator of this sub-group which included three other people (including myself). In the interview extracts below, there are some instances where I have put together separate statements from the participant which are related, however, they are clearly marked as separate statements.

Table 21: Codes from 2030 Workshop Environment Sub-Group - Participant 'D'

ID	Extracts from the Interview	Code
D_x1a	I really enjoyed it. I thought it was great. I thought it has been one of the best things that I've been involved with in ages	Enjoyed the workshop
D_x1b	It was a very positive experience	A very positive experience
D_x1c	I came away really excited with it	Left with a feeling of excitement
D_x2a	Yeah because it really it taps into, you know, really into the imagination of ways that we can	Taps into imaginative ways of dealing with

	actually deal with, you know, the world we're living in	problems
D_x2b	I thought there were some really good ideas that came from that	Good ideas emerged from the workshop
D_x3	D: In fact, I've been looking at using it as a model for a 'green group' in my college. D: Yeah absolutely, I intend to take- I intend to steal your idea.	Will re-use model in his own practice
D_x4	D: No, no I think it [the workshop] worked pretty well. D: It's, you know, I don't think there is anything to be added (…) D: No. Initial free for all of thought and then put them into groups and come up with ideas. I think it makes complete sense.	The workshop format does not need to be changed
D_x5	D: The only thing that is interesting is what, how we saw it as in trying to follow through with the ideas because that's the cruck of it isn't it? Or the crux of it. D: I mean though, it is isn't it? You know, do you have the conviction to follow through your own words?	It is important to implement the ideas
D_x6	From the position that we wanted, um I guess the real difficulty there was my fear that I guess the ideas we came up with were quite… that you'd want them to happen	Wanted the ideas to happen
D_x7	Yeah, the ideas that we all came up with, you know, I got really excited by it and there were some things that I really wanted to happen	Excited by the ideas and wanted them to come into fruition

D_x8a	But just the idea of a small group sitting in a small room in London and the possibility of it happening didn't fill my heart with that much joy but I hoped I'd prove myself wrong	Pessimistic about the ideas coming into fruition
D_x8b	…which is why I wanted more of them [workshops] really	Wanted more enough workshops
D_x9	I would have said maybe a longer term	2030 is not long enough
D_x10	I say that it means that I think, probably, what we would want to achieve wouldn't happen that quickly.	The ideas may take long to realise
D_x11	A more realistic time frame for what we probably would've have wanted would have been (pause) I don't know	Uncertain which time frame would be best
D_x12	D: Yes, well a lot can happen, you know, look how quickly the whole of the planet pulled its resources together during the second world war, just like that. So it can be done, I just think there are too many obstacles, we need a Hitler sitting at the top of Canary Wharf before people- D: Yeah, sitting on top of Canary Wharf before things actually really start to change.	Change can happen but there are too many obstacles
D_x13	D: Success would be actually going ahead and doing it. D: Yeah, because otherwise it's just ideas that don't go nowhere. It's action over thought really.	'Success' is the implementation of the ideas
D_x14	Whether people took it on board and people kind of thought it was a good idea. Um and you'd feel it.	'Success' is whether people accept it as a good idea
D_x15	D: How do you know your going in the right direction? Gut instinct. It's that simple.	Gut instinct will dictate whether you're going in

	D: You'd feel it if something was wrong you'd know within yourself. Whether you can put that down to scientific valuation I'm not sure but as with all things in life, you know the way I've created my own job, the job that I'm doing now, you know, I created it. I just done the whole thing by working off my gut instinct because it's how humans work.	the right direction

Table 22: Emergent Categories from Interview 'D'

Code	Category
Enjoyed the workshop (D_x1a) A very positive experience (D_x1b) Left with a feeling of excitement (D_x1c) Excited by the ideas and wanted them to come into fruition (D_x7) Wanted more enough workshops (D_x8b)	Positive experiences
Taps into imaginative ways of dealing with problems (D_x2a) Good ideas emerged from the workshop (D_x2b)	Futures to inform ideation
Will re-use model in his own practice (D_x3) The workshop format does not need to be changed (D_x4)	Workshop format
It is important to implement the ideas (D_x5) Scared by the desire to realise the ideas (D_x6) Pessimistic about the ideas coming into fruition (D_x8a) Change can happen but there are too many obstacles (D_x12)	Challenges of actualising the vision(s)
2030 is not long enough (D_x9) The ideas may take long to realise (D_x10) Uncertain which time frame would be best (D_x11)	Temporality
'Success' is the implementation of the ideas (D_x13) 'Success' is whether people accept it as a good idea (D_x14) Gut instinct will dictate whether you're going in the right direction (D_x15)	How to define 'success'

6.2.4 Participant 'G'

Participant 'G' is an IT professional and web developer working for a local authority in the education sector. She was one of the three participants who made up the environment sub-group at the 2030 open workshop. She offered to be the group 'note-taker' i.e. taking down notes and drawing up a tentative plan (see Figure 29) based on the groups discussions.

Table 23: Codes from 2030 Workshop Environment Sub-Group - Participant 'G'

ID	Extracts from the Interview	Code
G_x1	Interesting definitely (…)	The workshop was interesting
G_x2	(…) quite different to what I expected (…)	Different to what was expected
G_x3	But I found it, like there was a lot of thought-provoking stuff (...)	Thought-provoking
G_x4	(…) like a lot of what had been prepared beforehand to get our thoughts going, I thought that was really good. And it did actually help, you know, develop ideas and things.	The format helped to get thoughts going and develop ideas
G_x5	Well there were some things on there that it hadn't really occurred to me to open up a discussion about, you know, and certain things where it was just- even if it was just a phrase that on its own was posing a question just gets you thinking away on a tangent that you may not have expected, you know?	Created new thoughts in a way that was unexpected
G_x6	I thought *"well what would be the difference from starting now and working your way forward?"* (…) if you're thinking forward you get stuck in the steps up to there rather than having a goal and working back and going *"I'll think about the steps later, here is what I want to achieve*."	You get stuck in the process when working forwards but working backwards clarifies objectives
G_x7	I don't really have any criticism of the format itself.	No criticism of the workshop format

G_x8	"*(…) there actually is not a lot of time because there are so many things to cover"*. So it kind of might have been easier to focus on something because everyone tended to diversify (…) I think it's not so much the format, its maybe the scope.	The workshop may have worked better with a scope because of time limitations
G_x9	The thing about it is if we had a bigger time frame I would have started thinking (pause) well globally for a start.	A longer workshop would have invited a bigger scope
G_x10	Yeah but even when we separated into groups, even then it was hard to narrow my mind to one thing that I wanted to focus on.	It was hard to focus on one thing
G_x11	Because people started going into, not just environmental things but socio-political change and things that are just so big.	Fellow participants didn't focus on one thing
G_x12	If you said its 100 years from now, firstly I wouldn't connect with it because I'll be dead (…) Secondly, even if you said 50 years I would think *"ah I'll be getting on by then"* (…) I can't help but think that 2030 is better for us in our thinking because 2050, I can't help but think it's too late.	Would not connect with long term timescales such as 50 or 100 years
G_x13a	(…) it sort of feels like 2030 is still relevant.	2030 feels relevant
G_x13b	In some ways though, it sort of feels like *"hmm 2030 that's not much time"* and I look back at the 30 years of my own life now and I think a lot has changed but not in such leaps and bounds as you expect when you're a child.	2030 might not be enough time to make big changes
G_x14	(…) so I think in my head 2030 sort of seems like *"oh are these things achievable then?*"	Are our visions achievable by 2030?
G_x15	At least having the discussions made me cement actual ideas rather than just talking about the issues themselves. Actually cementing ideas was good.	A chance to cement ideas

G_x16	(…) back to the scope, that it could be pretty much any topic and having it so broad, people were bringing up things that I hadn't thought of (…)	The broad scope allowed new ideas to emerge
G_x17	But yes it did open up some new thoughts for me especially like changing the way we do education. I actually found that curious because it hadn't really occurred to me in a lot of ways.	Introduced ideas that had not previously been thought of
G_x18	(…) which did get me thinking but I started kind of thinking too much (…)	The workshops led to over thinking
G_x19	I thought to myself, well I don't see why we can't have a green grid. I can't see why the obstacles are so insurmountable we can't use things like the sun which we're not hurting it, it's probably one of the only things we can use without exploitation and it's always there (…) I actually felt like *"yes I could imagine a world where we are using renewable energy, you know, non-destructive energy"* (…) I thought *"why in my lifetime would it be so hard to imagine that energy grids are always green? Why is that so difficult?"*	Able to see beyond obstacles
G_x20	I guess the ultimate success is when the government announces that the entire grid uses nothing but non-destructive energy.	'Success' is powering the grid with non-destructive energy
G_x21	(…) so much of what we discussed, in my mind is so big beyond my realm of doing much about it.	The workshop introduced ideas beyond the realm of doing much about it
G_x22	I don't like to sound defeatist but I sort of think *"well I can't physically build a wind farm"*	Worried about lack of expertise
G_x23	It's not so much that I've lacked energy since, because of anything that happened in the workshop, it's just more (…) I guess it happens to	The scale of the ideas can be overwhelming

	everybody, it's just seeing the scale.	
G_x24	I've seen people who campaign for things and they dedicate all of their time to it and I can't help but think *"well what have I got"?* You know, I can donate to this, I can recycle that, I can, you know, go to a march but ultimately how far is that going towards the change that I would like to see on the sheet that we had?	Worried about how to contribute to the change that was envisioned at the workshop
G_x25	Well some of the things that I had ideas about are some of the things that I have very little expertise in, that's the scary part.	Worried about lack of expertise
G_x26	But that's the problem, I think with all of these things, they are huge and I think, from my end, I think that's a weak excuse because look at all the people out there that are making a difference. But I also think to myself *"how on earth have they done it?"* And it becomes frightening.	Worried about how to contribute to the change that was envisioned at the workshop
G_x27	The problem I think with this group particularly, the problem is everyone has got different ideas and a person on their own doesn't feel that they can do much. It's almost like getting everybody together and saying *"let's work on some of those ideas",* I think everyone is just going to go *"whose ideas and how?"* And it's going to be *"that's too difficult."*	Too many different ideas make it difficult to prioritise.
G_x28	I sometimes feel like maybe it would be good to suggest some of these things to people who have already got a bit of clout. But then you sort of think would they listen and would they say *"who on earth are you? We've been campaigning for these things and you haven't even been part of our organisation*."	The fear of being rejected by more experienced and well established campaigners
G_x29	You know, you sort of feel like as a small group, like the group that we had at the workshop, it's	Overwhelmed by the enormity and variety of

	almost like the ideas were all so big and they were all so different, it would be hard to get any one of those idea off the ground.	ideas that emerged
G_x30	Maybe networking a bit is the answer because I have to say that my feelings have got nothing to do with the workshop because it was great, the workshop was great, you know, it did get me thinking, it did bring out a lot of things but I feel so alone and I feel I don't have much knowledge.	Networking might help with feelings of isolation and lack of expertise
G_x31	I have not researched things long enough. I feel like surely there are people out there that know so much better than me and I can't help but feel like *"I'll leave it to them.*"	Self-doubt and considering whether to leave it to the experts
G_x32	Well I can't help but feel a bit defeatist with all of these things because every time I start trying to think positive, I feel like my mind is just beating me down with obstacles and I try to think *"stop putting up obstacles, come up with some solutions"* and I just can't half the time.	Obstacles keep interrupting positive thoughts
G_x33	And those people had something passionate to campaign for and that's not to say that we're not passionate for the things we talked about but is it passionate enough to end up in jail? Is it passionate enough to spend your life dedicated to it? And I think that's what frightens people ultimately is that sort of scope.	Worried about the level of commitment and dedication required
G_x34	Well I mean maybe there is a smaller scope. The whole online community, maybe not making your own but joining one that's already there, websites where people have message boards.	Making the vision more manageable by joining existing online communities

Table 24: Emergent Categories from Interview 'G'

Code	Category
The workshop was interesting (G_x1) Different to what was expected (G_x2) Thought-provoking (G_x3) Created new thoughts in a way that was unexpected (G_x5) A chance to cement ideas rather than talking about issues. (G_x15) The broad scope allowed new ideas to emerge (G_x16) Introduced ideas that had not previously been thought of (G_x17) Able to see beyond obstacles (G_x19)	Positive Experiences
The format helped to get thoughts going and develop ideas (G_x4) No criticism of the workshop format (G_x7) The workshop may have worked better with a scope because of time limitations (G_x8) A longer workshop would have invited a bigger scope (G_x9) It was hard to focus on one thing (G_x10) Fellow participants didn't focus on one thing (G_x11)	Workshop Format
You get stuck in the process when working forwards but working backwards clarifies objectives (G_x6)	Insight into backcasting
Would not connect with long term timescales such as 50 or 100 years (G_x11) 2030 feels relevant (G_x13a) 2030 might not be enough time to make big changes (G_x13b) Are our ideas achievable by 2030? (G_x14)	Temporality
'Success' is powering the grid with non-destructive energy (G_x20)	How to define 'success'
The scale of the ideas can be overwhelming (G_x23) Too many different ideas make it difficult to prioritise (G_x27) The workshops led to over thinking (G_x18) The workshop introduced ideas beyond the realm of doing	Challenges of actualising the vision(s)

much about it (G_x21) Worried about how to contribute to the change that was envisioned at the workshop (G_x26) Overwhelmed by the enormity and variety of ideas that emerged (G_x29) Obstacles keep interrupting positive thoughts (G_x32) Worried about the level of commitment and dedication required (G_x33)	
Worried about how to contribute to the change that was envisioned at the workshop (G_x24) Worried about lack of expertise (G_x25), (G_x22) Self-doubt and considering whether to leave it to the experts (G_x31) The fear of being rejected by more experienced and well established campaigners (G_x28)	Worried about lack of expertise
Networking might help with feelings of isolation and lack of expertise (G_x30) Making the vision more manageable by joining existing online communities (G_x34)	Networking and tapping into existing movements.

6.3 SUBSTANTIATION

The following sections are the emergent theories grounded in the categories derived from participant interviews, coded in the preceding sections. These emergent concepts are used as the basis for a deeper analysis and a consideration of which substantive aspects emerge. According to Glaser and Strauss (1967), a set of theories will begin to repeat or converge around a central issue during the coding process. When theories support each other in this way, it leads to a substantive theory (Glaser and Strauss, 1967). The substantive theories based on coded data from individual interviews will also be used to cross-examine original primary and secondary data that emerges from the case studies used in this research. The following sections detail the substantive theories that have emerged from this process. Where appropriate, these emergent theories also provide the opportunity to revisit some of the initial ideas and concepts discussed earlier in the thesis.

6.3.1 Designing in Time

Different perspectives on time emerge from the participatory case studies and this introduces new perspectives to the issue of appropriate timescales previously discussed in chapter one (*1.1.7 Futures in Time*).

The effect of using specific time frames in conditioning different temporalities suggested a set of challenges. Interviews with the EDAP members suggested difficulties in using medium to long-range futures such as 2030 because it enabled them to remain detached and avoid taking personal responsibility for implementing the visions. Interviewee 'W' explained, *"so the timescales I think are (…) the nearer they are to you I think the more (…) you shy off it because it means you've actually got to do something"* (T_x13). However, futures envisioned in the short-term (e.g. 5 years) became a daunting prospect because, as articulated by interviewee 'H', *"you've actually got to get on and do it yourself"* (T_x13). These feelings were echoed in the secondary school workshops. I gave students the opportunity to select a future year to contextualise the idea they produced and the majority of them opted for a medium to long term future such as 2020. When asked to explain why they did this, students talked about the amount of time it would take to implement the ideas. Others justified it by talking about how long they thought it would take people to change and adjust to a new way of doing things. These sentiments also correspond with the behaviours of the open workshop participants, who felt more comfortable using future dates in the long term and described how they thought it would give them enough time to achieve it.

Temporality also posed difficulties in the Totnes case study. The EDAP organisers continuously negotiated the validity of using certain time frames. As shown in one of the Transition Towns Totnes minutes from a scenario planning meeting, the organisers

questioned the suitability of working from 2020 or 2030. EDAP organisers also raised concerns about being too precise about time frames because it could be a way of setting themselves up to be knocked down (Scenario Planning Group Meeting Minutes, 1 May 2008). In another meeting, the EDAP organisers discussed a strategy of using 3 years and longer, but not to involve details that far ahead: *"In essence, the idea is to create general directions and then make a 3 year outline with a detailed one year plan"* (EDAP Meeting Minutes, 23 January 2008). These same minutes go on to describe how it might be easier to only focus on detailing the first 5 years rather than looking too far ahead (EDAP Meeting Minutes, 23 January 2008).

There were also more practical considerations of time, in particular the time needed to implement the ideas. The EDAP public workshop participants were asked to give feedback after each workshop and of the four workshops that I attended, a re-occurring dilemma was the issue of time poverty. Participants routinely discussed how difficult it is to find the time to implement their ideas. In fact, one person proclaimed, *"we must also invent time for change when imagining these futures."* This issue of time is also a key concept that emerged from the interview that I conducted with the two EDAP members. Both EDAP interviewees talked about the need to find more time to realise their visions, one of them remarked, "*it needs full time on it"* (T_x6). Similarly, extra time and resources needed to be sought by Herman Miller in the Cradle-to-Cradle case study. Rossi et al., (2006) describe how Herman Miller unexpectedly needed to find time to interview and re-educate over 200 members of their supply chain in order to ensure that the Mirra chair met the standards set out by the original vision.

Aside from time to realise the vision, there were also time-related issues relating to 'personal temporalities'. Some participants adopted a more introspective and personal consideration of futures, particularly when people considered futures in relation to their age. The EDAP interviewees were both in their 60's and talked about their experience of imagining futures in the context of 20 years time. They described concerns over what their physical condition in the future would be e.g. needing a zimmer frame (T_x14) as well as social concerns. For instance, participant 'W' remarked,"*(...) how old will I be then and what will I be like and how will I fit in?"* (T_x14). One open workshop participant in particular found it useful to define temporal boundaries that represent a 'relevant context'. She explained, *"if you said it's 100 years from now, firstly I wouldn't connect with it because I'll be dead (…) Secondly, even if you said 50 years I would think, "ah I'll be getting on by then" (…) I can't help but think that 2030 is better for us in our thinking because 2050, I can't help but think it's too late"* (G_x12). However, the feelings of appropriateness of the 2030 time frame are in contrast to the statements which immediately follow. *"In some ways though, it sort of feels like "hmm 2030 that's not much time" and I look back at the 30 years of my own life now and I think a lot has*

changed but not in such leaps and bounds as you expect when you're a child" (G_x13b) *(…) so I think in my head 2030 sort of seems like "oh are these things achievable then?"* (G_x14).

Age related consideration of futures takes a different turn when dealing with a younger age group. In order to get the secondary school participants to think about futures in concrete rather than abstract terms, I asked them to calculate how old they would be when they think their vision will become a reality. My intention was to try to get them to think about where they will be living, working, studying and how they see their future-self fitting into their visions. However, this method was unsuccessful. Most of the students became incredibly preoccupied with the actual age projection and did not like the idea of being 'old'. They also found it very difficult to design for their future-self. They couldn't imagine what they would be like as an older person and for the most part, they didn't want to imagine their future-self as part of the design process. They preferred to use their chosen future date in a figurative rather than literal way.

This type of figurative use of futures is better exemplified in the Cradle-to-Cradle case in which the articulation of a Cradle-to-Cradle future is never based on an exact date or personalised towards anyone specific. In fact, neither McDonough nor Braungart ever project themselves into any of their vision statements and their ideas are usually implemented as a result of a commercial client who has bought into this vision. However, this type of 'open-ended' imagining is perhaps better suited to contexts where there are relatively immediate rewards or substantive drivers to make the ideas come into fruition. At the other end of this spectrum are the local community contexts such as the Transition Towns Totnes EDAP group and the open workshop. In these contexts, it appears that implementation relies on concrete time frames and a strong commitment to the objectives.

Preferred futures set within a medium term time frame means that many participants can imagine being alive for that future, and can relate it to changes they have lived through. However, this also has the possibility of being discouraging. It can be particularly problematic for some participants who consider how the changes presented in the visions seem to out pace the amount of change that they have witnessed in their own life during the same period (G_x13b, G_x14). Linking the possibility for change to personal biography in this way can lead to a feeling of anxiety and time poverty as the scale of work to be done becomes evident. On the other hand, futures imagined in the medium term may also add to the realism of the exercise in a way that is difficult to achieve with long term futures. Hence, long term or unspecified distant time frames can be depersonalising or too abstract in a way that people find hard to relate to, while immediate term futures can be too intimidating because they create a sense of urgency.

6.3.2 Futures to Reinterpret the Present

Future reflective backcasting is primarily a way of using futures to reveal opportunities in the present. In this sense, the present is closely bound to futures because the present is a transitory existence, a means towards 'the possible'. In the exemplary cases presented in this research the vast space of futures present different dimensions and landscapes of possibilities. The open workshop format (in case study four) was designed to enable participants to create and explore different expectations of the future as a mechanism for opening up opportunities in the present. I interviewed an undergraduate who had explored this very notion of futures being linked to the present. Interviewee 'M', who employed futures as a strategy for challenging forecasting and predictive practices and she suggested this opportunity for futures to reframe present realities. She explained that futures could be *"rooted in the present and used to shape confidence in creativity, constructions and thoughts"* (M_x2).

In future reflective backcasting, dynamic relationships with fictionalised states are used to facilitate a sense of limitless possibilities at the start of the trajectory (see *3.7 Futures as Unlimited Scopes of Possibilities*). EDAP public workshop participants described how creating alternative narratives provided them with an enormous sense of creative freedom. Totnes residents also described how visualising possibilities in unconditioned future contexts prevented discussions of constraints and limitations from taking over too early in the ideation process. Open workshop participant 'G' gave an account of her understanding of why it was useful to start with the outcome and then work backwards. She explained, *"you get stuck in the process when working forwards but working backwards clarifies objectives"* (G_x6).

However, not everyone coped with the scale of this type of unlimited scope of imagining. Some people found it very hard to construct the 'future perfect' and most participants were not used to dealing with such a limitless context of exploration. This was particularly a notable problem in secondary schools, where one teacher remarked that his students were used to receiving design tasks that have detailed requirements including what needs to be produced, how it could be created which materials to use, the target audience etc. Unsurprisingly, this was also the class that had the most trouble with the boundless space of imagining presented to them in the workshops.

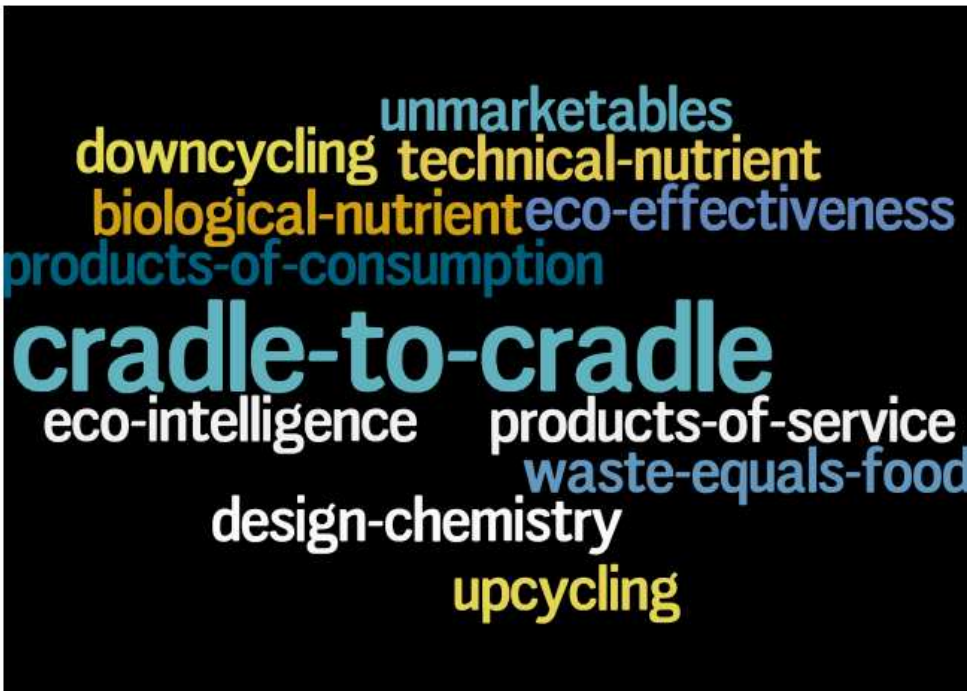
Although almost all participants found it difficult in the beginning of the process, most were able to use the open context to create preferred future states. However, there were a few moderation techniques that proved to be effective means of facilitating this type of ideation process. For instance, making the workshops a space of non-criticism was very important, especially in secondary schools because most students were afraid of being ridiculed by

their classmates. Another crucial element was to create an environment that encouraged people to consider how each vision could be improved as opposed to pointing out all the reasons why it would not work. The open workshop achieved this by prescribing an 'optimism pill' to overly critical responses or defeatist remarks (see *5.6.2 The Workshop Process*). Presenting radical ideas at the start of the workshop was also a good way of setting the tone for the participants to develop equally radical ideas. For instance, I started both the secondary school and open workshops by showing participants Cradle-to-Cradle's visions of trees growing on houses (Figures 9 and 10) or a world in which we all live in biodegradable tents as suggested in the Melbourne 2032 project (Figure 22).

6.3.3 Communicating the Future-Thing

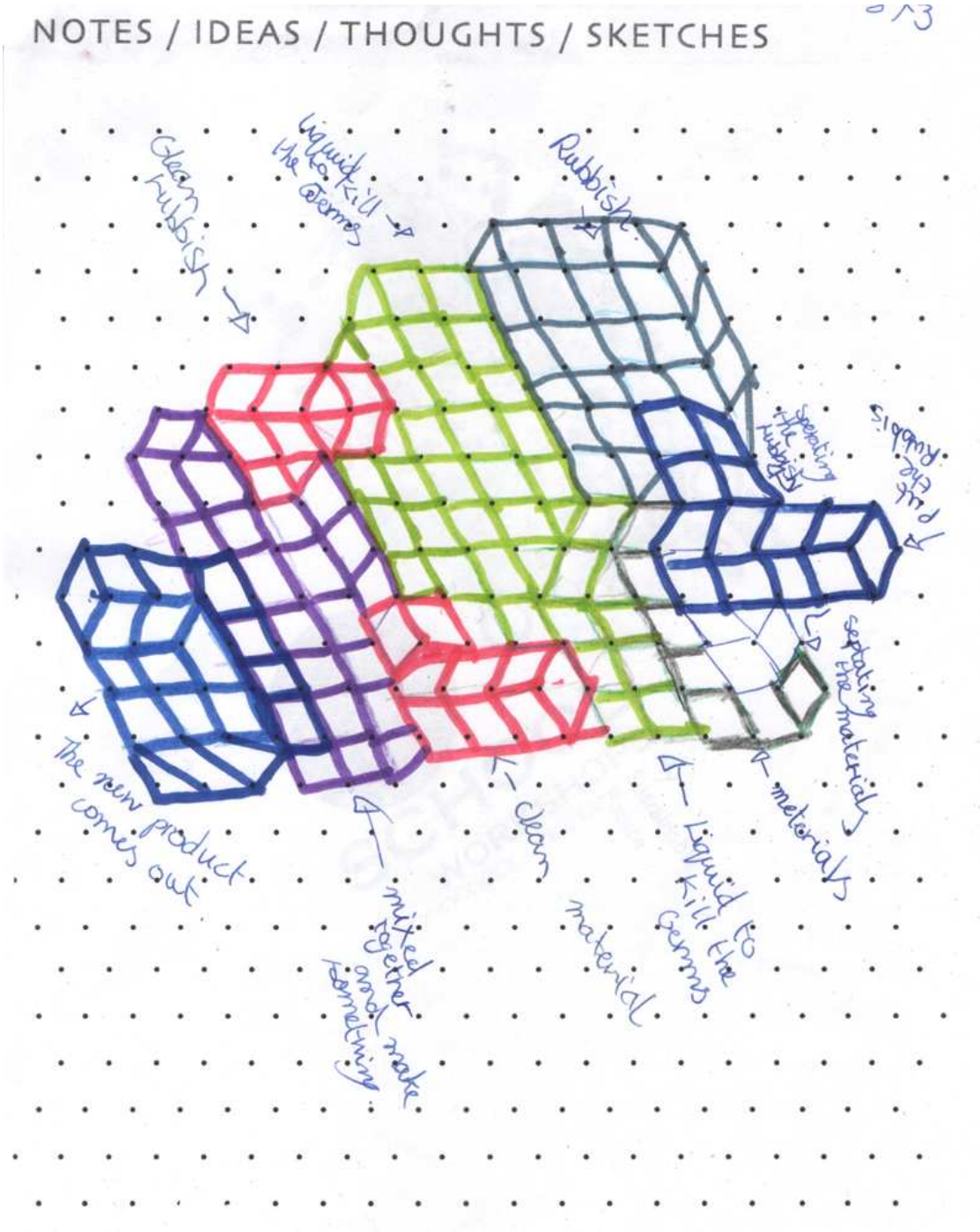
In the case studies, the creation of new possibilities sometimes warranted new vocabularies and currencies of exchange. For example, in the Melbourne 2032 project, the term 'glocal' was created to describe "*an alternative future, that of the "enlightened Australian" living in a more secure Global – Local world. National identity is softer, commitment to sustainability, the environment and (bio)regional locale stronger. The nation-state and states themselves are less important than multi-local networks as a confederalism of national interests. Identity is Gaian, linked to the planet as whole and one's own locale*" (Ryan, 2006a). The creation of terms to describe new possibilities is also present in other case studies. The open workshop participants used the term 'poo power' as a short-hand to describe the process of using human waste for energy. Similarly, Cradle-to-Cradle creates its own terms of reference when developing new ideas that represent different possibilities.

Figure 32: Cradle-to-Cradle Terminology



There were also moments when conventional language fell short and other methods of communication had to be employed to describe the, seemingly, indescribable. I encouraged workshop participants to 'simulate' inexpressible ideas or use metaphors where necessary. This was useful for ideas that appeared to be on the edge of possibility or those which ventured into unusual domains. This was a notable component of the secondary school case study because I gave students the option to articulate their visions through any medium. Beyond the first stage of responding with standard storytelling conventions (in speech and writing) some students found that metaphors helped them to narrate complex and subtle nuances of visions. It also helped students give structure to unexpected ideas. For instance, one student had a highly conceptual idea of a 'recycling blob' which she couldn't articulate but could draw.

Figure 33: 'Recycling Blob'



Aside from helping participants express ideas, simulating preferred future states was also a dynamic way of exploring and presenting ideas. During the secondary school workshops, I asked students to role-play a scenario of a preferred future state if they had problems generating ideas. Simulating or enacting a preferred future in this way was a useful way of exploring some of the consequences of their ideas and helped students consider the vision in more detailed terms. For instance, two students wanted to do a joint project to design a green carnival but had problems visioning it. I told them to pretend they were the organisers

of a future carnival and asked them to imagine how they would design a green event by visualising what their role would be e.g. organising food, entertainment, music, costumes etc. In doing this, the students were able to perform a short play to the rest of the workshop, depicting what they thought a green carnival could look like. This is one instance of how a future simulated technique can help participants articulate preferred futures which are difficult to imagine. In addition to this, metaphors and simulations can also serve as inchoate propositions until a clearer description can be developed and articulated, as shown in the previous example of the recycling blob.

6.3.4 Futures to Mobilise Action

In the open workshop, the excitement around the preferred visions became an instant mobiliser and impetus for action. However, one shortcoming of the open workshop was its failure to maintain this enthusiasm post-workshop in order to keep the dreams and objectives alive.

The open workshop which took place in a single three hour session, may have benefited from a longer session as proposed by one interviewee (G_x8, G_x9). Jungk and Müllert (1987) suggest that the ideal is for futuring groups to run over 2-3 days because the longer it runs, the more likely that participants will reach agreements and create obligations to stick to (Müllert and Kuhnt, 1996, p. 51). Here the negotiation between the length of the workshop, its scope, resources and personal time constraints of the participants come into play. One way around this is to introduce discussions about possible follow-up meetings and informal commitments at the workshops but ultimately allow the group to determine the best way forward. Any future reflective backcasting workshop that seeks to emulate the format presented in this research should encourage participants to suggest concrete actions and reach relatively firm agreements about the next steps.

Another challenge for the implementation stage is the barrage of obstacles that emerge when using the visions to reflect on present systems. One interviewee said obstacles kept interrupting her positive thoughts during the workshop process (G_x32). Another participant believed that positive change is possible, but he suggests there are too many obstructions (D_x12). Similarly, the EDAP workshop participants talked about the difficulty in prioritising ideas and knowing which to do first (T_x7a, T_x7b). Others admitted to being scared by their own desire to realise the ideas (D_x6). However, the most challenging aspect appeared to be the enormity of the ideas and the level of commitment required (D_x7, G_x21, G_x23, G_x26, G_x29, G_x33). This is compounded by the emergence of *"too many ideas"* from the open workshop, which result in feelings of isolation and despair (G_x27) as well as pessimism about the objectives actually coming into fruition (D_x8). There were also concerns about lack of expertise (G_x25, G_x22). In the face of all these hurdles, one participant considered whether it

might be best to leave environmentalism to the experts (G_x31). However, the EDAP members suggested that the amateurish and voluntary nature of the workshops is essential to the whole process (T_x10).

The ambitious and radical ideas created at the start of the process left some participants feeling overwhelmed and anxious about their ability to affect positive change. This potentially had an impact on their willingness to make commitments after the initial workshop and made one person consider giving up altogether (G_x31). Despite the insecurities, the future reflective backcasting process also helped some participants to identify ways of coping with their feelings of isolation as will be discussed in the following section.

6.3.5 Navigating the Landscape of Insecurities by Networking

On the question of how participants felt about the EDAP public workshops, Transition residents replied that the workshops were "*very jolly"* (T_x2) and accessible (T_x1) with the opportunity to meet different types of people (T_x3). Although they found the low turn out disappointing (T_x4), the workshops provided them with a positive outlook (T_x11).

Open workshop participants also described the open workshop format as one that works quite well (G_x7, D_x4). Participant 'G' in particular said it was thought-provoking (G_x3) and helped her to see beyond obstacles (G_x19) in a way that was unexpected (G_x5) because the broad scope allowed original ideas to emerge (G_x16). This gave her a chance to *"cement ideas"* (G_x15) but also enabled her to develop ideas that she had not previously thought of (G_x4, G_x17). Participant 'D', on the other hand, declared that he would re-use the format in his own professional practice (D_x3). The only misgiving put forward by participant 'G', is that she found it difficult to focus on one thing at the workshop (G_x10). She suggested that the process might work better with a tighter scope because of time limitations (G_x8). However, she also goes on to say that a longer workshop may invite an even bigger scope (G_x9) principally because fellow participants tended to not focus on one thing (G_x11).

Overall, the biggest challenges described by the participants were not necessarily with the workshop format but with the feelings that the process ignited. Particularly, when participants negotiate between the enormity of their ambitions against a lack of self-belief in their own abilities. Yet, participant 'G' proposes networking to be one way to help with feelings of isolation and lack of expertise (G_x30). Despite her fear of being rejected by more experienced and well established campaigners (G_x28) she sees it as a way to make the ambitions, which emerged from the workshop, more manageable by joining existing movements (G_x34). This resonates with some of the thoughts from the EDAP workshop participants who talked about 'linking up' with existing movements. Similarly, after the open workshop, some participants suggested that it is both possible and preferable to work more

effectively by tapping into, and influencing existing movements for change, rather than starting from scratch.

6.3.6 The Definition of Success

How does one measure the 'success' of a future reflective backcasting process? Appropriate measurements are a critical part of producing efficacious outcomes. There are two areas of success that will be discussed in this section, (i) success of the tangible outcomes created by the process and (ii) success of the workshop process itself. In the succeeding paragraphs, I will present the different success indicators used in the case studies to evaluate outcomes. I will then review these different benchmarking tools as well as work from Kuhnt and Müllert (1996) as a basis to propose how the future reflective backcasting workshop itself might be assessed.

The Transition Towns case study enlists its original visions to set and establish some 'success indicators'. Rather than assessing their backcasting workshops, they focus on assessing the impact that the Transition Towns movement is having in the community. However, the 'success' of an eco-community is a difficult thing to evaluate. Which quality of life measurements are appropriate? Which issues should be focused on? How? There is evidence that similar anxieties were present in the construction of evaluation tools for the Transition projects. The following extract is from a set of minutes from an EDAP organisers' meeting. *"Perhaps TTT could have a 'mapping the gardens of Totnes' week, using school kids and others, and collect that data for Totnes. We could use it to assess how many bikes? How many cars? Resilience indicators ... if you pick on the right elements you can revisit them over time. Many of these indicators could be collected via an on-line mapping community service. Some projects that could feed into a food GIS* [Geographic Information System] *include asking where are we now? Where do you shop? What do you buy? Where does your current food come from? Save all your shopping receipts for a week... engage kids at schools... how many farms, what do they grow? Where does it all go? How much garden space/public land is there, what is it used for, how much food could it potentially yield? How many people can garden? Scenarios – starving Totnes ... abundant Totnes ... if all trading stopped, what could we do?"* (EDAP Group Meeting, 16 May 2008).

The Cradle-to-Cradle case study presents another potential means of evaluation, one that can be attained through external recognition. For instance, the Mirra chair was designed to meet a Cradle-to-Cradle ideal but it also won a plethora of awards such as the Good Design Award[64] and Silver Award[65]. In addition to this, the *Environmental Building News* magazine presented it as one of its top 10 best new 'green' products in 2003. Therefore, this product

[64] Award received from the Chicago Athenaeum Museum of Architecture and Design 2002/2003.

[65] Award received from IDEA (Industrial Design Excellence Awards).

has been evaluated on issues that range from function, aesthetics, form, profitability as well as its environmental impact. However, one can't help but wonder whether these types of categories (and the categories suggested by the EDAP group in their quote in the previous paragraph) are sufficient? If the objective is to create new possibilities then traditionally accepted benchmarking criteria such as biodegradability, recycleability, efficiency and things like how many people can garden might not be enough. It may therefore be necessary to consider different classifications such as ecological purpose, self-efficacy, replicablility, self-sustainment, 'eco-duplication'[66], auspiciousness and flow. However, the challenge for better success indicators is not something that can be discussed in abstract terms or in isolation but developed as a continuous and emergent part of each case study scenario in terms that are relevant to its respective context.

The issue of determining efficacious measurements is further complicated by participant responses to the question of what a 'successful' outcome might look like. One member of the EDAP group that I interviewed suggested that her idea of success was 'inclusiveness'. When prompted to elaborate, she simply said *"nobody's left out, social justice"* (T_x15a). Another EDAP interviewee said that we shouldn't think in terms of 'success' but rather consider some things as 'successes' as we go along. He remarked, *"…was that a success or not? And I would much prefer to say "no" we had to do it and we did it, we got on with it"* (T_x15b). Other participants from the open workshop considered success in more concrete terms. For instance, participant 'D' who led the environment sub-group at the 2030 open workshop, described success as the implementation of the ideas (D_x13), but also in terms of whether people accepted the vision as a good idea (D_x14).

The concept of what can be considered a 'successful' outcome differed wildly from person to person. Furthermore, 'personal successes' from the EDAP members did not correlate with the 'success' envisioned by the EDAP organisers. This suggests that one way to consider 'success' is to reframe it so that it allows for different types of 'successes'. Success can be redefined so that it caters for success on a personal level for the individual, success at the group level and success in terms of the impact their actions have.

In the section which follows, I will look at the different ways of assessing the impact of the actions which emerge from a backcasting process presented in the case studies. I will then describe how a future reflective backcasting workshop process can be evaluated in the section that succeeds.

6.3.6.1 SUCCESS INDICATORS

[66] A term that I am using to describe an absolutist approach to replicating nature's principles, rather than cherry picking particular aspects in order to support the present form of human industry.

The case studies used in this research present different methods for assessing whether the result is the intended one as well as methods for benchmarking progress along the way. One potential benchmarking or success indicating mechanism proposed by the Transition case study is the 'oil vulnerability audit'. This audit takes a detailed look at how rising oil prices can impact businesses, affect the availability of raw materials and energy costs of key processes. The audit is used as a way to build up likely scenarios as well as enable a Transition Town or City to draw up plans to deal with possible eventualities. It also allows them to develop proactive strategies, for example, the '*business exchange project*' which aims to link companies together so that the waste from one business can become raw materials for another (Brangwyn and Hopkins, 2008).

However, the 'oil vulnerability audit' is still a relatively underdeveloped concept within the Transition projects and their main method of gauging progress is the notion of 'resilience'. The concept of 'resilience' also features heavily in the Melbourne 2032 and open workshop case studies. In the Melbourne 2032 future simulated essays, resilience is regularly referred to as a necessary component of a possible ecologically sustainable Melbourne in 2032 (see *5.5.1 Glimpses of 2032*). Similarly, the action plan (see Table 17) which emerged from the open workshop in case study four, refers to the need to become more resilient through self-sufficiency. The open workshop action plan proposes guerrilla gardening, using small allotments, learning to grow food in order to become more self-sufficient and less reliant on supermarkets. In the Transition Towns case, the notion of 'local resilience' is highlighted by Brangwyn and Hopkins (2008) as a necessary criteria of gauging progress towards achieving the 'transition' itself. The Transition Towns in Guelph, Canada offer several useful descriptions of what they mean by 'resilience':

1. *"…the ability of an ecosystem, from an individual person to a whole economy, to hold together and maintain its ability to function in the face of change and shocks from the outside. In the context of communities, the term refers to their ability to respond to disturbance with adaptability and not to collapse with oil or food shortages."*
2. *"Resilient systems can roll with external shocks and adapt as needed; it is the capacity of a system to absorb disturbance and reorganise, so as to still retain essentially the same function, structure, identity and feedbacks while undergoing change."*
3. *"The concept of resilience goes far beyond the better-known concept of sustainability. For example, planting trees to create community woodlands may lock up carbon, increase biodiversity, and have other benefits, but it does little to build resilience in the food supply system; whereas the planting of well-designed food forest plantings does."*

4. "*Among the 'resilience indicators' for communities* (…) *proposed were the percentage of food produced locally, the ratio of car parking space to productive land use, and the number of 16-year-olds able to grow 10 different varieties of vegetables"* (Transition Guelph, 2009).

The fourth description in the above list indicates a more formalised approach for indicating 'resilience' that is currently under development by founder of the Transition Towns movement, Rob Hopkins[67]. This incorporates the production of what Hopkins calls the 'baseline questionnaire' which will be taken in 300 homes across the Totnes district[68]. According to a set of meeting minutes from the EDAP, there is already funding in place to pay a group of people to start carrying out the 'baseline questionnaire' (EDAP Project meeting minutes, 12 November 2008). The relevance of the questionnaire to the resilience model is that it will provide ideas for what the indicator will include. For instance, it will cover questions such as:

- Food: Do you feel confident to know how to grow food?
- Transport: Do you have a car? Do you need to travel to work?

(EDAP Project Meeting, 12 November 2008)

While the 2008 Transition Towns Primer lists a further set of topics that the resilience indicator will contain, including:

- Percentage of food grown locally.
- The amount of local currency in circulation as a percentage of total money in circulation.
- The number of businesses owned locally.
- Average commuting distance for workers in the town.
- Average commuting distance for people living in the town but working outside it.
- Percentage of energy produced locally.
- Quantity of renewable building materials.
- Proportion of essential goods being manufactured within the community and within a given distance.
- Proportion of 'compostable' waste that is composted.

(Brangwyn and Hopkins, 2008)

The use of 'resilience' by Transition Towns Totnes and Guelph to create indicators and benchmarks presents an overwhelmingly survivalist view of resilience. There is a distinct lack of 'quality of life indicators', particularly in the Transition Towns Totnes context because they regularly point towards the necessity of imagining futures that not only combat

[67] The resilience indicator is still under development by Rob Hopkins (2008, p. 174-5).

[68] According to the EDAP project meeting minutes 12 November 2008.

ecological problems but also provide a better quality of life. For instance, part of the 'Enlightened Transition' EDAP scenario (see Table 10) is described as, *"community gardens, allotments, orchards and woodlands are part of everyone's life. 4 day working week. Higher employment levels. Happier, fitter and more skilled society."*[69] However, the 'fitter and happier society' proposed by the EDAP scenarios are not present in the resilience indicators. On the other hand, it is also important to note that the oil vulnerability audit and resilience indicators are only proposals under development at this stage. Without examples of how these indicators are practically applied it is difficult to judge or analyse their effectiveness.

6.3.6.2 THE EFFECTS OF A FUTURE REFLECTIVE BACKCASTING WORKSHOP

In the following section, I will propose a series of effects that are produced by the future reflective backcasting process and suggest that they can become a way of evaluating the workshop itself. This is not an exhaustive list of every possible evaluation criteria but criteria based on characteristics that emerged as being important factors from the data produced in this research. I will also build upon the work of Kuhnt and Müllert (1996) who have proposed possible effects of a future workshop process. According to Kuhnt and Müllert (1996, p. 14) cited in Dator (1993), the effects of a '*future workshop'* must not be considered in the short-term, but in the context of collaborative and long-term effects. Kuhnt and Müllert (1996) propose characteristics of a future workshop, some of which are shared and expanded on by future reflective backcasting.

(i) *"Creativity effect – solving problems in a new way. The participants leave familiar ways, enter into unfamiliar situations and discover new perspectives"* (Kuhnt et al., 1996). In future reflective backcasting, the initial radical wishful thinking phase is intended to create the possibility for ideas that may not be obtainable through a step-by-step logical approach. In this respect, participants can discover solutions to problems through an indirect creative approach. This is because future reflective backcasting works by looking beyond the very disorders, intractability's, ambiguities and contradictions of environmental issues, it instead works within open contexts for discovering emergent creative outcomes. In this sense, solutions are not designed but discovered. One participant of the open workshop described how the future reflective backcasting process helped her develop ideas that she had not previously thought of (G_x4, G_x17). The creativity effect also has an 'opportunity offering' element. For instance, a participant of the open workshop found ways of coping with insecurities (see *6.3.5 'Navigating the Landscape of Expectations by Networking*).

The Totnes pound in the Transition Towns case study is also a good example of the 'opportunity offering' effect. The idea for a local currency started off as a joke that emerged

[69] This content is obtained from an undated resource from the Transition Towns Totnes website http://www.transitiontowntotnes.org/?q=EDAPscenarios

from a workshop looking at alternative economic systems but to everyone's surprise it was subsequently produced and distributed to local businesses within 3 weeks. In the Mirra chair case study, the original Y-spine design failed to meet Cradle-to-Cradle standards because it was not recyclable or capable of being disassembled (Rossi et al., 2006). However, the redesign of this component turned out to be much cheaper than the original plastic coated steel design and it also led to the creation of intellectual capital for Herman Miller because it resulted in a patentable technology (Rossi et al., 2006). It is in this light that using preferred futures to contextualise solutions creates a dynamic that mobilises and attract opportunities that, seemingly, come from nowhere: spontaneous actions, synchronicities and unexpected innovations.

(iii) *"Learning effect – making project-oriented learning experiences. By a constant exchange of experiences, knowledge and ideas, all participants profit from each other"* (Kuhnt et al., 1996). I would suggest that participants don't just learn from each other, they also learn from the experience of the process. During one of the EDAP public workshops I attended, an undergraduate student remarked that he had learnt more at the workshops than he had at university. Open workshop participants also described how they learnt new things in subjects they were not familiar with. For instance, the majority of open workshop participants were not familiar with concepts of subvertising[70], permaculture[71] and crop rotation[72] before the workshop. However, they came away from the process with new understandings of these concepts.

Robinson (2003) also presents an idea of introducing 'social learning' into backcasting processes. Robinson's (2003) notion of social learning is based on interactions and the engagement of non-experts where people develop culturally and morally, whilst also improving institutional relationships. Robinson's (2003) description of social learning is vague and there are no examples of how it can be/has been practically applied. There are also practical difficulties in measuring social learning. Although participants might be able to list the number of new concepts they have learnt, it would be difficult to objectively measure some of Robinson's suggestions. Therefore I would suggest a focus on new concepts that participants have learnt as an objective quantifiable amount of new knowledge gained whilst also taking into account subjective experiences of moral or cultural developments.

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[70] *'Subvertising'* is the process of making spoofs or parodies of political slogans and corporate publicity in order to change its message.

[71] Permaculture is a combination of the words '**perma**nent agri**culture**'. Permaculture is a way of modelling agricultural systems on the relationships found in natural ecologies in order to maximise the productivity and health of the land.

[72] Crop rotation is the process of growing different types of crops in a sequence of seasons in order to balance the fertility needs of some crops but also avoid harm to soil nutrients.

(iii) Clarifying objectives – the main aim of future reflective backcasting is to help participants identify and refine objectives. Future simulation methods (see *5.5.2 Future Simulated Backcasting Methods* and *6.3.3 Communicating the Future-Thing*) and conversational exchanges (see *7.3 Future Reflective Scenarios*) facilitate an exploration of the potential consequences of the ideas produced during the process. Simulating or enacting a preferred future encourages the participant to consider the vision in more detailed terms while also helping them to express and communicate their ideas. Participants verified that the open workshop achieved this because the process helped them to clarify objectives (G_x6) and see beyond obstacles (G_x19).

(iv) Action-inducing – on an 'action-inducing' level, the future reflective process provokes participants to consider which actions to take. These ideas are best illustrated by the open workshop in case study four. A co-created vision depicting a future state in which there is an exclusive use of non-destructive energy immediately prompted several ideas, most of which materialised as creative interventions. These included guerrilla gardening, setting up a protest political party, subvertising and creating a charity to raise money for solar panels. In this instance, the different methods of interventions offered moments for bridging holes within and between the envisioned possibilities. However, as illustrated by the open workshop, the motivation to assume responsibility is not automatic. Rather, it is something that has to be explicitly introduced into the process. Loose community settings such as the open workshop in case study four and the Transition Towns EDAP workshops require concerted efforts to create and maintain continuous involvement.

(v) Feedback – aside from the effects mentioned above, a future reflective backcasting workshop can also be evaluated in relation to the feedback given by its participants. In the open workshop that I carried out, one participant suggested that the workshop might have worked better with a smaller scope because of time limitations (G_x8). She also found it hard to narrow her thoughts (G_x10) because other participants didn't focus on one thing (G_x11). However, overall she thought the format worked well (G_x7), it helped her develop ideas (G_x4) and she found it interesting (G_x1). The other open workshop participant I interviewed thought the workshop worked very well (D_x4). In fact participant 'D' was so impressed with the model he re-used it in his own professional practice (D_x3).

6.4 KEY FINDINGS FROM ACROSS THE CASE STUDIES

A number of key findings emerge from the primary and secondary data produced in this research. One issue that transpires from the analysis is the role of timescales in the future reflective backasting process. The results are fairly consistent from the secondary schools, open and EDAP public workshops. Participants prefer to employ medium to long term time frames because they feel the changes are possible within a longer time frame (see *6.3.1*

Designing in Time). However, using medium to long term futures also has the effect of removing urgency and immediacy whilst enabling some participants to avoid taking responsibility and ownership of the ideas coming into actualisation (T_x13). The workshop based case study scenarios also highlights some issues around how people cope with the openness of futures as an unlimited scope of imagining at the start of the process. I consequently identified some techniques present in the primary and secondary data that were relatively effective at helping participants manage and work within the vast scope. For instance, making the secondary schools and open workshops spaces of non-criticism and actively discouraging defeatist remarks helped engender supportive and creative atmospheres. Creating new currencies of exchange was also a useful way of exploring and expressing new ideas, and this was present in all the case studies i.e. Melbourne 2032, Cradle-to-Cradle, EDAP and public workshops, secondary school workshops and open workshop.

A further key issue that emerges is the relationship between the future reflective backasting workshop and the participants taking concrete actions after the workshop. Although the open workshop participants identified actions to take, very few of the objectives materialised after the workshop. I suggest that the need to turn the objectives (from the open workshop) into immediate action is something that required relatively concrete commitments at the start. The need for action also raises issues about how to measure the success of the action(s) and progress towards achieving the objectives. The creation of success indicators features in the Cradle-to-Cradle Mirra chair design scenario and the Transition Towns' attempt to gauge their progress towards their original objectives. In some cases the measurement indicators only provide a limited perspective (*see 5.3.3 From Rhetoric to Reality: The Herman Miller Company*), while in other cases the measurement tools, such as the 'resilience indicator' and 'oil vulnerability audit' from the Transition Towns, have not been fully formed or tested, thereby limiting the amount of analysis that can be made into their effectiveness. Gauging the success of the backcasting process itself is also a difficult issue. I propose that the open workshop I conducted could be measured in terms of how it engages people into taking part in creative activities, the new things they learn by taking parting the workshop, whether it helps them to clarify objectives, if they are able to identify actions to take and a further evaluation could be based on their feedback on the process itself. However, the categories I propose is not a conclusive list of all the possible ways of measuring the future reflective backcasting process and the list will therefore continuously need to be reviewed and possibly revised.

6.5 SUMMARY

This chapter discusses the emergent theories grounded in the categories derived from participant experiences, coded in the opening sections. These emergent variables are used as the basis for analysis. The variables that emerge also underpin a consideration of which aspects are substantive and important constituent parts of the future reflective backcasting workshop model that is proposed in the next chapter. This process is achieved through what Glaser and Strauss (1967) call 'substantiation'. This is the idea that new concepts and evidence that appear in the data (including participant interview responses) added to existing codes, can lead to a substantive theory.

The analysis suggests several different perspectives. For instance, different relationships with time depicted in the participatory case studies offer a different perspective to earlier discussions regarding the appropriateness of certain timescales (see *1.1.7 Futures in Time and 6.3.1 Designing in Time*). In regards to temporality, participants raised concerns about time poverty, the length of time needed to achieve visions and age-related consideration of futures. Another notable feature is the way that removing all barriers shaped different contexts for possibilities. Participants described the ways in which their experiences with fictionalised states facilitated an enormous sense of creative freedom. They suggested that starting with preferred future states prevented discussions of constraints and limitations from taking over too early in the ideation process.

In this chapter, I also noted how futures can be visualised through metaphors, symbols, or even simulations. These methods are not just useful ways of dynamically exploring preferred futures but also a way of communicating the results. Using visual metaphors also helped some participants to articulate ideas on the edge of possibility or those which ventured into unusual domains. I encouraged the use of metaphors and simulations when ideas were difficult to articulate during the future reflective backcasting process. In this context, metaphors served as inchoate propositions until a clearer description can be developed and articulated.

In the case study instances, preferred futures became mobilisers by provoking interventions. Although, the enormity of the visions sometimes led to participants feeling insecure as they weighed up the ambitious ideas against their own lack of expertise and resources. However, working through the future reflective backcasting process also helped participants identify ways of working through this. For instance, participants contemplated setting up collaborative ventures and networking as methods for dealing with feelings of isolation.

A key issue that appears in almost all of the case studies is the issue of efficacy, specifically, the question of which measurements or benchmarking methods are appropriate. This area is fraught with pit-holes because each instance will require its own frame of reference and

context appropriate methods. What should be measured? How and when should it be measured? Even more problematic is the issue that the definition of ‘success’ means different things to different people and this can also differ to what is considered a success at the group level. In this respect, I suggest that success can be redefined so that it caters for different types of successes: success on a personal level for the individual, success at the group level and success in terms of the impact of the outcomes.

Finally, I proposed a series of effects that are produced by the future reflective backcasting process and suggest them as ways of evaluating the workshop itself. The effect of the future reflective process should not be considered only in terms of immediately identifiable results but also in terms of how it motivates and mobilises actions, sets up alliances and collaborations, helps its participants see beyond obstacles and helps them identify which actions to take.

The substantive issues raised in this chapter inform the composition of the future reflective backcasting workshop model that will be put forward in the next chapter.

Chapter 7: Workshop Model

7.1 INTRODUCTION

I have shown how a future reflective backcasting workshop model helps activists who are motivated to address ecological problems but unsure what changes are necessary and which actions to take. Future reflective backcasting is a process of creating preferred futures in order to help participants identify necessary changes and prioritise which actions to take in order to address ecological problems. As will be detailed in this chapter, the prioritisation process is achieved through conversational exchanges that are enabled by the way the workshop is constructed and executed (see *7.3 Future Reflective Scenarios*).

In this thesis, I have explicated the possibility of future reflective backcasting by reviewing three case studies, a series of practice based models and collating participant responses in order to suggest a workshop model. Based on the data, this chapter proposes the structure, settings, methods, areas of sensitivity and techniques of moderation that are necessary for a future reflective backcasting workshop model.

The data that emerges from this thesis showed that participants still had insecurities and uncertainties despite undergoing the future reflective backcasting process. Consequently, I propose that the psychological dimensions of future-oriented approaches in environmentalism are topics for further research and investigation. Understanding the psychological and emotional aspects of the participant experiences might reveal further techniques for helping participants cope with the enormity of their visions and lack of self-belief. Another potential area for further research is a comparison between future reflective backcasting and other backcasting approaches such as backcasting for 'social learning' and 'second generation' backcasting proposed by Robinson (2003). Conducting such a comparison would highlight additional advantages that the future reflective backcasting has to offer and areas for improvement which may have been missed by this study. Although this research shows how future reflective backcasting relates to, and builds on the work produced in the field of futures studies I propose that the next stage is to focus on how this model directly relates to the domain of design.

7.1.1 Significant Outcomes

The unique contribution provided by this research is a distinct variation of backcasting which has not been identified or acknowledged in existing backcasting futures literature and design practice. I have shown how the application of future reflective backcasting helped a group of people interested in environmental activism to identify and refine which actions to take in the present.

Although John Robinson (2003) proposes the possibility of 'second generation backcasting' and backcasting as a means of 'social learning', the field of futures studies does not acknowledge the possibility of backcasting as a way of helping its participants to critically reflect on present circumstances and refine objectives. Similarly, research is yet to explore temporal aspects of environmental problem solving within the domain of design. Tony Fry's (2008) *Design Futuring* proposal is the closest attempt at exploring this possibility. In the *Design Futuring* model, Fry (2009) argues for designers to adopt a backcasting approach to scenario building as a way of dealing with ecological problems. However, the main difference between Fry's (2008) proposal and what I am suggesting is his emphasis on forecasting and his argument for the scenarios to be grounded in *"credible fiction."* My proposal of future reflective backcasting encourages the participants to imagine the most radical ideas possible. This is to expand the sense of what is possible and create a broad systems view of the problem area before deciding what changes need to take place. One of the open workshop participants confirmed that this type of broad scope allowed original ideas to emerge (G_x16) and enabled her to develop ideas that she had not previously thought of (G_x4, G_x17). I also propose that this type of broad view is necessary when attempting to address ecological problems because of the complex and interconnected nature of such problems.

I have also shown how future reflective backcasting can help a specific type of activist (see *1.1.3 The Engaged-Uncertain Environmental Activist*) determine which actions to take in relation to ecological issues. However, it must first be said that the practical application of future reflective backcasting produced in this research (i.e. the open workshop) did not address many of the insecurities and uncertainties that the participants had. The most challenging aspects for participants was the enormity of the ideas and the level of commitment required to realise their objectives (D_x7, G_x21, G_x23, G_x26, G_x29, G_x33). Participants maintained concerns about lack of expertise (G_x25, G_x22) as well as pessimism about the ideas actually coming into fruition (D_x8). On the other hand, interview responses and participant feedback also indicated that the workshops were thought-provoking (G_x3), a useful way of clarifying objectives (G_x6) and it ultimately helped them to see beyond obstacles (G_x19). The workshop created a space for developing new ideas (G_x4, G_x17) and one participant was so impressed with the workshop model that he re-applied it to his own practice (D_x3).

7.2 COMPOSITION OF A FUTURE REFLECTIVE BACKCASTING WORKSHOP

Within the future reflective backcasting structure, a few methods and techniques of moderation are necessary. As illustrated in this research, this process can work in a variety of forums for social change such as small groups, corporations or loosely connected networks. However, the workshop model presented below is directed at egalitarian workshop

settings; spaces in which the ability to make decisions and influence the process is not based on knowledge, status or expertise. The strategies presented in the workshop model below serve as activating methods which appeal to creativity and radical thinking applied through techniques that are intended to expand a sense of what is possible and open up opportunities in the present.

The work carried out in this study suggests a series of loose, adaptable techniques for facilitating a future reflective process in design practices that are directed at addressing environmental problems. Based on the experiences, feedback and research analysis the following sections will succinctly outline the fundamental requirements that are structurally necessary to perform a future reflective backcasting workshop in egalitarian organisational structures.

7.2.1 Process

Future reflective backcasting starts with a future-based context that serves as a platform for an unlimited scope of imagining. This is with the aim of propelling one to the level of realising new concepts.

Wishful thinking.

The initial stage requires radical ideas. All thoughts are allowed and restrictions should not be taken into consideration. Everything is possible. Money and power are not significant. This phase offers the opportunity for participants to identify all those aspects which are preferred. It is important to express the dream as concretely and as precisely as possible. If this is too difficult, then visions may also be presented through metaphors, symbols or even simulations until one can develop a clear description of what is meant. A precise description will enable the subject of the next phase of exploring the factual aspects to be primarily focused on providing details to the visions.

Identify and Prioritise Necessary Changes.

As soon as the fantasies are satisfactorily collected, the next stage is to come back from those futures with the visions intact. This serves two main functions. The first is a discussion around the ‘solutions area’. In doing this, the participants are encouraged to optimise the preferred future state, rather than focusing on the problem itself. It also encourages participants to consider broader systems implications and reflect on the efficacy of present practises. For example, if the future vision is to re-power the grid with a non-destructive source of energy like the sun, then one might begin to question the use or efficacy of energy

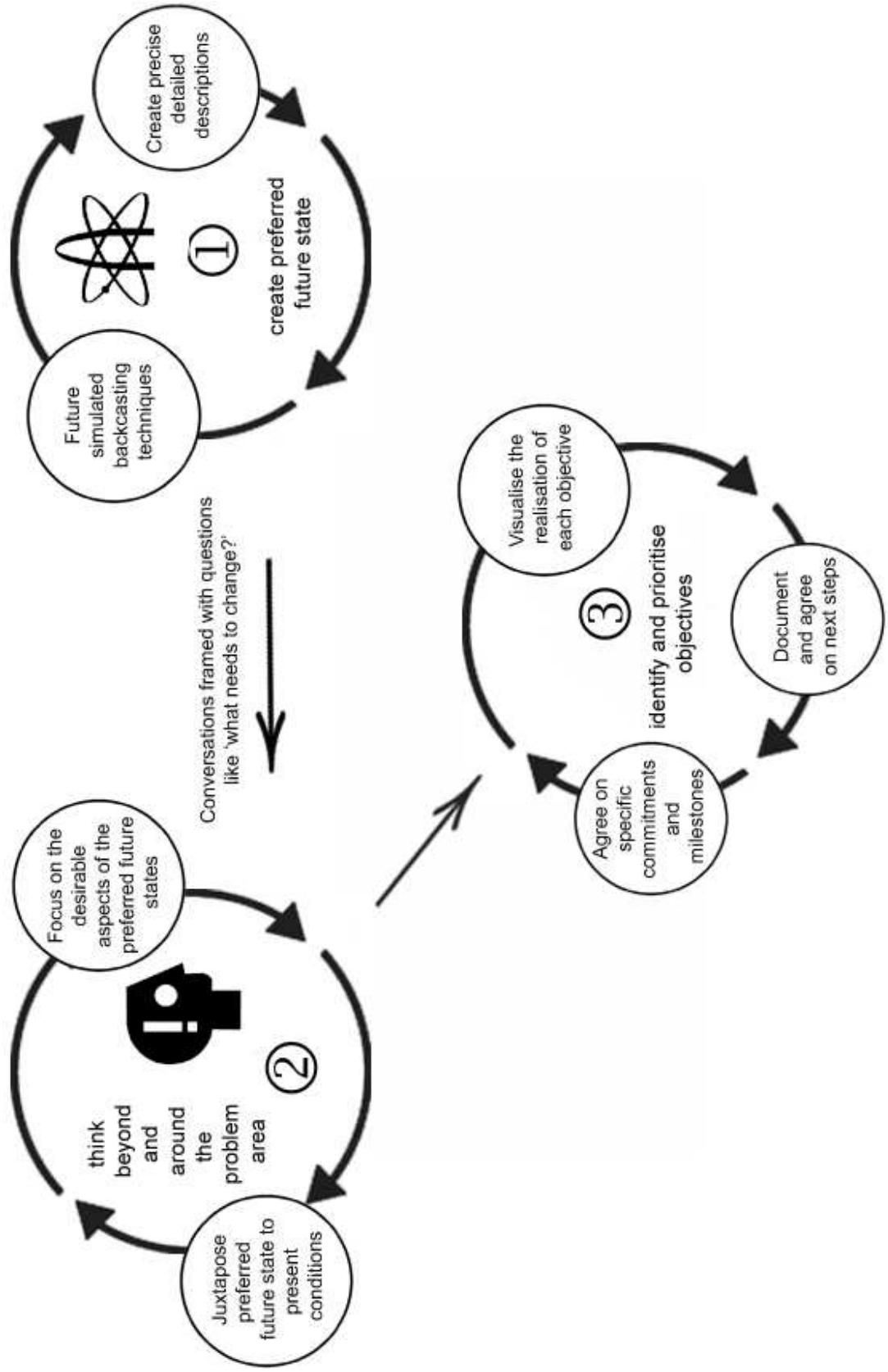
efficiency measures? Participants may even begin to question whether energy reduction is the right initiative to invest any time and effort.

This discussion may lead the group to modify the original visions, reduce the scope or only select specific aspects that reflect what the groups still consider to be desirable. The participant feedback from the workshops suggests that it is normal to experience a high amount of excitement and joy during the initial stages. These feelings and motivations should be used to translate ideas into action. First, a frequently occurring misunderstanding must be prevented here: this stage is not about the immediate realisation of the chosen ideas, this would not be possible. It is rather about mapping out a set of objectives, strategies and interventions. This is not with the intention of creating a path towards the future state; the vision is instead a way of guiding and informing actions. In this sense, the preferred future states are not destinations but conditions that inform and shape the journey. Future reflective backcasting is a method for refining objectives for actions to be taken in the present rather than creating blueprints for ideal futures to work towards. It is this 'reflective' rather than 'blueprinting' use of futures that makes future reflective backcasting different from the key backcasting approaches that I reviewed in section *3.4.1 Backcasting in Environmentalism* (i.e. The Natural Step, Brightworks and Shell). It is in this way that future reflective backcasting recontextualises solution finding processes because the objective is to juxtapose the preferred future to present conditions in order to draw out incongruities as a way to identify opportunities for change and interventions.

The plans produced during the workshop should also be set up to allow for longer time frames to appreciate that change in complex systems happens non-linearly. There may be long periods when little appears to be happening but then suddenly large changes can occur (Gladwell, 2000; Rickles et al. 2007). If the initial fantasy stage is performed with enough detail, then it is likely that it already has a basic skeleton of a project plan, however, it is still necessary to determine concrete objectives that will frame the next steps. This was a critical failure of the open workshop in case study four, where the lack of commitment to realise the co-created objectives inhibited the possibility of actual fruition. Similarly, a lack of immediacy in translating ideas into action left some participants of the Transition Towns Totnes EDAP public workshops feeling frustrated and dispirited (see *5.4.3.1 My Experience*).

The most important aspect of the 'objective-creation' phase is to document and agree, even on an informal level, what the next steps shall be. This should include a clear set of commitments and milestones, with each accomplishment being tied to a specific date as well as a concrete sense of what the realisation of that objective will look like.

Figure 34: Future Reflective Backcasting Workshop Process



7.2.2 Context and Settings

The creation of particular settings is fundamental to this process. The workshop space should simultaneously engender and discourage certain types of behaviours.

Note on Duration.

The duration of a future reflective backcasting workshop is a difficult issue. Kuhnt et al., (1996) assert that longer workshop durations enable a higher chance that the participants reach obligatory agreements and stick to them. They suggest that the duration of one week is optimal. However, the instances illustrated in this research have shown this to be a very sensitive issue because most of the participants that I encountered were unable to commit to one week. In fact, the open workshop in case study four only lasted for three hours but some of the participants complained that this was too long. In this respect, a short initial workshop should be used to cover the key stages of the process, while the possibility for further workshops should be agreed upon by the participants based on what they are ready and able to commit to.

Flag Criticism.

In the context of future reflective backcasting, criticism can emerge in the responses and feedback given by fellow participants to the different suggestions of possible future states. Harsh critical responses can very quickly prohibit a certain capacity for radical creative thinking. I therefore recommend that the setting of a future reflective backcasting process should actively discourage this in favour of encouragement, improvement and strengthening the original vision. The secondary school workshops in case study four engendered this by setting up a 'Dragons Den'[73] role play exercise. In this activity, the audience played the part of the 'dragons', but rather than investing money and rejecting proposals, they had to 'invest' ideas and suggest how to improve the original vision or make it more feasible.

Moderation.

The data produced in this research also suggests that some forms of facilitation are necessary to the process, particularly in a collective group workshop setting. Moderation could be achieved by designing the workshop space and process to engender certain kinds of behaviours (i.e. creative and positive thinking), interactions (i.e. egalitarian, collaborative and supportive) and actions (i.e. radical wishful thinking). However, the important function of

[73] The 'Dragons Den' is a television programme that features people pitching ideas to a panel of venture capitalists in order to secure investment and finance for their proposals.

moderation is to provide a basic outline of the process and facilitate the interactions and activities that will engender the future reflective exercises outlined in the preceding sections. The other essential point is to create the circumstances for the group to plan follow-up meetings and agree on which actions are to be taken. The decision about who or how the workshops should be facilitated should be made consensually by all the group members once the whole group has understood the basic requirements of the process. The precise form of facilitation does not matter too much, so long as the basic requirements are met.

Setting up the Future Reflective Exchanges.

The discussions that take place after the initial preferred futures are created need to be delicately constructed. The concern here is twofold. The first is that participants may instinctively embark on an 'unreflected' quest to realise the preferred vision. The second concern is that the enormity of the vision(s) and the potential barriers faced may allow participants to take pessimistic positions. The table below gives some indication of how the dialogue should be framed to counteract these potential problems.

Table 25: Future Reflective Question Framing

Backcasting	Future Reflective Backcasting
How will we be happy in the future?	Is the system helping us to be continuously happy now and into the future?
How do we get to the preferred future state?	What needs to change in the present for the preferred future state to come into fruition?

As indicated by the table above, rather than focusing on the outcome, future reflective backcasting is a more nuanced proposition of how future visions can be used by participants to identify what they consider to be necessary changes in the present. The following section will provide two illustrations from the open workshop which depict how this process materialises.

7.3 FUTURE REFLECTIVE SCENARIOS

The following sections present two scenarios which depict how the future reflective dialogue works in practice. Both of the examples below are scenarios that emerge directly from the open workshop from case study four.

Table 26: Solar Powered National Grid

One preferred future vision that emerged from the open workshop was to re-power the national grid with a non-destructive source of energy. The words 'non-destructive' was a deliberate term because the group felt that renewable energy could also be destructive. For instance, the use of biofuels can also have an adverse effect on the availability of certain crops, thereby effecting food supplies.

Reflecting

After deciding on which terms to use, the group considered a number of present socio-economic limitations, for instance, the lack of adequate investment in solar technologies. Participants also raised the issue that solar technologies are not yet considered to be as profitable as fossil fuels, at least not in the short term, while others discussed obstacles they faced on a personal level. For example, one person described difficult housing circumstances and the high expense of solar panels as barriers he faced in taking up the use of solar technology as a source of energy.

Identifying Objectives

This led the group unto the question of 'what can be done to get a critical mass of people using solar panels and more solar powered technologies?' The group decided that this is the important question because if a critical mass of people start using these technologies, then supply would increase to meet the growing demand, thereby interesting businesses. Similarly, the participants formed a joint view that a greater ownership of solar panels would also become of interest to the government and the mainstream media. Coverage from the mainstream press would in turn perpetuate and normalise solar panel ownership.

Prioritising Objectives

After these deliberations, the group decided that the best course of action was to find a way to support or trigger this trend. In order to do this, solar panel ownership needs to be accelerated. The idea that emerged from this line of enquiry was to set up a charity that would raise money in order to give away free solar panels. The charity would start by targeting people currently living in fuel poverty such as pensioners. The group also decided that money raised through this channel could be invested in current research projects that are trying to reduce the cost and increase the effectiveness of solar technologies.

Table 27: Edible Food Packaging

The notion of an edible form of food packaging originated from a participant from one of

the EDAP public workshops and I re-introduced it as an idea at the open workshop. The participants at the open workshop interrogated this possibility as something that could work as it does in nature i.e. the way we eat the 'natural packaging' of an apple or peach.

Reflecting

These ideas took the group onto the issue of what needs to change in the present systems in order to make these possibilities a reality. This set up a series of conversations about the present form of food distribution, including a discussion around the way food is not considered as a basic human necessity (or right) but instead constructed as a commodity. Another major talking point was the role of brands and marketing, as the group considered the need to over-package food is partly due to branding and marketing requirements.

Identifying Objectives

The outcome of these conversations was a decision to not simply focus on re-designing food packaging. This was because the group found it unappealing to sustain present modes of food production, distribution and marketing. The group decided that re-designing packaging would not address the wider problems caused by present modes of food distribution e.g. part of the world is starving while another part has too much food. Consequently, the participants decided that food should not be a product or commodity but considered as a basic human right. It should be framed in the same way that people consider the access to clean water to be a basic human necessity rather than a product.

Prioritising Objectives

In light of these considerations, the group felt that they could address some of these issues by becoming more self-reliant in terms of how they access their food. This includes becoming less reliant on supermarkets, growing food by joining existing guerrilla gardening projects and setting up communal allotments. The group also decided to find and support existing movements that are trying to re-frame the notion of food as a human right rather than a commodity.

In the first example of re-powering the grid, a backcasting approach would have undergone a different process. In backcasting, the first step would have been to work out a direct path towards the envisioned outcome. For instance, the group may have worked out a plan to lobby the government to re-power the grid or find ways of supporting the development of the technologies to do this. However, in the future reflective backcasting approach, the original preferred future state is immediately suspended as an outcome but instead used as a point to discuss what needs to change in present systems. In fact, the goal that emerges after

these discussions is different from the original vision. The group decide to focus on spreading the ownership and usage of solar technologies rather than the original vision of re-powering the grid. Reformulating the original preferred future state also takes place in the 'edible food packaging' example. Participants decided against sustaining the present forms of food production and commoditisation by simply working out a plan to re-design food packaging. The group instead opted to support movements offering an alternative to the commercialisation of food, start guerrilla gardening and set up communal allotments.

One issue with the future reflective backcasting format is that it might initially be difficult to get to grips with because it is such a subtle variation of backcasting. Perhaps the biggest challenge is for participants to suspend the impulse to immediately create a path towards the initial preferred future state. The subtlety of the future reflective approach is why the moderation techniques are crucial to the process.

The scenarios that emerge from the future reflective backcasting workshop that I conducted in case study 4 is less likely to come from the backcasting processes mentioned in Chapter 3 (e.g. Shell, The Natural Step and Brightworks) because it is not a vision fulfilling process. In future reflective backcasting, the vision serves as a context for a conversation rather than a destination that needs to be reached. The use of preferred future states in future reflective backcasting is to incite different possibilities and a space for contemplating how present systems should be transformed. This works in a way that is similar to what Ross Hamilton describes as the 'transitional moment of becoming' during his analysis of Bruegel's[74] painting, *The Fall of the Rebel Angels*. According to Hamilton (2007), Bruegel's painting perpetuates the process of change, by freezing it in an unrealized state, thereby allowing viewers to re-experience the subject afresh in accordance to their own contemplative development (Narusevicius, 2010). The painting allows the viewer to *"travel vicariously"* and encourages a kind of contemplative meditation (Narusevicius, 2010). The 'moment' is never resolved or fixed for the viewer, but demands the active labour of interpretation and translation (Narusevicius, 2010). The examples from the open workshop show how future reflective backcasting employs this notion of 'frozen' preferred future states as contexts for contemplation and re-evaluation. It is never intended to be a 'resolved moment' but a way to open up conversations that help to identify what is preferred. The future states are intended to be a space for re-contextualising, formulating and reformulating solutions. Rather than focusing on resolving or realising the preferred future state, participants talk around the 'solution area' in order to pull out what they consider to be important, effective and efficacious.

[74] Pieter Bruegel the Elder.

7.4 LIMITATIONS AND FUTURE DIRECTIONS

Although almost all the participants who took part in the various examples presented in this research responded positively to the workshops, there are still many contradictions and limitations. For instance, there were possibilities for future states to mobilise and provoke creative interventions but despite the apparent hunger and enthusiasm for change, the open workshop failed to materialise into any tangible movements or activities. The process may have momentarily alleviated some personal anger and frustration that participants felt in relation to ecological problems. However, it did not remove many of the insecurities over a lack of expertise, time, resources and the general enormity of environmental issues. Some of these insecurities mirror the complex nature of human emotions and psychology, an area that this research is not adequately equipped to deal with. The psychological dimensions of future reflective backcasting presents an important subject for further research. A study into the psychological area could focus on the impact that workshops have on coping strategies for dealing with insecurities and how psychological problems might be overcome or managed.

Future reflective backcasting is primarily a proposal for design practice. In Chapter 1, I discussed its compatibility with design (see *1.1.5 In Relation to Design*). Similarly, the main case studies used in this research, such as Cradle-to-Cradle and Melbourne 2032, demonstrate potential practical applications of a backcasting process within the domain of design. However, despite the intention to present it as a possibility for design, this research has largely focused on its absence from futures studies literature. Therefore, one key area for future research would be to place the concept firmly within the domain of academic design literature. In this research, I have expanded on Fry's (2008) work in which he links design practice and temporality to environmental degradation by identifying the role of a vision-attaining form of design in addressing ecological uncertainties. I have shown how a vision-attaining form of design presented in backcasting can be reframed into a more nuanced reflective process in which preferred futures are compared to present systems in order to expand the problem area and reveal opportunities for environmentalism in the present. Future academic research could further develop and test the future reflective backcasting model presented in this thesis by applying it to specific design practices such as eco-design.

While some results of participatory backcasting have so far been reported (e.g. Carlsson-Kanyama et al., 2008), little has been done in terms of comparing different backcasting approaches and evaluating their long-term impacts. Consequently, I propose that an area worthy of further academic interrogation would be a consideration of the value of different approaches to backcasting. In this respect, a longitudinal comparative study would be

suitable. Such a study might also be able to highlight different contexts in which one approach is more appropriate than the other. Another possibility for this line of enquiry would be to explore potential benchmarking tools for assessing the efficacy of the actions taken from different backcasting approaches. This line of enquiry could also expand and build upon my suggestions for how a future reflective backcasting workshop can be evaluated (see *6.3.6.2 The Effects of a Future Reflective Backcasting Workshop*). In Chapter 6, I proposed that a future reflective backcasting workshop can be evaluated in terms of its ability to help participants to find opportunities in the present, provide a space for learning new things as well as an evaluation based on the feedback of the workshop participants.

7.5 CONCLUSION AND IMPACT

I started this research by asking five research questions. The first question I asked was why futures are a good way of constructing and addressing environmental issues? I answered this question in Chapter 1 where I argued that futures create spaces for fantasy and uninhibited imaginings in a way that is not contingent upon the present conditions which may have created the problem. Futures are also useful for addressing environmental issues on a practical level; they present possibilities that are expected to come into fruition. The next research question focused on how backcasting offers a means of using futures to address environmental issues. In Chapter 3, I used different illustrations to describe how backcasting is a useful mechanism for creating alternative preferred futures in a way that is not contingent on present trends that contextualise the problem. In backcasting, the focus is on what is preferable rather than the specific problem itself and this makes it possible to transcend disciplinary, professional and institutional boundaries.

My third and fourth research questions focused on which compelling examples of backcasting currently exist and how they suggest methods, techniques and organisational structures for a future reflective backcasting workshop. In this thesis, I have highlighted possibilities presented in backcasting applications from the Cradle-to-Cradle Mirra chair design scenario, Transition Towns Totnes EDAP group and Melbourne 2032 future simulated backcasting techniques. I subsequently synthesised the possibilities, methods and techniques in the first three case studies into a final case study of future reflective backasting workshops. The final research question was a consideration of which type of environmental activist would benefit from the workshop model produced in this research. In section *1.1.3*, I identified a target group of 'engaged yet uncertain environmental activists', people who are keen to take part in acts of environmentalism but uncertain which actions to take. This was the type of person who attended the open workshop that I organised. The participants of the open workshop were subsequently interviewed and gave an account of their overall satisfaction with their use of future reflective backcasting (*see 6.3.5 Navigating the Landscape of Insecurities by Networking*).

The main purpose of this research is to propose a method for exploring and creating strategies for dealing with ecological degradation. Future reflective backcasting provides a broad context of the problem area and expands a sense of what is possible at the start of the trajectory. I produced this method by developing and testing a modified backcasting approach to environmental problem solving. This thesis has demonstrated how the creation of preferred future states helps participants identify and refine what they consider to be the necessary actions to take. The participants who took part in the workshops I conducted confirmed that the future reflective backcasting workshop enabled them to see beyond obstacles (G_x19) develop original ideas (G_x4, G_x16, G_x17) and clarify objectives (G_x6). Participants of the open workshop also found that the process helped them to identify ways to overcome feelings of hopelessness including their insecurities and the fear of isolation (G_x30, G_x34).

The 'future reflective' aspect did not materialise as expected. It did not need to be prompted or contrived. Participants of the EDAP and open workshops were instinctively critical of all belief-systems (including their own), modes of environmental practices and societal structures as a whole. However, in the public EDAP workshops, the backcasting exercises materialised as a process of criticism that created feelings of frustration and resignation (see *5.4.3.1 My Experience*). In this light, I consider the role of future reflective backcasting to be that of a mediator in trying to stop the re-evaluative process from turning into moments of pessimism.

Rather than a straightforward vision creating and attaining activity, I have shown how backcasting can help environmental activists to articulate and visualise their hopes and dreams in order to configure or re-tune change efforts. This thesis has demonstrated the possibility of this process unfolding through conversational exchanges constructed and managed by the future reflective backcasting workshop model I have developed. If these different spaces and moments of engagement can be well connected, they can mobilise a critical mass of people towards what are considered to be the necessary change(s).

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List of Illustrations

Figure 17: Newspaper Articles from the Future [Scan]. Hopkins, R., 2008. *The Transition Handbook.* Green Books.

Figure 18: Metro Newspaper Article [Scan]. Attewill, F., 2008. Town that's Printing its Own Money. Metro, 10 September 2008, p. 26

Figure 19: Futuring Checklist [Scan]. Hopkins, R., 2008. *The Transition Handbook.* Green Books.

Figure 21: EDAP Process Diagram (Brangwyn, 2008) [Diagram] Available at: http://totnes.transitionnetwork.org/system/files/EDAP+meeting+minutes.+23rd+Jan+08.doc [Accessed 17 March 2009].

Figure 22: Knotting In Ceres: What if Houses Grew the Energy they Needed? [Print] http://www.ecoinnovationlab.com/design-studios/networked-neighbourhoods/85-knotting-in-ceres [Accessed 7 September 2009].

Figure 23: Future Primitive 3007 Tent: Is the Most Enduring Solution the Least Permanent? [Print] http://www.ecoinnovationlab.com/design-studios/3007/63-3007-tent [Accessed 7 September 2009].

Figure 24: Future Simulated Essay from 2032. [Screenshot] Available at: http://www.ecoinnovationlab.com/visioning/17-m2032 [Accessed 6 November 2009].

Figure 25: Future Simulated Presentation from 2032. [Screenshot] Available at: http://www.sustainablemelbourne.com/visions/visions-prof-chris-ryan-as-jims-son-from-jims-mowing-at-the-sustainable-cities-round-table-28-may/ [Accessed 5 November 2009].

Figure 32: Cradle-to-Cradle Terminology 2009 [Print] Available at: http://intersect.ning.com/group/cradletocradledesign [Accessed 23 March 2009].

Appendices

Appendix A: School Workshop Preparation

Part of the preparatory process involved in creating the secondary school workshops in case study four was an interview with 'M', a 3rd year BA Design student who has carried out future workshops with primary school children (see *6.2.2 Participant 'M'*). The pictures taken below are some of the outcomes produced by the children who took part in her future workshops. These pictures were also referred to during my interview with her.

I have placed the photos below online at http://www.coroflot.com/practice-experiments/M-Workshop-Outcomes-Appendix-A in a larger format that is easier to read.

Figure 35: Outcomes from M's Primary School Workshops

Figure 36: Transport in the Future

The text in the picture reads: *'Cars and bikes will hover'.*

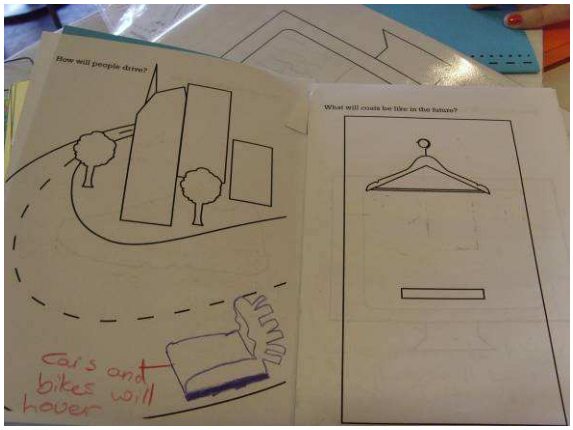


Figure 37: My Book of the Future

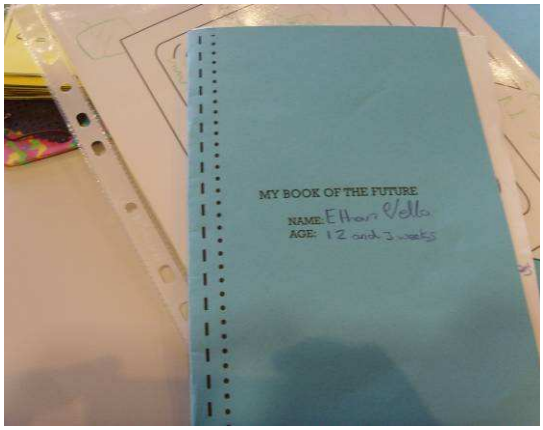


Figure 38: Burgers in the Future

The text in the picture reads: *'The burgers will be bigger and there will be more salad in it'.*

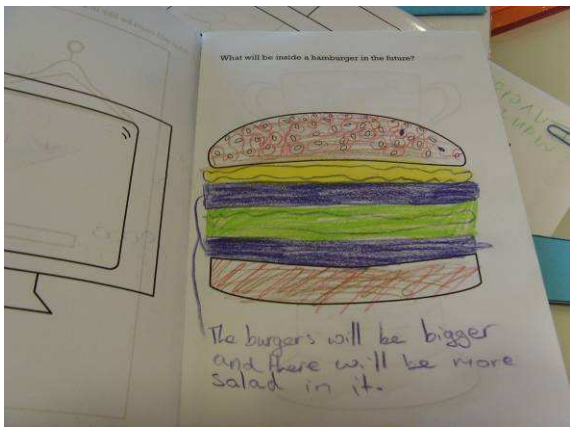
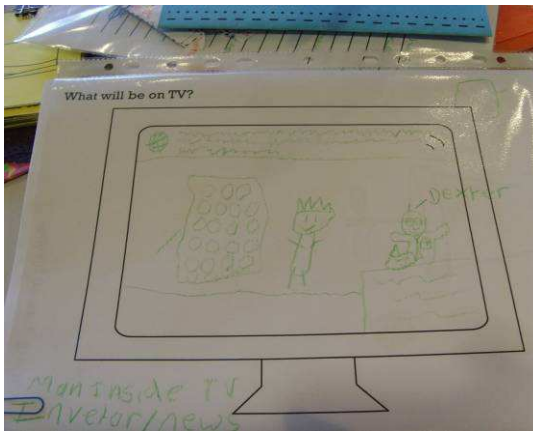


Figure 39: What will be on TV in the Future?

This picture is of an actual human being inside TV, presenting a show.



Appendix B: School Workshops

CORRESPONDENCE

School Letter (Page 1 of 2)

Design Department
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Date

Name (Addressee)
School Name
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Town
City
Post Code

Dear (Name),

SUSTAINABLE FUTURES WORKSHOPS

I am a PhD researcher in the Design Department at Goldsmiths and work with Alan who suggested that you might be interested in this project.

The PhD research is concerned with how we can find creative solutions to environmental problems by envisioning preferred versions of the future. As part of this research, I will be working within secondary schools as a resident designer and setting up workshops suitable for key stages 3 and 4. This will consist of a minimum of 2 workshops over a maximum of 6 weeks. The objective will be to discuss environmental issues and engage students with creative activities in order to get them thinking creatively about what a sustainable future might look like. They will then be asked to produce visions of a sustainable future in a digital format. The final design will be uploaded on to a 'youtube style' online portal.

I am very keen to find a way for this project to fit into existing study requirements under the national curriculum and the exam syllabus. It will be covering key topics in community participation and citizenship, creativity and critical thinking, design and technology, sustainability and environmental issues. They will also be producing tangible objects that could become part of their personal portfolio.

If you are interested in taking part, I would be very grateful if you would complete the reply slip (overleaf) and post/fax it back to us by 21st April 2009.

Yours sincerely,

Lisa George.

Fax

Please tick

Yes, we are interested in taking part in the sustainable futures workshops ☐

Name of school

……

Telephone: Email:

……

Best method of contact

……

Name

……

Position

……

Date

……

Sign

……

Follow-up Email

Subject: Sample Lesson Plan (Sustainable Futures Workshops)

From: "Lisa George" <l.george@gold.ac.uk>

Date: Fri, June 12, 2009 5:00 pm

Dear All,

Please find the workshop lesson plans attached[75].

My intention is to do a pilot study with 2-3 schools in order to test/improve the format before moving on to other schools. Therefore, it would be great to know which of you are still interested after reading the details of what the workshops will involve.

I will also be available to answer any questions at the next partnership meeting on 16th Alan says that all the information about this event is on learn.gold.

Best wishes,

Lisa

[75] Sample lesson plans are in the main document see section *5.6.1 Sample Lesson Plan.*

Appendix C: Interview Correspondence

COVERING LETTER

Subject: Totnes EDAP Exhibition
From: l.george@gold.ac.uk
Date: Thu, February 19, 2009 2:58 pm

Dear (Name),

I met you last Saturday at the Transition Towns EDAP public workshop.

I found a lot of your ideas and stories both radical and interesting. I was wondering if it would be possible to have a chat sometime and record some of your views for my PhD research? This information will be used to substantiate some of my theories and help to explain how the EDAP visioning process works. Nothing too serious - just a 20 minute chat over coffee?

I will be back in Totnes on Saturday 7th March for the exhibition that Jacqui mentioned, would you be free to meet at any time on that date?

Best wishes,
Lisa

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London
SE14 6NW

T: +44 (0)20 7919 7737
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Appendix D: Transcribed Interviews

TRANSCRIBED INTERVIEW WITH 'W' AND 'H'

7th March 2009

(2 EDAP Members) - 1.48pm

Total Duration: 40 minutes

KEYS	
LG – Lisa George (Researcher) W – Participant 1 (Wife) H – Participant 2 (Husband)	(-) small pause indicating a sudden change of thought (pause) a longer pause "…" indicating an interrupted statement *"xyz"* said in the form of a quotation/speech *[xyz]* – descriptions of actions that took place XYZ – emphasised word or said very loudly (this excludes "OK")

LG: So how did you both hear about Transition Towns and get involved and become members?

H: Well it was right on our doorstep, it was right in our faces.

LG: Oh right, advertised?

W: It was just a new thing going on and there was a poster for a meeting, so we turned up.

H: It is an important part of the whole way the Transition Towns work. There has to be a years'- now what do they call it?

LG: Is it 'unleashing'?

W: Mulling.

H: The 'unleashing' was actually the big first event that happened, but there is sensitisation, getting people aware which happened first. And that's a year and that involved showing three or four films 'At the End of Oil' and that sort of stuff so that people begin to get an idea of the whole scope of the project (pause) and then you start with things like events and

events programme so the ambition happened and the event programme for that September, October, November, December, already there printed.

LG: And you saw all the films? Did you go to all the events?

W: Yes.

H: Yes, they were literally just up the road.

LG: *[Laughs]* so you had no choice but to go and see it?

H: Uh hum.

LG: So how long ago was that? Was it a year ago? I think its been-

H: September 06.

LG: Right OK, three years? Roughly?

H: Two and a half years.

LG: So what do you think about Transition Towns, just generally?

W: Well it's been very jolly *[laughs]*.

H: *[Laughs]*.

LG: *[Laughs]* so you've enjoyed it?

W: Yes, we've met lots of new people and what's been particularly nice is we've met a younger age group then - I mean we know lots of people our age around here but meeting younger people has been really good.

LG: I was impressed by the diversity of, not just people, but also backgrounds - artists and professors. It's quite diverse which is nice.

W: Although I think it is only impacting quite a small section of the town. I don't know whether the participant rate has been measured in any way. There's lots of people that I notice I never see there *[laughs]* (inaudible) really.

LG: *[Laughs]*.

H: we never see in meetings.

W: Yes, who don't come to things.

H: When it first started it was all the same people but some of the meetings are now almost completely people that we haven't met before. Partly because I think some of the people - some of the events are replicating some of what we have already done back in the first year and are updates and so on, but people are coming in on the - many people. But we don't go to every event by any means. So, but it's still a very small proportion of the population.

LG: It is.

W: Yeah.

LG: Which is the next question. In terms of limitations, I mean I'm very impressed, but I'm sure there must be some things you find very frustrating and there must still be things that are not being- or not effective enough. Or there are still things that are not happening, as you'd like it to?

W: Not really I don't think, because it's a new process and it's based on permaculture and you know that's were it comes from and I mean I didn't know anything about permaculture before *[laughs]* and I don't know that I'm that informed now but the- I know that one of the principles of permaculture is when you acquire a piece of land, the first year, you just look at it.

LG: Oh.

H: Observe.

W: You know you don't- so you would reckon to spend a year seeing the falling of sunlight when it's in shadow where the warm bits are, where the frost pockets are wet.

H: What goes where- nettles grow there, *"oh there lots of nitrogen going to be in there"* and that sort of thing.

W: Where the water is and where it floods and where it's dry and all that. And if there is a band of clay and that sort of thing and so applying that principle. We've been a bit involved in a local government group that was set-up as part of it and we did a bit didn't we?

H: I did in one of the early or probably the first open space day and it was quite clear to me that things- anything we did that was going to have any effect whatsoever, would have to involve or impact in some way on the local council, so we were going to try and get them on board. they have been, I must say, remarkably resistant.

W: *[Laughs]*.

LG: Really?

H: they don't say so.

LG: Oh right I see.

H: their policy is to *"humour them."* Any group*, "humour them and know that they will burn out in two years and then you don't hear any more of them, then that's fine."* What they haven't reckoned on was that Transition Towns was not going to burn out.

W: *[Laughs]*.

LG: Right *[laughs]* two and a half years now and still going yeah.

W: Yeah.

H: And we're aware this is one of the things going on in the background so we are well aware of this danger and for example on the core group in the next meeting on March the 9th that's going to be, that's one of the things on the agenda practically all the time after the last year there has been burn out. Now who can we get to help us with this?

LG: Hmm

H: How do we get over it and….

W: Get the manpower.

H: …part of the problem with man power is that there aren't- you see there is lots of ideas but there aren't any where near enough people to get on with doing them. So for example, the Totnes pound is faltering very considerably so there - we are - we'll see-

W: Because it needs full time on it to explain it more and….

LG: Push it?

W: Get it electronic and things like that.

LG: I suppose there is probably a problem of the kind of visioning and the kind of optimistic nice rhetoric but there is also the kind of practical thing and how balanced are those two things in terms of having the ideas and then implementing them.

W: Yeah and there has been, what they say these two techniques which I think they mentioned in the handbook of the open space day and then the world café.

LG: Yeah OK.

W: As a way of getting people to generate ideas and so on (pause) that's been very effective in generating ideas and which come from all over the place and that's great but, you know, the human mind's capacity to generate ideas has got no relation to…

LG: *[Laughs]*.

W: …its capacity to carry them out in any effective sort of way. So it's inevitable, really, that it takes time to sift them out and say, *"well we can't be doing all this"* or somebody else may be doing it as well.

LG: Exactly, try and link up.

W: But it's quite difficult and you get a sense of when the government makes targets for the country to be doing something by 2050, how the hell do we know that it will ever happen?

LG: The funny thing is they probably won't be around in 2050. All they care about is the next four years or however long the next election cycle is. That's all they care about.

H: Hmm.

LG: But in terms of the methodology, I am very interested in the backcasting element of that. I found it very difficult to do it the first time, but you've both probably been doing it for a while. Do you find it easier the more you do it? In terms of thinking about the future and then working your way back?

H: I don't. I must say it's a thing you have to do a lot.

W: I don't find, I think…

H: (Inaudible).

W: …I did some economic history at university and we did a- there was a course going through the economic history of Britain and from about the 1400's onwards and that actually was brilliant, not that I really used it much until now *[laughs]*. But it means that I've sort of seen the movements in population and things like the effect of the Black Death in this country and how that cut the population by about a third is it? And so that caused inflation but it meant that labour was very scarce.

H: Wages went rocketing.

W: So you could get high wages in the Elizabethan time, individuals could become very prosperous because there was such a shortage of labour so that gave a sort of opulence to things, to name but one.

LG: Yeah.

H: But *[looks at "W"]* you are better at backcasting than me?

W: Hmm the idea of if one thing expands here what will happen subsequently? I think with the economic and historical process, you do sort of see it.

LG: Does it help you to see things differently maybe? Or does it make you think about things in a much bigger sense because one of my major criticisms is that we as a society, we use things like technology, for example, and narrow things down to look at a specific thing so if it's a car *"oh well just get bio-fuels."* Problem solved. Rather than thinking about it holistically in terms of transportation.

H: *[Laughs]*.

LG: So does looking at the future help you to kind of look at it in that way?

W: Well I mean there is an example there is a nice example of the economical- a very good study on the economic history of the Tamar valley. It was quite a (inaudible) piece of work and it happened in the 60's and it involved the copper mines that had been done on the river Tamar in the 1840's 50's 60's and there was a tremendous boom. There had always been a history of copper in this area because there is a geology but this was sort of big time and one of its uses was exporting arsenic because you get….

H: Copper.

W: …you get….

H: Copper and arsenic.

W: …in the same load.

H: Together sort of.

LG: Right OK.

W: …you get arsenic to America to kill the boll weevil and the common….

H: Copper started, the load was very rich but stopped fairly quickly so it was only about 20 years and luckily they found this use that the arsenic came with. It was this boll weevil so that was used (inaudible) to apply.

W: Well yes the people who had to scrap it off the- something was burnt- I think it was in the tunnels.

LG: OK.

W: I think it was off the roof of a tunnel and pull it off loos and none of them lived past 24. And so *"brilliant we've got this cure for the boll weevil."*

LG: Yeah.

W: But back in Devon-

H: Unintended consequences.

W: …people were just dying so the….

LG: It is that narrow view of things.

W: …yes so….

LG: Reductionism.

H: Uh hum.

W: That has sort of been with us and copper shares went….

H: The boom? The boom in 1840 and they were toting the shares at 10 shillings a time in the streets in Tavistock in the 1860 for £800.

LG: Wow.

H: *[Laughs]*.

H: Great consoles.

W: And they sank as rapidly didn't they?

H: Hmm oh yeah it was a crash.

W: South America found Copper, you know, cheaper to get out and-

H: So thinking holistically involves, well, just a huge amount of time.

LG: It does.

H: Hmm it must do.

LG: Or maybe do you think it's because we are not used to thinking in that way? We are very used to focusing problems on specific things.

H: That's because- that's precisely to reduce the amount of time.

LG: Time? Right OK.

H: If you take a chess game, for example, a simple game like drafts on the same board can be done quite quickly but a chess game, the combination of all the different moves and the large number of pieces means that you've got thousands and thousands more combinations.

LG: Right I see yeah.

W: Also I think the speculative thinking- I mean what we're doing is just speculative thinking and we're not- nobody paying us to do it, we are just doing it because (pause) well.

LG: *[Laughs]*.

W: But most of the time when one is in work you are being paid by somebody to solve something, you know you are paid to do this, not very broadly or nothing so the I think the sort of amateurishness of it or the 'voluntariness' of it is an essential part of it really because it, because you know we've got to think- the initial thing of it I think has to be voluntary I mean now, for example, say the national health service looking very seriously about cutting carbon and there is a big campaign….

LG: Yeah.

H: Very big.

W: …and the Navy has halved its allowance of fuel for exercises- warships when they are doing exercises and have to get (inaudible) *[laughs]*.

H: And seal them off Plymouth.

W: So you can speculate about that actually and that is now what is happening.

LG: But in terms of- sometimes when I think about the environment and you think about the future does it help you? Does it make you feel more confidently about meeting the challenges of peak oil and climate change when you are able to imagine the outcome? Or are you as confused as people who are thinking of it in the kind of pessimistic you know "*Oh my God we're all going to die."*

H: That's the worst thought completely- make people think there is nothing they can do about it therefore there is no point in doing anything so it just gets completely sidelined and this is the positive look and that's the way to make sure that at least we can do something.

LG: Hmm.

H: In the end, if it all goes pear-shaped and we get extinct, well we didn't give it our best shot. Because we didn't start it nearly early enough. But we personally are not going to be there at the extinction *[laughs]*.

LG: *[Laughs]*.

W: And also there are things that you can only, at any one moment, can only be doing or having only a limited number of things of all the possibilities and, you know, you can only be living in one place at one time for instance you can only be doing three things at once unless you've got one of those *[points at the iPhone]*.

LG: *[Laughs]* doing 20 things at once.

W: I think probably the age we are because we've seen the move from- I mean we were both born in the war, last war, last world war and so rationing, you know, we can just remember the rationing, for example, we can remember when everything was white china and cream and green paint and dark (inaudible).

H: Everything.

LG: Really?

H: That's how it was, there weren't other colours.

W: Yeah so everything has been progress since then. Elastic for example, I mean that's a real- when I was at secondary school and we did swimming and we had black woollen bathing costumes and I've got quite wide thighs and it was so difficult to get- it was so tight- it wasn't that I was- it was just my build the fact that there was no give in the costume. And so, you all had to be dressed in two minutes and the torture of getting this on.

LG: Circulation.

W: Yeah but then, that was the first year, the second year stretch nylon had come in.

LG: Wow.

W: It was a moment! And it was no longer a problem and I thought what *"was I worrying about*?" It had been the same with jodhpurs that I had tolled up to with a bit of riding and the jodhpurs were made out of cotton and they had no give in. And so the humiliation of getting them off. Yes, it was just because of my humiliation because of proportions they had to slit the jodhpurs.

W: Yeah and had I been, you know, come to this sort of thing a little bit later I would have had elastic ones. Elasticated, and it would have been completely different.

LG: It would, yeah I know.

W: So the idea that a technological change can be quite sudden, you know, I had chicken pox I think and I had been in bed and I think I remember coming down stairs and feeling rather wobbly and there in the sink was a plastic washing up bowl and we had enamel before. And I remember it had a label on the bottom with a picture of an elephant saying that an elephant can stand on this and it wouldn't break.

LG: *[Laughs]*.

H: *[Laughs]*.

W: And a horrible sort of green sort of valley plastic *[laughs]*, so again that was a sort of moment that never wears off.

LG: Yeah.

W: And never went back to enamel (inaudible) so you know remembering these sort of changes happen quite suddenly but even seeing how our parents sort of survived with rationing and bombs falling.

LG: I suppose the funny thing is we don't appreciate any of this now. we really don't.

W: Yeah but I think for our generation we still got it, you know, we've still got it and I don't know what age people stopped noticing that sort of thing.

H: Well I think that sort of thing everyone over the age doesn't notice, two generations back is dead for most people. Unless you start looking. Once people start looking they begin to think *"ah not so bad."*

LG: Yeah I know.

H: But most people don't.

LG: we are so spoilt now anyway it would be slightly difficult, but also I mean thinking about I mean one thing that I find is- in terms of how we imagine futures in this, over the Totnes Transition Towns thing we- it is kind of a 20 and 25 years thing. How do you find that because I think of it and I think when climate change last happened, when the dinosaurs became extinct like 5 million years ago and then it took about a thousand years for the carbon to kind of reduce and become normal again and the planet is like 4.6 billion years old. So 25 years, is it to far into the future? Is it too short? Maybe we need shorter timescales maybe we need 5 years? How do you feel about the timescales that they have chosen in terms of thinking about the future?

H: Well it's a- the 2030 one is broken down.

LG: It is yeah.

H: So that's not too bad and certainly I have found in one or two discussions that I have been in is that its not too difficult to do 2030 because well to do 2015, 2012 is much more difficult because you've actually got to do it.

LG: I see.

W: *[Laughs]*.

H: Now you actually have to. It's no good thinking about it, you've got to get on and do it.

LG: Yeah.

H: And that is what takes the time and it is a difficult thing. Where as 2030 you can confidently put that there and know that there is probably someone else who is going to take the-

LG: *[Laughs]* exactly.

W: But also, I think *"well how old will I be then and what will I be like and how will I fit in"* and actually you know the difference. I mean we are in our 60's now so in 20 years time, you know, we will be mid 80's.

LG: Yeah.

W: So that actual feel because if you move into a different physical kind of thing.

H: Zimmer frame around *[laughs]*.

W: Well.

H: No not quite no, no we'll still be- we'll still be-

LG: Jumping up and down *[laughs]*.

W: *[Laughs]* I don't know but you do think to yourself, well you know a lot of old people haven't got enough time and how will people treat us? Will we be an essential part of the community or will we be, you know.

LG: Yeah. There is an issue about ageism unlike in say African cultures. Because over here it is very much like *"Oh you're old there is no point in talking to you"* but it's really amazing.

H: But it's the other way around in African culture?

LG: Yeah because the older you are the more respect you have because you've experienced more and its just a complete opposite to how they view age in this country. It is so silly. The funny thing is we're all going to be old one day so it's like, why? *[Laughs]* it is not a unique thing we're all going to go through it so I always find it-

H: But when your 25 you're immortal *[laughs]*.

W: *[Laughs]*.

LG: Of course *[laughs]*.

W: we have this trouble with my father was 96 about 5 years ago, we go and see him in the nursing home and he would say *"now what have you been doing Julie?*" and Julie would say

"well I've been on the computer" and he would say, because he was blind as well, but so *"what is a computer?" [Laughs]* and he- I mean he's got dementia so he was forgetful but actually, when you wanted to describe it was really quite a dull thing to describe.

LG: Yeah.

W: Because it's (pause) what is a computer?

LG: Yeah.

(LONG PAUSE)

H: That is an interesting (inaudible).

W: You know you think of the old BBC. The ones that went all green and greasy and ended up in the school swimming pool was filled in there was a whole pile of them in the swimming pool now.

H: So the-

W: Cupboards full of the obsolete computers so which computer are you talking about? Are you talking about that *[points to iPhone]*?

LG: *[Laughs]* yes I know.

H: So the timescales I think are- the nearer they are to you I think the more- certainly I find it's and I think probably other people find the same thing is that you shy off it because it means you've actually got to do something.

LG: I noticed that actually in the boards you have 20- I don't know say 2010 have few things and then in-between there is very- there is nothing and then 2030 is like the you can't even fit all the ideas on the board because there are so many ideas for 2030.

W: Yeah.

LG: That's probably a reason why.

W: Well partly actually I think it's because you know Jacqui was saying that the sort of back casting process when you came before and there were the circles.

LG: I see yeah.

W: And there was particularly…

LG: Staggered.

W: …a lot because she put the stuff up on the boards yeah. How are you doing are you getting enough to eat there?

LG: Oh no, I'm fine.

W: Are you sure?

LG: Yeah don't worry about me I'm fine yes. I only have one more question left *[laughs]* one more question. How would you define a successful outcome for say Transition Towns or the community or the country or the planet, you can pick any of them. How would you define success? What do you think it will look like?

W: Inclusiveness.

LG: Inclusiveness?

W: Hmm.

LG: OK

H: Oh that's interesting hmm I think I'd probably say that actually we don't need to do that. We shouldn't do it.

LG: What? Define success?

H: Yeah well, what I'd much prefer to do is to name some things as successes as we go along.

LG: OK.

H: That's one of the reasons why we have parties!

LG: *[Laughs]* OK.

H: Celebration. Celebrate what you've achieved now and don't worry too much about things that are, for example, not getting done or seem to be stretching out far longer than you thought. And even in 2030, we might look back at it, when we are facing each other in our Zimmer frames *[laughs]* and say well *"was that a success or not?*" and I would much prefer to say *"no we had to do it and we did it, we got on with it."* But I think including everybody is very important.

W: Yeah.

LG: You mean like getting the community involved or just-

H: Yes.

W: Well nobody's left out, social justice. And I think that it is something that is deeply important that is set-up.

H: I think that's probably just one of the things, although it's not very sexy for a headline for a newspaper or whatever, but it's actually the fact that we will instead of going backwards on social justice which is what we've appeared to have been doing in the last few decades. we will go very strongly forwards, especially in this country which is very poor about how we do that is really problematic. Major cultural problem.

LG: It is. And even how you define social justice I think is a minefield. It's huge.

H: Hmm.

W: Hmm.

LG: It's big but, you know, we have to dream *[laughs]*.

W: But there is an interesting example of how you come from this point. we see threats but which will turn out to be THE threat, is hard to say.

LG: That's it.

W: Because there's a very recent example. There is a very good printing works that has been going on for about 12 years and it had moved to-

H: In the town.

LG: Oh right, OK.

W: In the town and it had-

H: Very very sustainable…

W: Produced a lot of stuff.

H: …produces the Totnes pound and they were one of the first to have one of these carbon analysis things to see what the threat was to their business, oil shortages and all that and because of how they did everything it was reasonably low. Except the only place they were vulnerable was the fact that all the 16 people working there lived out of Totnes so the transport cost of the workforce was their vulnerable point. Well, was it 3 months ago? they ceased trading. Not because of any of that but because I think a couple of major contracts they had-

H: Council.

W: …folded they had, you know, their cash flow just went to zilch and somebody, I think some accountant who had done their books said they were a very good company and said that they were, you know, all the books were absolutely right and the figures were all very correct and they measured everything and so on. And so, you know, it wasn't the way they ran the business was anything wrong with it.

LG: Yeah.

W: And so that's your credit crunch or whatever it is.

LG: I know, I know.

W: Which has actually turned out to be the threat but we were busy looking the other way you see. So, that's what makes me think that the inclusiveness thing is actually the thing.

LG: It's a bit like the- do you know about he black swan theory?

H: No tell us.

LG: Black swan theory is that there is always like one odd black swan somewhere. Essentially this guy's theory is that sometimes, actually, when we predict things, a lot of the time we tend to focus on the most usual, normal, mediocre situation when it is almost never like that because if you look at history, it is always the most unusual unpredictable situations, you know, 9/11 and all the wars. And it's the reason why people like- actually there is an occupation who has the worst record of predicting what's likely to happen and can you guess who they are? Basically, what they know and what they think they know, they have the biggest gap between that.

H: Ah hah.

LG: Can you guess which one it is?

H: Which occupation?

LG: Hmm

W: Economists?

LG: No, but they are probably pretty bad.

H: Well politicians don't have a very good record.

LG: No they don't either. It's actually risk analysts, risk assessors.

W: *[Laughs]*

H: *[Laughs]*

LG: *[Laughs]* it's because they always assess risks on the most mediocre, normal scenario whereas risks are likely to happen in the most unpredictable chaotic fashion and history is made-up of all those unusual-

W: Yeah and it's usually two cataclysmic things that happen at the same time.

LG: Yeah or several. And that's the black swan theory. You know predicting things are so pointless because we tend to only think about the most obvious things. I mean 9/11 could never have been predicted so having police and having security analyse a risk or fire or

whatever, you know, you can never predict those things. And he has this thing, if you ever read the book, people in suits, its hilarious. People in suits tend to be really bad about having a very high opinion of what they know. It's a really interesting theory yeah.

H: Ah

W: You should take them out on a trip to Dunwich.

LG: Hmm

H: Uh huh

W: Because just sitting at the station in Dunwich and you look out on the sort of lake that you can see from the train and its full of black swans *[laughs].*

LG: *[Laughs]* there you go. I think its from that a famous speech from a philosopher saying that *"all swans are black"* and then it is actually being refuted that- no sorry *"all swans are white*" and then it has been refuted in saying that no there are actually some swans that are black and it's a philosophical thing about people making assumptions about what is, and issues about truth and how you define truth and it can't be an absolute. But that's going into philosophy.

H: I'll look that up on the net.

W: Yes I have heard of that.

H: Oh you have.

W: So I think with the Transition Towns thing, it's to have fun on the way.

H: Oh yeah.

W: I think that's the main thing.

LG: Hmm that's what I found. At least it's optimistic and its opportunistic and creative rather than pessimistic and top-down. "*Don't do this, don't do that"*, it's just- whatever happens, whatever the solutions- it's not going to be that.

H: So the Totnes pound actually started pretty well for a joke.

W: But it took three weeks.

LG: *[Laughs]* the best things are always like that. Yeah, wow.

H: Yeah. But there's another- I think probably a block to spreading it out to everybody is that a lot of what you have to understand in order to be persuaded that we've really got to do things is only conveniently display-able in things like graphs and pie charts but people do not understand them.

LG: *[Laughs]* no.

H: And people going to Totnes events and speeches to Transition Towns events you know you think are wised up and aware and they complain constantly.

LG: Really?

H: *"I hope you're not going to give us any graphs.*"

LG: Oh wow, OK.

H: Can't read them.

LG: *[Laughs]*.

H: Certainly not at the speed that *[laughs]* it's some of that basic. One thing that I want to say to Jacqui is some of that basic scientific concept in particular presentation of information.

LG: Yeah.

H: Need to be done very much better in schools and demystified and so on.

W: Percentages is a big thing isn't it?

H: It starts, actually, with percentages it starts with fractions.

LG: OK *[laughs]* OK.

H: It starts as basic as that people do not understand

LG: they don't like it.

H: If you ask them what is half of a quarter, they're stumped *[laughs]*.

(LONG PAUSE)

LG: OK.

W: *[Laughs]*.

LG: *[Laughs]* I don't know what to say to that.

H: So yeah we don't know what to say we don't know what to do about this.

LG: But I mean there are- I mean I met an artist the last time I came I am sure that there are people like that who can kind of re-design things or, you know, simplify things. That's always got to be a good thing.

H: Hmm yes I think so yes, yes I mean there is a very good example and a wonderful book on the presentation of information. It's by an American.

W: Tuft

H: Tuft

LG: Tuft

W: Yeah, the visual display. It's an absolute classic you must read it.

LG: Oh right, OK.

H: Yeah dip in and see because there is a splendid 2-page diagram. You can present the information in numerical form and present it in other forms and it's easy enough to present, for example, what happened to Napoleon's army and his invasion of Russia and coming back I mean why that but as a timeline it is superb.

H: It is something that is pretty important because you present the figures and people's mind's glaze over. You present it as a time line with the thickness of the line its exactly

proportional to the number of soldiers till left alive and you see exactly the crossings. The river crossings especially in the winter on the way back the line goes *[makes a whistling sound]* like that.

LG: Hmm wow.

H: And it gives you a visual presentation nothing to do with figures.

W: And it's got temperature. I think the distance from say Paris to Moscow.

H: And so it is presented on the map so you can see where it happens and actually, when the line actually crosses the river then they froze in the water.

LG: Yeah that would be very interesting.

W: Yeah I don't know if Jacqui knows that.

H: No so that there is plenty of information out there (inaudible) and that sort of thing.

W: But that is an absolute classic book that more people should read.

LG: Tuft? OK.

W: Yeah T-U-F-

LG: F-T OK.

W: E - is it?

H: No just T-U-F-T I think.

LG: Hmm that's good.

TRANSCRIBED INTERVIEW WITH 'M'

Third year BA Design Student who has carried out future workshops with primary school children

2.45pm – 1st April 2009

Total Duration: 32 minutes

KEYS	
LG – Lisa George (Researcher) M – Interviewee	(-) small pause indicating a sudden change of thought (pause) a longer pause "…" indicating an interrupted statement *"xyz"* said in the form of a quotation/speech *[xyz]* – descriptions of actions that took place XYZ – emphasised word or said very loudly (this excludes "OK") Note: Some of the images referred to in this interview can be found in Appendix A, Figures 35-39

M: I looked at predictions from the 60's and 70's and what has become of them. I am really interested in the kind of notion that often things that we predict don't come true and how there is no linearity in the way we can predict like what often- say what happens now is continuing the same way in the future. And I basically interviewed loads and loads of people about their visions. Especially at the time I was interviewing them about their visions relating to food because I felt like that was a good pin point to ask them what they think. *So, "fridges will be like?"*, *"food will be like?"* etc. And the most interesting results were produced by the kids, obviously, that I interviewed and that I worked with and so I decided to turn my project into a kind of series of workshops where I tested different methods of working with creativity to enable them to express-

LG: How did you have access? I mean that's really incredible to have access to children and workshops. How did that happen?

M: I mean yes that was difficult. I was a youth group worker when I was still at school, so like a scout almost. But that was back home at Switzerland, so in the Christmas holidays I went home and I managed to do a session with them and when I came back here, through Tony, I got access to 2 schools and was allowed to go in a few times. So that is what I have done so far is just designing these workshops and now I am hoping to make a website where teachers can download the kind of stuff that I have done. So one kind of thing that I did was

to give them doodle pages *[showing me her workshop materials],* so *"how people drive"?* (Figure 36)*, "what will be inside a hamburger"?* (Figure 38).

LG: That is really really good. So, what ages were these children?

M: So this was 12 *[she points to some workshop material in front of me]* but some kids were younger 9. I felt that the kids 9-10 responded best to my activities, I don't know, they were just a lot more imaginative. The older ones where almost a bit inhibited to show what their thoughts and ideas were.

LG: That is very interesting. Actually, I am writing down all these things I want to tell you about. All these different links that you might find interesting.

M: That's great *[laughs]*. We did loads of different things. *"Design the school uniform of the future"*, *"design the school timetable of the future."* I did a thing were I got them to design a TV channel of the future. Write new stories.

LG: Was it kind of *"just design"?* Was there any kind of critique? Or did you talk about feasibility, how is it possible for this to happen? Did you talk about things like that or just design and imagine?

M: It is a big question…

LG: Sorry can I take pictures of these?

M: Yeah go ahead.

LG: I really like this one.

M: I mean actually this is the first one that I did. I felt it was very inhibitive to use a booklet. So the rest of the workshop I used A3/A4 sheets because I felt like it was a bit-

LG: Why was it inhibitive to use a book?

M: Because I felt like giving them a (inaudible) I felt like giving them more space just to allow them to produce many many more ideas. Because with this *[points to books]*, they would write a sentence, they would colour it in a bit, whereas these are much more interesting. Loads of ideas.

LG: *[Reading the work aloud] "burgers will be bigger" [laughs] "…and more salad in it"* (Figure 38). And also with this, it's almost like you have created parameters and that's kind of restricting whereas if they have their own- *[points to one of the papers on the table]* TV?

M: Oh yes, with these, its important that you know what they said because the images doesn't tell much and it's so interesting. He said *"in the future there would be a little man in side the TV*" (Figure 39).

LG: Like a real human being?

M: Uh hum.

LG: I love children sometimes *[laughs]*.

M: I know. And then this TV show, an inventor will be presenting his new design of a traffic light with like 20 different lights. That one was great.

LG: Why? Who cares? *[Laughs]* I think this is brilliant.

M: I am also trying to be absurd with it and trying to prove that the future isn't something regular that can be predicted that much it is a kind of complicated issue.

LG: Is your objective about, kind of redefining the future or trying to shape the future? If that makes sense? Are you trying to say, *"well it could be this or it could be that"* or are you saying that *"if we design it the maybe we could actually make it this way."* Does that make sense?

M: It's actually more rooted in the present, ironically, then in the future. I am trying much more to shape the children's experiences and shape their confidence in creativity rather than just trying to shape what's going to happen. It's more about constructions and thoughts.

LG: You were saying how children, the younger they were they were more open?

M: Yeah, a lot less self critical I found as well they just shout things out whereas the older ones were like *"oh am I allowed to say that",* you know, *"am I cool or not?*"

LG: That is really really worrying. What I was going to say, when you think about futures were you thinking about specific timescales or were you just, say maybe imagine the year 2030 or did you just leave it open-ended, *"think about the future."* No time limitation on it?

M: Originally, I did think of time limits a bit but the more I worked on this project the more- this isn't very good.

LG: *[Pointing to another document on the table].* What is this, is this a news one?

M: This is a radio one but the better one to look at is this one. And what is also quite interesting is-

LG: Oh this is interesting. This is using timescales. *"In the next 2 years?"* Did you specify this or is that just what they did?

M: Oh no this is based in the future, it could have been 50 years, 100 years or 200 years. I deliberately didn't specify. I just wanted it to be quite (inaudible). This is quite interesting because they are taken out with no context.

LG: So some of them had timescales and some of them didn't?

M: There were no timescales for any of those. Initially a few months ago, when I was thinking about my project, I was thinking should I think about 100 years? 500 years? Or 2 years?

LG: Yeah that's my problem as well.

M: The thing is that with you *[referring to LG]*, you are more tied to a subject like your subject is sustainability. Whereas this is more like fantasy.

LG: It doesn't make it any easier being tied, because then you've got to think about other things. For example, the time issue in my research is like "*OK, if we are going to use timescales then which one's do we use?"* Some people say that it's an immediate problem and we have to think in the immediate future like 5 years. While some people say *"think about it, the planet is 4.6 billion years old, when climate change last happened it was like 55 million years ago and it took about 1000 years for everything to calm down from the elevated carbon."* So do we think long term or do we think more short term? And it's a really difficult one, so believe me it doesn't make it any easier.

M: Yeah, I guess so.

LG: I can't remember if you answered earlier, but did you ask them how to make it possible?

M: At the beginning I did, like the first 2 workshops I was like *"so what if we have a future where-"*

LG: *[Points to another document on the table].* This is the uniform?

M: Yeah. *"So what would happen if the world was really like that?"* I ended up finding that it wasn't very useful to ask them that.

LG: Really?

M: Yeah. Because often they would start being very, I don't know how to describe it, fantasy space? Asking them that it was (pause).

LG: Did it make more real and them more difficult to-

M: And then *"oh no I can't imagine that actually."* And then it was like (inaudible) especially with the older ones. They would just be like, *"um I don't know*" because they- even a 12 year old already knows what is expected of them. A 12 year old knows. And it's shocking how a 12 year old knows that, *"I am expected to say things about pollution or I am expected to say things about ethics."* And it is quite shocking that at a young age they already know what is ethical and what's not. And that they are quite political. You wouldn't expect it.

LG: Wow.

M: Yes.

LG: I am about to go into this so this is very interesting. I have always thought that our view of children is always very patronising. You think, *"oh they are going to be lovely, happy, smiley children, they are going to be very naïve"* but they are a lot more intelligent then we give them credit for which is a good and a bad thing. So did you think they found it very easy to think about the future? Did they take to it straight away or did you kind of have to open up the imagination? For example, did you have to do some creativity activities to get them thinking?

M: I tried everything. The first time I worked with my youth group I didn't even know what my project was going to be so everyone got an A4 piece of paper *"draw a fridge or a restaurant or dinner of the future."* Something like that and it's interesting that they came up with quite interesting results. But I think its more fun for them if you give them a bit of a tool kit *[points*

to a document on the table] like that. Give them a little game or something for them to think about. Especially with the younger ones, it's important to trigger their imagination.

LG: Having a framework, as well to work within, because having open-ended is great but then it's like OK *"think about the future." "Um?"*

M: Yeah thinking about the future is great but even asking them to draw a fridge of the future was a task.

LG: I don't know if you have any questions for me, but I have asked all my questions. I will email you some of the stuff that I mentioned earlier.

M: That would be really great. I mean you know how you asked me earlier if I spoke to them about what they had to create and the futures they had constructed and I said well I had decided not to really, if you were doing a workshop like that would you speak to them about it? How would you speak to them about it?

LG: About futures?

M: Or about how to evaluate the scenario

LG: I would like to, because, for example, with the Totnes model, they have the model first and then they work backwards so I would like to try and test that as a methodology. But you said that you did that and it wasn't so successful but I think it would be interesting.

M: I think probably depends on what goal you have. I mean if you are trying to achieve something very educational and want to have a realisation that maybe- but I don't know.

LG: I think one of my objectives and one of the things I found in my research is that things like the environment is still very elitist and still very top-down and the irony is they don't have the answers. So I think the discussion needs to be opened up a lot more, so one of my objectives is to create a sense of independence *"you know what, the future is open to you as well, you have a say in this."* The people at the top who are saying that we should have efficient cars or whatever, that isn't going to solve this. We all need to be empowered, so there is a huge thing about empowerment.

TRANSCRIBED INTERVIEW WITH 'D'

A 2030 Open Workshop (Environment Sub-Group) Participant

2.53pm – 28 October 2009

Total Duration: 20 minutes

KEYS	
LG – Lisa George (Researcher) D – Participant	(-) small pause indicating a sudden change of thought (pause) a longer pause "…" indicating an interrupted statement *"xyz"* said in the form of a quotation/speech *[xyz]* – descriptions of actions that took place XYZ – emphasised word or said very loudly (this excludes "OK")

LG: How did you find it?

D: I really enjoyed it. I thought it was great. I thought it has been one of the best things that I've been involved with in ages.

LG: Really?

D: Yeah because it really taps into, you know, really into the imagination of ways that we can actually deal with, you know, the world we're living in and I thought there were some really good ideas that came from that and it was a very positive experience and yeah I came away really excited with it. In fact, I've been looking at using it as a model for a green group in my college.

LG: Really?

D: Yeah absolutely.

LG: That's great.

D: I've already discussed it with 'Poo Power' with a lot of the students and they love it.

LG: So it's affected your practice like-

D: Yeah absolutely, I intend to take it, I intend to steal your idea.

LG: No it's not even my idea actually, well the idea is out there that I've kind of borrowed it myself.

D: Yeah

LG: So um-

D: Well I was going to use it in my lesson for what I was going to do with the green group.

LG: What's the green group?

D: The green group is trying to pull in a group of students in college to be (pause) more green.

LG: *[Laughs]*.

D: *[Laughs]* a group that is green. So yeah, I'm using it for that.

LG: When you re-use it, are there any things that you might change or try to improve?

D: The only thing that is interesting is what, how we saw it as in trying to follow through with the ideas because that's the cruck of it isn't it? Or the crux of it.

LG: Yeah.

D: As in like, are you going to be mouth or trousers? That statement.

LG: OK.

D: I mean though, it is isn't it? You know, do you have the conviction to follow through your own words?

LG: Yeah, but the format itself, the actual workshop format, do you think you might absolutely stick with that or do you think you might modify it slightly.

D: Um (pause). No, no I think it worked pretty well.

LG: OK.

D: It's, you know, I don't think there is anything to be added to it because-

LG: Or taken away?

D: No. Initial free for all of thought and then put them into groups and come up with ideas. I think it makes complete sense.

LG: OK. You know when we did the, what I call backcasting- so starting from 2030 and then working our way backwards?

D: Yes.

LG: Did you find that easy to do or hard or how did you find that?

D: From the position that we wanted, I guess the real difficulty there was my fear that I guess the ideas we came up with were quite- that you'd want them to happen.

LG: No sorry, did you want them to happen?

D: Yeah, the ideas that we all came up with, you know, I got really excited by it and there were some things that I really wanted to happen. But just the idea of a small group sitting in a small room in London and the possibility of it happening didn't fill my heart with that much joy but I hoped I'd prove myself wrong which is why I wanted more of them *[workshops]* really.

LG: Yeah. The actual time frames that we used, I think we used 2030 and then we tried to break it down, did you find that useful? Did you think maybe it should have been a shorter term or longer?

D: I would have said maybe a longer term.

LG: Really? How long would you go?

D: I say that it means that I think, probably, what we would want to achieve wouldn't happen that quickly. A more realistic time frame for what we probably would've have wanted would have been (pause) I don't know.

LG: 2030 is 20 years from now, so you think we need longer?

D: Yes, well a lot can happen, you know, look how quickly the whole of the planet pulled its resources together during the Second World War, just like that. So it can be done, I just think there are too many obstacles, we need a Hitler sitting at the top of Canary Wharf before people-

LG: *[Laughs]* we need Hitler?

D: Yeah, sitting on top of Canary Wharf before things actually really start to change.

LG: That's one way of doing it I suppose.

D: I see a painting coming on there actually *[laughs]*.

LG: *[Laughs]* Um OK, so thinking about the scenarios we created.

D: Yeah.

LG: How would you define success?

D: Success would be actually going ahead and doing it.

LG: Of what we actually talked about doing?

D: Yeah, because otherwise it's just ideas that don't go nowhere. It's action over thought really.

LG: And it's a very long time frame, so let's say success is actually doing all those things, along the way how would you like to measure success or what would be a kind of indication of success?

D: Whether people took it on board and people kind of thought it was a good idea. And you'd feel it.

LG: OK, let's try and think of something specific. So, when we talked about (pause) what did we talk about as an idea for the future?

D: Solar panels.

LG: OK, that's a good one. Say solar panels, along the way, how would you know we are achieving success in achieving that?

D: You'd see it.

LG: You'd see it on the roof?

D: You'd see it on the roof.

LG: But say like, well we wanted it to be everywhere didn't we? So, like would it be say 10% of the population or how would you-

D: Well the more of them, the more successful it would be.

LG: I suppose so. I think the question is that you have all these futures and you want to try to do them but then how do you know you're going in the right direction?

D: How do you know your going in the right direction?

LG: Yeah.

D: Gut instinct.

LG: Right.

D: It's that simple.

LG: OK.

D: You'd feel it if something was wrong you'd know within yourself. Whether you can put that down to scientific valuation, I'm not sure but as with all things in life, you know the way I've created my own job, the job that I'm doing now, you know, I created it. I just did the whole thing by working off my gut instinct because its how humans work.

TRANSCRIBED INTERVIEW WITH 'G'

A 2030 Workshop Open (Environment Sub-Group) Participant

9.21pm – 4 November 2009

Total Duration: 36 minutes

KEYS	
LG – Lisa George (Researcher) G – Participant	(-) small pause indicating a sudden change of thought (pause) a longer pause "…" indicating an interrupted statement *"xyz"* said in the form of a quotation/speech *[xyz]* – descriptions of actions that took place XYZ – emphasised word or said very loudly (this excludes "OK")

LG: So how did you find the 2030 workshop?

G: Interesting definitely, I guess in a lot of ways, it was sort of like you don't know what to expect when you go to something like that. And in some ways what few expectations I did have were, I mean, I found it quite different to what I expected, even though I didn't have that many expectations. But I found it, like there was a lot of thought-provoking stuff, like a lot of what had been prepared beforehand to get our thoughts going, I thought that was really good.

LG: Good.

G: And it did actually help, you know, develop ideas and things.

LG: Did it help you like, in what way? Was it sort of-

G: Well there were some things on there that it hadn't really occurred to me to open up a discussion about, you know, and certain things where it was just- even if it was just a phrase that on its own was posing a question just gets you thinking away on a tangent that you may not have expected, you know?

LG: Was that sort of the way- the format? Or was it the, I don't know, was it the thinking in the future and then working backwards?

G: I think that helped, but its kind of interesting because I thought well what would be the difference from starting now and working your way forward?

LG: Ah

G: But when I actually got down to it, I was thinking well it is better to have a goal in mind first and then figuring out how to achieve it. Rather than, if you try and move forwards you're thinking in steps where every step sort of (pause) I don't know it's hard to say. If you're thinking forward you get stuck in the steps up to there, rather than having a goal and working back and going *"I'll think about the steps later, here is what I want to achieve."*

LG: Yeah. Is there anything like (pause) there are things you enjoyed about it but is there anything that you think would have worked better if we had changed or things that could be improved on?

G: That's hard to say because the format, considering I didn't have any real firm idea of what it was going to be like, I don't really have any criticism of the format itself. I thought it was a long time, but then I thought, *"gee there actually is not a lot of time because there are so many things to cover."* So it kind of might have been easier to focus on something because everyone tended to diversify which is not a bad thing but in the time frame given, my mind started shooting off to too many things and I started going *"oh my God, it's huge!"* So I think its not so much the format, its maybe the scope.

LG: The scope and the time?

G: Yeah the scope and time yeah. So you've got to have time that's (pause) I mean I thought what was is it 2 hours? 2 or 3 hours?

LG: It was from 3-6pm.

G: Exactly, 3 hours I thought *"gee that's quite an amount of time"* but then I actually started thinking about it and everyone there was thinking about such different topics and it started getting to a point (pause).

LG: To begin with but-

G: Yeah but even when we separated into groups, even then it was hard to narrow my mind to one thing that I wanted to focus on. So even though all of the topics were very good valid topics, maybe to narrow the scope a bit. I don't like narrowing the scope normally but (pause) you know. Because people started going into, not just environmental things but socio-political change and things that are just so big.

LG: Yeah it just opens up those issues.

G: Yeah exactly.

LG: What about the time frames itself like OK we were looking at 2030 as a kind of end point?

G: Yeah

LG: How do you feel about that? Do you think it was too long or too short or (pause) I mean we did break it down eventually but still, 20 years?

G: I don't think that was too bad because I think if you had of made it a bit too far in the future people always think- oh you know everyone used to think in the year 2000 we would have flying cars. You know people actually tend to think, you know, there is going to be huge change. If you said it's 100 years from now, firstly I wouldn't connect with it because I'll be dead.

LG: True *[laughs]*.

G: Yeah. Secondly, even if you said 50 years I would think, *"oh I'll be getting on by then" [laughs]*. It is sort of like those kind of things where it sort of feels like 2030 is still relevant. In some ways though, it sort of feels like *"hmm 2030 that's not much time"* and I look back at the 30 years of my own life now and I think a lot has changed but not in such leaps and bounds as you expect when you're a child. You know once again, we'd have flying cars but we're not even close to that. So I think when you're young, you tend to overestimate and when you're older you start thinking well *"a lot has changed but not that drastically",* so I think in my head 2030 sort of seems like *"oh are these things achievable then?"* But it also made me, once again, sort of lower the scope in some ways but not too much but it made me seriously think about *"are these things achievable in that time frame?"*

LG: You know, I thought you were quite ambitious which bits did you lower the scope? Because your ideas were very ambitious.

G: they were ambitious. Well I mean I could have gone further and just started, you know, thinking about the entire world *[laughs]*. The thing about it is if we had a bigger time frame I would have started thinking (pause) well globally for a start.

LG: Really?

G: And thinking like bigger economies like the west would have to start helping some of the ones like China and India who are already crying out and saying *"well how do we get carbon neutral when we're poor?"* And all that sort of stuff, so I probably know that my stuff was out of scope for 2030 to be honest, but I thought (pause).

LG: Which things did you think were out of scope because I thought they were quite reasonable?

G: Well I definitely think the methane tanks are reasonable because they have been around since the 70's in New Zealand. Things like that I think, *"dammit, why haven't we got that now?"* And it's totally there, it's only economics that's holding that back and it's frustrating. Things like, I mean it's hard for me when it come to 'fision' or you know whatever it is. There are so many unknowns, I don't know science. I actually, come to think of it, ambitious yes but I suppose not too out of scope. I think anywhere between 2030-2050 would be relevant. I think that would be, you know, of course 2050 is a landmark for politicians.

LG: Really?

G: Well you know how they are thinking, *"by 2050 we would have cut down to x amount of carbon.*"

LG: What 2% *[laughs]*?

G: *[Laughs]*. Yeah and all of that but the thing about it is, I can't help but think that 2030 is better for us in our thinking because 2050, I can't help but think it's too late.

LG: Did you find that, that whole process influenced the way you viewed things. Did it affect the way you view culture or politics or social issues or did you detach from that completely and just think *"oh"? [shrugs]*

G: Yes, no, no in fact it made me think about things possibly a bit too much *[laughs]*. But it did get me thinking in a lot of ways. Some things were things that I've already thought about so it wasn't really new in that way but having a scope. I guess the things that were already on my mind were not new concepts for me in my thinking. At least having the discussions made me cement actual ideas rather than just talking about the issues themselves. Actually cementing ideas was good. But I think also, once a again, back to the scope that it could be pretty much any topic and having it so broad, people were bringing up things that I hadn't

thought of which did get me thinking but I started kind of thinking too much. But yes, it did open up some new thoughts for me especially like changing the way we do education. I actually found that curious because it hadn't really occurred to me in a lot of ways.

LG: Given that you actually work in a school, has it affected your practice or profession in anyway? Or is it like, *"yes that's nice in a small group but actually implementing it in your everyday life is like, oh?"*

G: Well I've sort of thought about how would they reform education that much but I guess what actually occurred to me was it has actually made me think. But I also thought to myself the problem is, that's in the way, well it seems that there always seems to be a problem with the government. I've only worked in education for a decade and I've seen two big overhauls of things like curriculum and the teachers have to be re-trained, this and that. And they are always trying something new and say *"well the last government failed, we're going to overhaul everything."* Well they don't overhaul the education in those ways like, *"why are we teaching like this?" they* just change the curriculum, they change the teachers' pay scale, set new targets and all of these sorts of things. Just put more pressure on staff and less people stay in teaching because it's all those kinds of targets and things but I mean it has made me think, yes. It has made me think about the way things are and (pause) I guess to me though, what I found hard reflecting it upon my own career is I don't know what would be better, I can't actually think of something where I think *"I would reckon that would work a lot better than what we have."* I mean I have thought of things like creative curriculum and stuff like that, but that is not as extreme as some of the stuff that was coming out on the day.

LG: Really? I thought that-

G: Well you know like changing the hours and things like that and saying *"well why do we have to have 9-3?"*

LG: 9-5?

G: Well 9-5 for work and 9-3 for school, but then I can't think of any other way. What other way is there? Who is going to want to be schooling in the evening, you know. Some of the ideas I found quite difficult.

LG: Radical?

G: Yeah but it's not so much that they are radical, it is radical yes but I also found them, in my mind, I couldn't fathom how it would help. Not that I would discount them, but I sort of

thought to myself *"well if education isn't what it is now then what do you do instead?"* I could see a lot of radical changes that could be made like far more hands on. You know, there are some schools that take their children outside a lot even for just anything basic like maths, they will do maths outside. They'll do a lot more trips and things, and I think that's a good way to reform education, hours-wise though I can't see how that would help. Maybe less hours *[laughs]* you know what I mean?

LG: *[Laughs]* yeah, I would vote for that. You know the things we came up with in our group, like our scenario-

G: Non-destructive energy.

LG: Yeah and the whole thing.

G: Green the grid.

LG: Can you, from that, imagine what a successful outcome would look like?

G: Yeah well I guess because we focused on energy, I thought to myself, well I don't see why we can't have a green grid. I can't see why the obstacles are so insurmountable we can't use things like the sun which we're not hurting it, it's probably one of the only things we can use without exploitation and it's always there.

LG: And it's free *[laughs]*.

G: And it's free.

LG: That is probably the problem, but anyway.

G: Yes exactly, but you see I actually felt like *"yes I could imagine a world where we are using renewable energy, you know, non-destructive energy"* and I could imagine- I thought *"why in my lifetime would it be so hard to imagine that energy grids are always green? Why is that so difficult?"*

LG: It's not, so that's probably what 'success' looks like you would say?

G: Uh hum.

LG: How would you measure that? I mean a transition from now to then, what would a success indicator be like?

G: Well that's a tough one, I mean the only measure of success on something as big as energy, just for, say, household energy I mean your regular day to day stuff, I guess I feel the only way to measure success is to see a slow increase or hopefully a quick increase. An increase in alternative sources of energy and a decrease in the old ways. That's I guess how I would measure it. It's like *"we have knocked down this old power station that used fossil fuels and we have created a hydro or solar or a wind farm."* I think that's the only way I could think to gauge it. And I guess the ultimate success is when the government announces that the entire grid uses nothing but non-destructive energy.

LG: That would be great. Last question. Since the 2030 workshop, we had so much energy at the event but it's been really hard to keep that energy and people motivated continuously, to actually get these things going, how do you think we could have kept people motivated to make these things happen? Or how could I have kept you motivated to stick with some of the things we discussed.

G: Well that is the hard thing and I also think so much of what we discussed, in my mind is so big beyond my realm of doing much about it. You know like, I don't like to sound defeatist but I sort of think *"well I can't physically build a wind farm"* and I guess it's those sorts of things. It's not so much that I've lacked energy since, because of anything that happened at the workshop, its just more- I guess it happens to everybody, it's just seeing the scale. I've seen people who campaign for things and they dedicate all of their time to it and I can't help but think, *"well what have I got?"* You know, I can donate to this, I can recycle that, I can, you know, go to a march but ultimately how far is that going towards the change that I would like to see on the sheet that we had?

LG: Well we discussed something's that I thought were quite doable and manageable.

G: Yes.

LG: Say for example the charity for solar panels and you were really hot on the idea, you know, optimistic journalism and some doable, short term, concrete things we discussed.

G: Well some of the things that I had ideas about are some of the things that I have very little expertise in, that's the scary part.

LG: Yeah the gardening thing which we discussed which again I thought *"Yes!"*

G: Well we all did that, but we just picked the wrong time of year. I consulted my mum and she said *"you really don't want to start now, we are about to come into winter, don't be silly."* But don't worry I still want to do a bit of gardening.

LG: Yeah. But it isn't just you, it's everybody. It's been hard to keep that momentum going. What I was hoping was that, well I made it so that it wasn't hierarchical so that it wasn't just me giving out information but it was more like, well we are all going to get involved and everything.

G: Yes.

LG: So for example you facilitated our group, David was pretty much the leader because he created the group, so I thought people were going to be empowered and go out there and do things independently but actually I think people relied on me to organise stuff and I have tried as much as I can but it's very hard to motivate people.

G: Yes, it is very hard.

LG: I think it is good for ideas because there was so much enthusiasm and everyone was like "*yeah this is great"* but then you leave and then it's like (pause).

G: Where to now?

LG: Yeah.

G: But that's the problem, I think with all of these things, they are huge and I think, from my end, I think that's a weak excuse because look at all the people out there that are making a difference. But I also think to myself *"how on earth have they done it?"* And it becomes frightening.

LG: Do you think it's an issue of time on your part?

G: Well I mean yeah in a lot of ways yeah. I mean if I cut out some things in my life, I could make more room for these sorts of things that I would like to do to help these things.

LG: But you couldn't do it in addition to what you're currently doing in your life?

G: Well unlikely considering, you know, the state of my flat I haven't even had time to clean *[laughs]*, you know, it gets to points like that. I hate to say and I know that in a lot of ways, a lot of my time is taken up with hanging out with friends and things but that is still important to me. I don't want to say *"oh I don't have time"* you can always make time but at the same time I have a habit of burning the candle at both ends and I do find that sometimes for an entire month I'm barely home for an evening. And when I do get home, I just want to sit quiet for a moment and that is hard for me but I do like to keep myself busy and yet it's busy people that normally get stuff done. If you want something done ask a busy person.

LG: *[Laughs]* I think that might be true. So, do you think that making events would be one way to keep the enthusiasm going or making some milestones? Something informal, nothing too dictatorial but maybe informal milestones especially at the meeting itself. So, you know, *"we have all these ideas, when should we get them done by? By next summer?"* Maybe doing it that way to keep people on it because that is the biggest problem I found.

G: The problem I think with this group particularly, the problem is everyone has got different ideas and a person on their own doesn't feel that they can do much. It's almost like getting everybody together and saying *"let's work on some of those ideas",* I think everyone is just going to go *"whose ideas and how?"* And it's going to be *"that's too difficult."* When you see people who campaign for things like charities and things, friends of the earth and what not, they have certain things that they are campaigning for, and people join them and it just becomes a bigger and bigger thing. they will have certain campaigns that they are working on at a certain time. And people might only join them for that one campaign or they might be a constant supporter. I sometimes feel like maybe it would be good to suggest some of these things to people who have already got a bit of clout. But then you sort of think would they listen and would they *say "who on earth are you? We've been campaigning for these things and you haven't even been part of our organisation."* You know, you sort of feel like as a small group, like the group that we had at the workshop, it's almost like the ideas were all so big and they were all so different, it would be hard to get any one of those ideas off the ground.

LG: Yeah. What about if we tried to work on things like- because a lot of the things even if they were quite big, a lot of the things that we discussed, we were all in agreement and there are quite a few things that we said *"yes, that's absolutely great."* All these things that we agreed and say *"lets work on this since we all agreed on it and are passionate about it."* And maybe bringing other people who are already doing it or join them. I mean climate camp for example, I'm sure a lot of what we say, they would agree with. Find particular points to unite people in different camps who-

G: Maybe networking a bit is the answer because I have to say that my feelings have got nothing to do with the workshop because it was great, the workshop was great, you know, it did get me thinking, it did bring out a lot of things but I feel so alone and I feel I don't have much knowledge. I have not researched things long enough. I feel like surely there are people out there that know so much better than me and I can't help but feel like *"I'll leave it to them."* I don't want to be that person but I feel like- when you start getting numbers, when you start networking, looking at blogs that take off for some reason or another, you know, no matter what it is and you get people start saying *"yeah I totally agree with that"* and suddenly you have a collective and people feel stronger in a collective.

LG: Yeah I absolutely agree, but even that will take work. I think one of my ideas I think I suggested would be to actually create this network where people can come together and people who have similar interests can unite. Say for example, guerrilla gardening- like the Gumtree sort of thing *"oh I'm going to plant something here or whatever, in this area, who lives nearby? Who wants to help me?"* Or *"I'm interested in doing this, who needs help in this particular area?"* I mean it would be great to have a network to bring people together for these kinds of things because when you feel like *"I want to do something"* well its like where do I start? So, I think the Gumtree, that kind of format. Something online where you can just go and type in *"we need an expert in this"* or *"I want to offer these skills."* But again I have thought about this but it's the time, I mean do I create this website myself? I can't do any of the programming, do I have to pay somebody?

G: Well I can't help but feel a bit defeatist with all of these things because every time I start trying to think positive, I feel like my mind is just beating me down with obstacles and I try to think "*stop putting up obstacles, come up with some solutions"* and I just can't half the time.

LG: Why do you think that is?

G: I don't know. I think because we're intelligent people and we have good ideas. Maybe, like with anything, it is the time you can dedicate. I love to do art and yet I haven't painted in years because I can't even set aside time for something I've always enjoyed and want to do more of. And I think that's really quite sad, you know, I love painting, I love art and yet I hardly do it any more. I hardly set time aside for those things. The thing is, if you're going to be good as an artist you will have to quit your job and hope that you have rich parents. I'm not saying that you have to but 9 times out of 10 that very much helps.

LG: I know what you mean, there was this 3 part series on TV about Ghandi recently and I was very naïve, I thought *"oh Ghandi, he did a few prayers, peaceful demonstrations and whatever"* but it was a life long thing, it was a full time thing. You know, he went to prison

and I think he spent about forty years of his life campaigning, having little protests, having defeats, having people insult him and you know it wasn't easy.

G: It's fascinating.

LG: When Martin Luther King was killed the doctor who did his autopsy said he had the heart of a 60-year old and this was a man in his 40's or something like that. So, it is a full time serious thing.

G: And those people had something passionate to campaign for and that's not to say that we're not passionate for the things we talked about but is it passionate enough to end up in jail? Is it passionate enough to spend your life dedicated to it? And I think that's what frightens people ultimately is that sort of scope. Well I mean maybe there is a smaller scope. The whole online community, maybe not making your own but joining one that's already there, websites where people have message boards.

LG: That's actually good, so you can just intervene wherever and however you can. The system is so complex, just get in there start meeting people start shouting about things and-

G: But in a way its part of that community I mean talking to friends of the earth and saying *"I've got loads of great ideas"* and they'll say, *"well who the hell are you, I've got 5 years of experience in campaigning, what are you doing walking in here and saying let's do this great idea."* But I think though, if you're in a community and you start off just listening first, contributing to the conversations they are having and just beginning to weave in your own ideas, maybe that is a way of getting forward or maybe a way of making a mark.

LG: Part of me feels like there is so much energy there already, if you could just tap into that, you don't actually have to take it all unto yourself or even better than that, link it all up. It would be amazing to link up all these things going on somehow and it might be a smarter way of doing it. It's that saying; you shouldn't work harder, you should work smarter.

G: Yeah absolutely.