TRANSITION TOWNS: AN INTERVENTION METHOD FOR ENCOURAGING PRO-ENVIRONMENTAL BEHAVIOUR CHANGE

By

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Abstract

Transition initiatives offer support for responding to potential environmental inconveniences, such as peak oil and climate change. As an alternative to the dominant approach of shocking people into helplessness and denial, transition towns seek to inform people of the issues and discover appropriate responses. To verify whether transition towns as a movement encourage pro-environmental behaviour change, three case studies (Aro Valley, Lower Hutt, and Nelson) were considered to determine motivations, barriers, and actions in transition town members. Nine face-to-face informal interviews as well as two focus groups were conducted to appreciate participant experiences. A thematic analysis of these case studies was conducted to determine the extent pro-environmental behaviour and encouragement from transition towns was having an effect. The aforementioned objectives were discussed against pertinent literature to determine whether transition towns empowered participants to change to pro-environmental behaviour. Transition towns offer practical behaviour change steps and a supportive social environment which empowers pro-environmental behaviour change and increases individual and community resilience for an uncertain future.

Key words: climate change; peak oil; transition town; pro-environmental behaviour; behaviour change; empowerment; New Zealand.

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Chapter 1: Introduction

1.1 Introduction

1.1.1 Context

Peak oil and climate change are environmental problems imposed by humankind's use of fossil fuels. Around one hundred years ago, humans discovered oil as an energy source (Hall, Tharakan, Hallock, Cleveland, & Jefferson, 2003). Today, fossil fuels such as oil and coal are burned to produce energy; exploited through such uses as factories and cars (Hansen, 2008; Pierrehumbert, 2006). According to the International Energy Agency, around eighty percent of the world's total primary energy was from fossil fuels in 2006 (IEA, 2008a, 2008b). This figure is significant due to fossil fuel's finite and polluting character.

Oil is a key ingredient in many of our household products such as pharmaceuticals, toothbrushes, paints, carpets, CDs, DVDs, electric sockets, computers, coats, credit cards, shopping bags and plastic bottles (R. Hopkins, 2008). Consumption of oil products and energy poses uncertain future energy scenarios which may be forced to occur without oil (Hirsch, Bezdek, & Wendling, 2005).

> "'Peak oil' refers to the future decline in world production of crude oil and to the accompanying potentially calamitous effects" (Holland, 2008, p. 61).

Once this point in production occurs the oil becomes more difficult to find, extract, and produce (Hall et al., 2003; Hirsch et al., 2005). The major ramification of peak oil is a future where people are forced to progressively change their oil intensive lifestyle.

Burning fossil fuels emits carbon dioxide (CO_2) into the atmosphere (Pierrehumbert, 2006). At natural levels, CO_2 contributes to the greenhouse effect[1] and is maintained by natural processes such as volcanic eruptions (Pierrehumbert, 2006). Current burning rates of fossil fuel inject fifteen times the non-anthropogenic annual CO_2 emission rate (Pierrehumbert, 2006).

Climate change as a result of increased CO_2 levels has already had far reaching

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1 See section 1.2.3 for the definition of greenhouse effect.

consequences throughout the world. Glaciers are melting; sea levels are rising; temperatures are increasing with profound impacts of drought and heat waves; tropical storm intensity is increasing; vital habitats are being destroyed and biodiversity lost (Barrett, 2006; Hansen, 2008; IPCC, 2007a; Pierrehumbert, 2006). Changes such as these will affect basic elements of survival for people around the world such as food, water, and climate stability (S. N. Stern, 2006). These environmental problems and their potential consequences provide the necessity for human behaviour to change.

Half of New Zealanders in a January 2007 survey had considered changing their behaviour because of climate change (Hannant, 2007). Many people throughout countries such as New Zealand are aware of environmental problems. However, due to a variety of factors such as lack of education and instruction, a large majority of these people do not make the needed changes in their behaviour to become more pro-environmental[2]. Transition towns offer encouragement and social support which empowers people to take the necessary action.

The transition concept as developed by Rob Hopkins, a permaculture teacher and designer in Kinsale, Ireland. Hopkins (2008, p. 142) explains how the transition initiative would function:

> "The Transition model uses these insights firstly through the creation of a positive vision (see Principle I, p.141), secondly by creating safe spaces where people can talk, digest and feel how these issues affect them, and thirdly by affirming the steps and actions that people have taken, and by designing into the process as many opportunities to celebrate success as possible."

This thesis seeks to consider transition towns by discovering the effectiveness of transition initiatives in encouraging pro-environmental behaviour change

1.1.2 Chapter Overview

Chapter 1, Introduction, will introduce this thesis produced for part two of the Masters of Environmental Studies Degree. Information regarding the contextual importance of studying transition initiatives was presented in Section 1.1.1, Context. The following section will outline the conceptual framework of this thesis: the aim and objectives, a

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2 See section 1.2.3 for the definition of pro-environmental behaviour.

thesis overview of chapters and methodologies used, followed by relevant terms and definitions. The final section will provide a synthesis of this chapter.

1.2 Conceptual Framework

1.2.1 Aim & Objectives

The aim of this thesis is to determine the degree to which transition towns encourage pro-environmental behaviour change. Three objectives assisted in this quest and are presented along with the aim in Figure 1: Aim and Objectives.
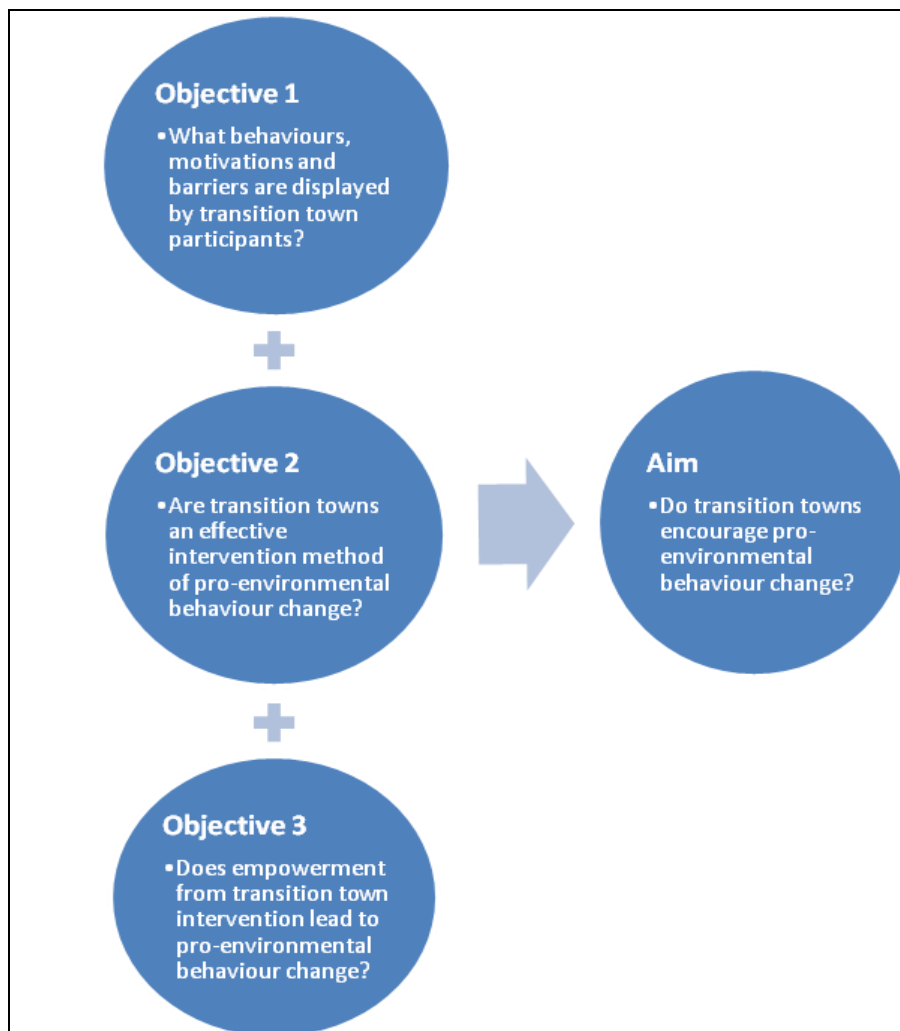
Figure 1: Aim and Objectives.

1.2.2 Thesis & Methodology Overview

Figure 2: Thesis Structure, illustrates the framework of this thesis. Chapter one provides an introduction by presenting the context and relevance of studying transition towns, followed by the conceptual framework. The second chapter provides the history, principles and steps of transition towns. A literature review in chapter three explores pertinent behavioural motivation, empowerment, behaviour change, and pro-environmental behaviour sources. Methodologies employed throughout this thesis are presented in chapter four; which include a literature review, three case studies, qualitative face-to-face informal interviews and focus groups, and a thematic analysis. The chapter also acknowledges the positionality and reflexivity of the researcher.
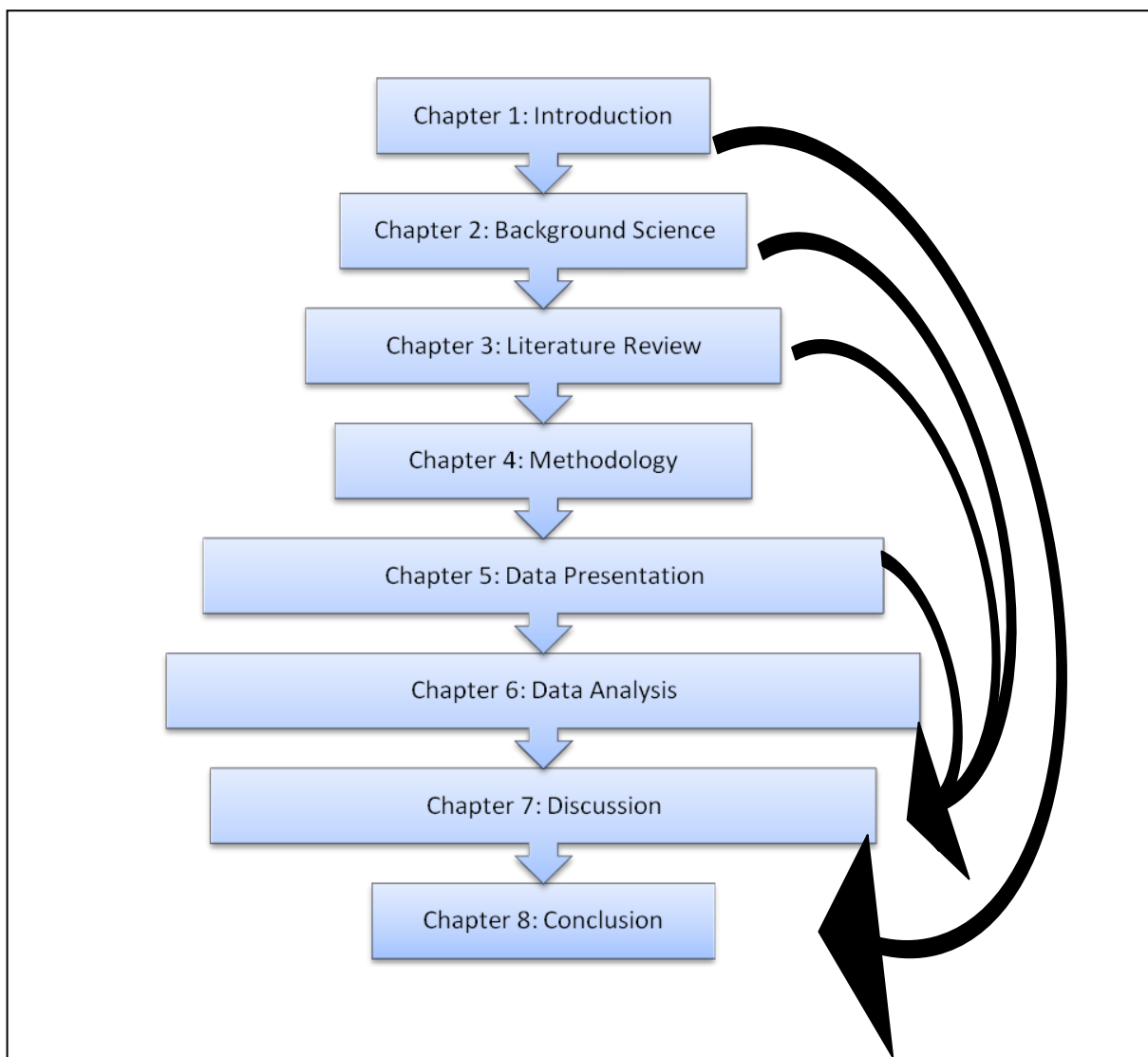
Figure 2: Thesis Structure.

The second half of this thesis begins to answer research objectives previously presented in section 1.2.1. Qualitative face-to-face, informal interviews and focus groups were conducted with three case study transition initiatives: Aro Valley, Lower Hutt, and Nelson. Chapter five describes transition town participant experiences of motivations, barriers, and behaviours. These experiences were thematically analysed in chapter six through the use of coding.

To determine whether the transition initiatives were effective in encouraging pro-environmental behaviour change, the data was examined against three intervention criteria. According to De Young (1996), Geller et al (1990) and Staats et al (2004) an effective intervention must provide information, feedback, and a supportive social environment. Case studies were examined using the following questions:

1. Do transition towns provide information to participants?
2. Do transition towns provide a supportive social network?
3. Do transition towns provide feedback and means for reflection for participants?

A discussion of research objectives in relation to participant experiences and pertinent literature previously explored in chapters two, three, and five was conducted in sections two, three and four of chapter seven. In the final section, the aim is revisited and answered through a synthesis of ideas from the previous three sections. Finally, chapter eight concludes the thesis by revisiting the aim and objectives presented in chapter one, highlighting pertinent findings, considering appropriateness of methodologies, and considering the significance of this research in New Zealand and the global context. Limitations as well as recommendations for further research are also noted in the conclusion.

The following section will present relevant terms and definitions used throughout this thesis.

1.2.3 Terms & Definitions

The following terms will be used throughout this thesis as they are defined here.

- **Behaviour change:** Changing human behaviour occurs through stages and is influenced by various motivational factors (R. Hopkins, 2008; Jackson, 2005).

- **Climate change:** Climate change is an environmental quandary accelerated by

anthropogenic forcing of greenhouse gases, such as CO_2, into the atmosphere. The increase of CO_2 traps more heat than normal (see greenhouse effect) which shifts climatic zones, "…by intensifying the hydrologic cycle, affecting freshwater availability and human health" (Hansen, 2008, p. 8).

- **Coding:** The process of grouping relevant data into corresponding categories (Tolich & Davidson, 1999).

- **Ecocentric:** A value structure which considers the ecosystem valuable and worthy of protection because it has intrinsic value (Nordlund & Garvill, 2002).

- **Empowerment:** "…empowerment is a multi-dimensional social process that helps people gain control over their own lives" (Page & Czuba, 1999, p. 4).

- **Energy Descent:** The term 'energy descent' refers to the "...transition from a high fossil fuel use economy to a more frugal one" (R.; Hopkins et al., 2005, p. 4).

- **Environmentally Significant Behaviour:** (personal private-sphere) "…the purchase, use, and disposal of personal and household products that have environmental impact" (P. Stern, 2005, p. 10786).

- **Greenhouse Effect:** The greenhouse effect occurs when greenhouse gases such as carbon dioxide, methane, and oxygen trap the sun's energy and heat the Earth's atmosphere (Florides & Christodoulides, 2009).

- **Intervention:** "…any regulation, policy, program, measure, activity, or event that aims to influence behavior" (C. Wilson & Dowlatabadi, 2007, p. 170).

- **Open space:** A technology utilised by transition initiatives which brings a group of people together to discuss and explore a topic or issue of interest (R. Hopkins, 2008).

- **Peak oil:** "'Peak oil' refers to the future decline in world production of crude oil and to the accompanying potentially calamitous effects" (Holland, 2008, p. 61).

- **Pro-environmental behaviour:** Human behaviour which seeks to minimise its negative impact on the surrounding environment (S.; Bamberg & Möser, 2007).

- **Psychological Empowerment:** "Psychological empowerment (PE) refers to

empowerment at the individual level of analysis." "Empowerment is a process by which people, organizations, and communities gain mastery over issues of concern to them" (Zimmerman, 1995, p. 581).

- **Relocalisation:** "The process by which a region, county, city or even neighbourhood frees itself from an overdependence on the global economy and invests its own resources to produce a significant portion of the goods, services, food and energy it consumes from its local endowment of financial, natural and human capital" (Talberth et al., 2006, p. 2).

- **Resilience:** "…the capacity of a system to absorb disturbance and reorganise while undergoing change, so as to still retain essentially the same function, structure, identity and feedbacks" (Walker, Hollinger, Carpenter, & Kinzig, 2004, p. 2).

- **Transition town concept or initiative:** A movement seeking to increase resilience in communities to environmental problems such as peak oil and climate change (R. Hopkins, 2008).

1.3 Synthesis

This chapter provided an introduction for this thesis. Section one set the context and illustrated the significance of studying transition towns. The second section introduced the aim and objectives, followed by a thesis and methodology overview. Relevant terms and definitions used throughout the thesis were also presented to assure meanings are explicit.

Chapter 2, Background, will provide information regarding transition towns' history, principles and steps. Chapter 3, Literature Review, will present pertinent literature around behaviour, pro-environmental behaviour, behavioural motivations, behavioural interventions and empowerment. The fourth chapter, Methodology will present the ontology, epistemology, methodologies, reflexivity and positionality of this thesis. Chapter 5, Data Presentation, provides a narrative of participant motivations, barriers, and pro-environmental behaviours as was collected in qualitative interviews and focus groups.

Chapter 6, Data Analysis, thematically analyses case studies against criteria to determine if transition towns effectively encourage pro-environmental behaviour

change. Chapter 7, Discussion, considers matters presented in chapters five and six against pertinent literature which was previously presented in Chapter 3, Literature Review. In addition, the discussion considers whether transition towns empower participants to change their behaviour to pro-environmental. Finally, Chapter 8, Conclusion, brings together major ideas to consider findings and make recommendations.

Chapter 2: Background

2.1 Introduction

This chapter provides background information for transition towns including a brief history of transition towns, founding principles, and transition steps. Permaculture's significance and influence on the development of the transition town concept, presented in section three, will provide an understanding of philosophical underpinnings. The following, Chapter 3, Literature Review, will explore pro-environmental behaviour, behaviour motivations, behaviour change, behaviour interventions, and empowerment to provide a platform for following chapters.

2.2 Transition Town History

> "To save the planet, we do not need miraculous technical breakthroughs, or vast amounts of capital. Essentially we need a radical change in our thinking and behaviour" – Ted Trainer (R. Hopkins, 2008, p. 79).

Over the last few generations, globalisation and decreased resilience has spread due to dependence on oil[3] (Hall et al., 2003; Hansen, 2008; Heinberg, 2008; Hirsch et al., 2005; Pierrehumbert, 2006). Without local resilience, a shortage in oil or food could be detrimental to community survival. Not long ago, the town of Totnes in the U.K. exemplified the ability to be resilient and self-sufficient. The town produced its own seasonal fruits and vegetables, milk, cheese, meat, bulk building materials as well as fabrics (R. Hopkins, 2008). It had small cargo ships bring materials such as Baltic timber, apples, and wool (R. Hopkins, 2008). However, the town was not reliant on these imports and could survive in their absence. In 1850, living locally was possible, providing evidence that it is feasible to do the same today.

The urgency created by peak oil and climate change to become resilient and relocalise[4], inspired Rob Hopkins, a permaculture teacher in Kinsale, Ireland, to form the transition concept (R. Hopkins, 2008). In 2005, Hopkins utilised his permaculture students' efforts

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3 See Chapter 1, Introduction, section 1.1.2, Context for more information.

4 See Chapter 1, Introduction, section 1.2.3, Terms & Definitions for a definition of relocalisation.

to create *Kinsale 2021: An Energy Descent*[5] *Action Plan* (EDAP) (Brangwyn & Hopkins, 2008; R. Hopkins, 2006a, 2008; R.; Hopkins et al., 2005). By considering various sectors of the community, the students, with Hopkins' guidance, created a vision for transition from a high energy to low energy lifestyle. With Ireland importing over 90% of its food and energy, Hopkins and his students felt the urgency to create the EDAP to build community resilience for life after the 'oil age' (Brown, 2006; R.; Hopkins et al., 2005). 'Oil age' is the period in time where humanity has and is dependent upon oil as the main energy source (Brown, 2006). Kinsale's EDAP was a milestone that was not immediately accepted due to limited community participation in its creation.

Utilising lessons from Kinsale, Hopkins initiated the transition concept again; this time in Totnes, a town of about 8,000 people in Devon, U.K. Transition Town Totnes (TTT) began in October 2005 with a different approach, guided by a series of steps which will be explained in the following section. The transition concept in Totnes began to spread through film screenings of movies such as *The End of Suburbia* and *The Power of Community: How Cuba Survived Peak Oil*, a series of talks, networking with existing organisations, and employment of open space[6] to generate discussion (R. Hopkins, 2008). The community embraced these awareness raising activities.

Many became involved through the official 'unleashing' of TTT in 2006, which consisted of speakers explaining the necessity of behavioural change due to implications of climate change and peak oil. Out of this event, a number of groups formed to address various aspects of the community which needed to change. These groups included the Heart and Soul group, which explored the psychology of change; the Local Government Liaison Group, which connected TTT with local government; and the Project Support Group, which co-ordinates and guides each of the TTT groups (R. Hopkins, 2008).

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5 See Chapter 1, Introduction, section 1.2.3, Terms & Definitions for a definition of energy descent.

6 See Chapter 1, Introduction, section 1.2.3, Terms & Definitions for a definition of open space.

"The Transition movement has harnessed the collective call to action and is a glue that is mending the torn fabric of our communities" – Cliona O'Conaill (R. Hopkins, 2008, p. 203).

Cliona O'Conaill emphasised the benefit of a positive vision and encouraging community members to participate. By empowering community action, the transition initiative has provided TTT with a positive future scenario. The transition concept spread to other communities in the United Kingdom such as Penwith, Falmouth, Lewes, Ashburton, Bristol, Brixton, and Nottingham, among many others (R. Hopkins, 2008). Communities in countries such as Australia and New Zealand have also found the concept intriguing and have since embraced it.

New Zealand's transition movement is still relatively new. However, there are seven official transition towns that have been created: Waiheke Island, Kapiti, Opotiki Coast, Orewa, Whanganui, Brooklyn, and Nelson (NZTT, 2008a, 2008b). The New Zealand communities of Aro Valley, Lower Hutt, and Nelson are the case studies in this thesis. Although Aro Valley and Lower Hutt are not yet 'official' they provide an understanding of how the transition initiative can develop.

The following section outlines the transition concepts' underlying and founding principles as well as the twelve transition steps.

2.3 Transition Town Principles & Steps

The transition concept created in Kinsale and developed further in Totnes is based on four key assumptions:

1. "That life with dramatically lower energy consumption is inevitable, and that it's better to plan for it than to be taken by surprise.
2. That our settlements and communities presently lack the resilience to enable them to weather the severe energy shocks that will accompany peak oil.
3. That we have to act collectively, and we have to act now.
4. That by unleashing the collective genius of those around us to creatively and proactively design our energy descent, we can build ways of living that are more connected, more enriching and that recognise the biological limits of our planet" (R. Hopkins, 2008, p. 134).

These assumptions are built from a philosophical underpinning of permaculture (Holmgren, 2007). As Rob Hopkins was a permaculture teacher prior to the 'invention' of the transition town concept, his thinking stems from the philosophy's principles (R.

Hopkins, 2006b).

> "Permaculture can be thought of as the design 'glue' and the ethical foundations
> we use to underpin Transition work, to stick together all the elements of a post-
> peak settlement" (R. Hopkins, 2008, p. 137).

The permaculture concept was conceived in the 1970s during the first oil crises and
proliferated by people such as David Holmgren, the author of *Permaculture: principles
and pathways beyond sustainability* (Holmgren, 2003; Veteto & Lockyer, 2008). In his
book he describes twelve permaculture principles[7] which have guided Rob Hopkins'
transition principles (Holmgren, 2007). Hopkins (2008) defined six principles which
underpin the transition concept as:

1. Visioning
2. Inclusion
3. Awareness-raising
4. Resilience
5. Psychological insights
6. Credible and appropriate solutions

The transition principles utilise important aspects of permaculture which should be
explained further. Permaculture refers to 'permanent agriculture', which moves,

> "...away from annual cropping and monoculture in agriculture to multi-layered
> systems making use of productive and useful trees and perennial plants" (R.
> Hopkins, 2008, p. 137).

Permaculture is a contraction of permanent agriculture as well as permanent culture.
Permanent agriculture focused on creating a form of food production which
concentrated on the use of plants and trees, which in turn produced fruit and vegetables.
Permanent culture highlighted the need for a

> "…culture of permanence" (R. Hopkins, 2008, p. 140).

This culture would be formed through resilient community sectors able to sustain
shocks imposed by peaking oil and climatic changes. A need for both forms of
permaculture arose from an awareness of the unsustainable food production practices of

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7 See Appendix A for David Holmgren's Permaculture Principles.

modern culture (Sullivan, 2008). Creating a culture focused on long-term, permanent thinking and being able to understand the present context of peak oil and climate change became necessary. Rob Hopkins (2008, p. 136) explains its purpose:

> "In essence, it is a design system for the creation of sustainable human settlements."

By utilising the principles of permaculture, Hopkins created a model which empowered communities to actively seek out and create solutions through a resilient living design (Holmgren, 2003). From lessons of Kinsale, Hopkins (2008, pp. 148-175) created the twelve steps to transition which he deployed in Totnes.

1. Set up a steering group to initiate the process and design its termination from the outset.
2. Raise awareness by showing films and providing talks by positive speakers and organise events that make people think and get them interested.
3. Lay the foundations of the initiative by networking with other environmental initiatives and organisations.
4. Organise a great unleashing of the transition town to make it a historic event and something people will remember and talk about.
5. Form groups that will develop ideas about specific aspects of the transition process such as food, energy or waste.
6. Use open space technology to provide an opportunity for community members to come together to network, talk about ideas, issues and visions.
7. Develop visible practical manifestations of the project such as installing solar panels, planting trees or starting a garden.
8. Facilitate the Great Reskilling, which brings people together to share as well as teach their skills to other community members.
9. Build a bridge to local government so that there is no resistance and there is a good relationship established.
10. Honour the elders, by learning from those who lived during the age before 'cheap oil' such as the period between 1930 and 1960.
11. Let it go where it wants to go.
12. Create an Energy Descent Action Plan which will guide the community towards a more resilient and localised existence.

2.4 Synthesis

The transition concept was developed by Rob Hopkins to provide a guide to relocalise and make more resilient communities in response to threats imposed by climate change and peak oil. This chapter provided a brief history of the transition town concept in

section two. The third section presented transition assumptions, principles, and steps. Transition concepts are influenced by permaculture principles due to Hopkins' expertise and teaching of permaculture in the United Kingdom. Thus, a brief explanation of permaculture and its significance is presented in section three as well.

Chapter 3, Literature Review, will explore pro-environmental behaviour, behaviour motivations, behaviour change, behaviour interventions, and empowerment to provide an understanding of what transition towns seek to accomplish. From this amalgamation of pertinent knowledge, an understanding of whether transition towns encourage pro-environmental behaviour change can be accomplished.

Chapter 3: Literature Review

3.1 Introduction

3.1.1 Chapter Overview

To determine whether transition towns encourage behaviour change, an understanding of pro-environmental behaviour, behaviour change, and their motivations must first take place. How pro-environmental behaviour is promoted is of immediate significance to communities seeking to prepare for a future with less oil and a varied climate. A consideration of major ideas and theories within environmental psychology will provide a foundation from which research for this thesis can be analysed in chapters six and seven. The remainder of this section will introduce behaviour, identify the type of behaviour this thesis considers, and depict what pro-environmental and environmentally significant behaviour denotes.

3.1.2 Behaviour

Cooper et al (2007) specify behaviour as what people feel, say, do, think, and even how they move. Determining how people's behaviours are influenced has long been of interest to the field of psychology[8] (Carlson, 1993). Cognitively, behaviour is an action that occurs in response to various stimuli. It can be an instantaneous reaction or a sequence of cognitive events which result in the behaviour (Goldstein, 2008). Fundamentally, behaviour occurs due to a variety of external influences stimulating internal sensory organs which instruct a person to act (Carlson, 1993).

> "Behavior is a function of the organism and its environment" (P. Stern, 2000, p. 415).

Stern (2000) describes the complex relationship between attitude, behaviour, and contextual factors. According to the attitude-behaviour-context (ABC) theory, behaviour (B) is determined by personal-sphere attitudinal variables (A) and contextual factors (C) influenced by cultural and social beliefs (P. Stern, 2000; C. Wilson & Dowlatabadi,

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8 Wilhelm Wundt first defined psychology as the "science of immediate experience", his approach being structuralism. Others added to Wundt's theory and expanded it to provide a wider understanding of the human mind. Psychologists following Wundt's lead were Hermann Ebbinghaus with his work on memory; Charles Darwin and William James on functionalism; Sigmund Freud on his psychodynamic theory; Edward Thorndike, Ivan Pavlov and John B. Watson on behaviourism (Carlson, 1993, pp. 10-16).

2007). Literature concerning variables such as values, beliefs, attitudes, norms, and perceived control will be considered in following sections.

Jackson notes that humans learn behaviour through trial and error, persuasion, or social learning (Jackson, 2005). Humanity has a long history of trial and error regarding environmental problems; take for instance the depletion of the ozone layer. Action was taken to stop the proliferation of chlorofluorocarbons (CFC's)[9] and ozone reduction, attesting to the ingenuity and capacity for human adaptation (Powell, 2002).

Behaviour has been studied from a variety of aspects including economics, sociology, and social and environmental psychology (C. Wilson & Dowlatabadi, 2007). Economic consideration of behaviour points to the rational choice model. Rational choice is based on the tenet of self-interest in which people act to maximise personal benefits and minimise costs (Jackson, 2005). In this view the earth has limitless resources for consumption and the proliferation of one's self-interest. Conversely, long-term, altruistic rationality encourages energy and resource conservation as well as green consumption, and recognises the impact humans have on the earth's ecosystem (Nordlund & Garvill, 2002).

Sociology describes behaviour as socially constructed: based on social norms, relations, infrastructures, institutions, and technologies (C. Wilson & Dowlatabadi, 2007). Social and environmental fields of psychology provide the basis from which behaviour is considered in this thesis. These areas consider interventions which utilise information, consider people's values, attitudes, norms, and corresponding contexts (Steg & Vlek, 2008; C. Wilson & Dowlatabadi, 2007). Understanding behaviour and how people make decisions is vital for transition towns. The following section will consider literature around environmentally significant and pro-environmental behaviour.

3.1.3 Pro-Environmental Behaviour

Humans have impacted the environment throughout history due to the desire for comfort, convenience, status, security, and enjoyment reinforced by various societal norms, beliefs, and values (Crompton, 2008; P. Stern, 2000). The end of cheap oil and a changing climate system offer evidence of this ill-conceived relationship between

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9 CFCs are chlorofluorocarbons which were emitted into the atmosphere and broke down the ozone layer leaving holes at the north and south poles that still exist today and fluctuate under varying conditions (Powell, 2002).

humans and the environment, detailed in Chapter 1, Introduction. Due to this relationship, considering behaviours which effect the environment is pertinent.

Kaplan's (2000) Reasonable Person Model considers the relationship between helplessness and personal control to understand human affinity to environmentally responsible behaviour. Reasonable people seek intrinsic satisfaction through behavioural competence and decreased helplessness. This personal control is achieved by participating in problem solving activities, therefore learning and understanding their surrounding context (Corbett, 2005; Kaplan, 2000). Transition towns seek to provide people the opportunity to gain personal control by participating and contributing to the increase of community resilience, as was previously mentioned in Chapter 2, Background. Chapter 6, Data Analysis, will analyse each case study's ability to provide these opportunities. However, to understand which behaviours exhibited by participants in Chapter 5, Data Presentation, are environmentally significant or pro-environmental, a brief discussion must first ensue.

Environmentally significant behaviour (ESB) is any behaviour which has an impact on the availability of natural resources, energy, or alters the function or structure of environmental ecosystems (P. Stern, 2000). Stern (2000) posed the ESB theory to distinguish the variety of human behaviours and factors which influence our environment. Research in this thesis considers the personal, private-sphere, environmentally significant behaviour which includes:

> "…the purchase, use, and disposal of personal and household products that have environmental impact" (P. Stern, 2005, p. 10786).

By understanding environmentally significant behaviours we can distinguish those which are pro-environmental (P. Stern, 2000). Pro-environmental behaviours (PEB) are those which seek to minimise their negative impact on the natural environment. Examples of PEB include limiting automobile use, reducing energy consumption, walking, riding a bicycle, minimising waste, composting, as well as countless other activities (Kollmuss & Agyeman, 2002; Steg & Vlek, 2008).

> "The widespread promotion of ERB [Environmentally Responsible Behaviour] will require an understanding of the great diversity of motives people find acceptable and empowering" (De Young, 2000, p. 523).

Environmentally responsible behaviour is empowered by a variety of behavioural motivations such as values, beliefs, attitudes, norms, habits, and perceived control. The following sections will highlight their significance in relation to encouraging pro-environmental behaviour.

3.2 Motivations of Behaviour

3.2.1 Values & Environmental Concern

Values are a person's contextual beliefs (Poortinga, Steg, & Vlek, 2004; Steg & Vlek, 2008). Stern (2000) presents three categories of value as biospheric, altruistic, and egoistic. Biospheric people value their relationship with the environment; altruistic care for everyone regardless of cost to themselves; egoistic are self-interested and do not find the environment to be important (P. Stern, 2000). Stern (2000) and his colleagues developed the value-belief-norm (VBN) theory from these structures as presented below in Figure 3: Re-creation of Paul C. Stern's Value-Belief-Norm Theory of Environmentalism. VBN theory follows that these value structures influence people's beliefs, their pro-environmental personal norms, and consequently their behaviour (P. Stern, 2000, 2005).
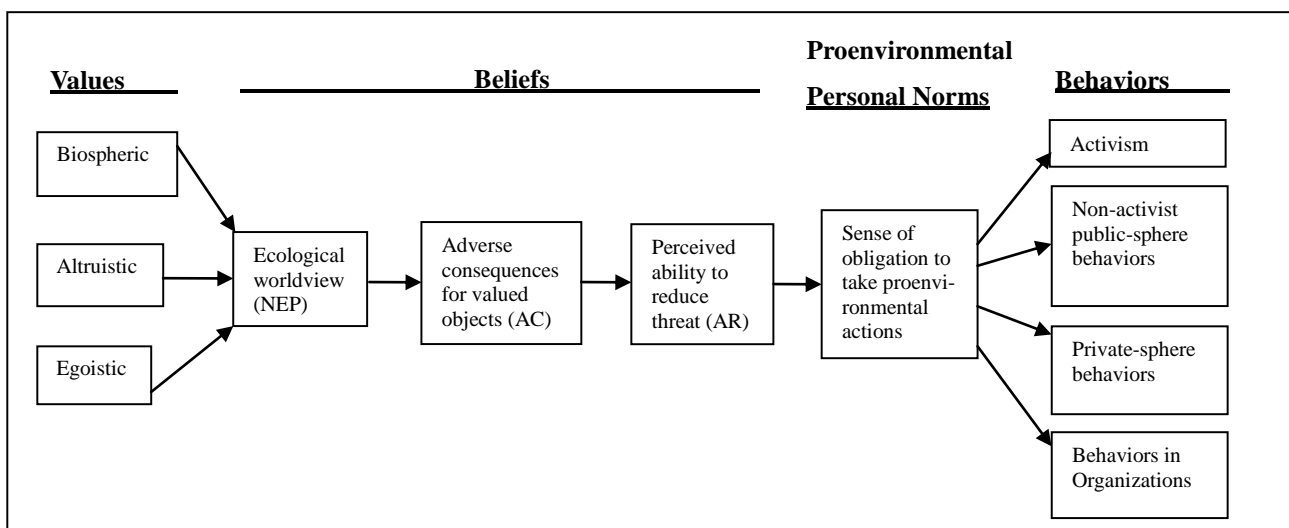
Figure 3: Re-creation of Paul C. Stern's Value-Belief-Norm Theory of Environmentalism (P. Stern, 2005).

Other value structures presented in the literature include ecocentrism, similar to biospheric in that people consider the ecosystem worthy of protection due to its intrinsic value as presented in Figure 4: Value Structure Influence on Pro-environmental Behaviour (Kaplan, 2000; Nordlund & Garvill, 2002). In Figure 4, ecocentric is contrasted with anthropocentric, similar to egoistic in the VBN (P. Stern, 2005), in which people find it important to protect the environment for human use of resources. In their study, Nordlund and Garvill (2002) found that ecocentrism motivated more people towards pro-environmental behaviour than did anthropocentrism. They also associated ecocentrism with self-transcendence, which referred to the awareness individuals had of their surrounding environment and communities (Nordlund & Garvill, 2002). These people were found to be more concerned with environmental problems than those who were concerned with self-enhancement. Those who valued self-enhancement highly were concerned largely with power, achievement, and the individual (Nordlund & Garvill, 2002).
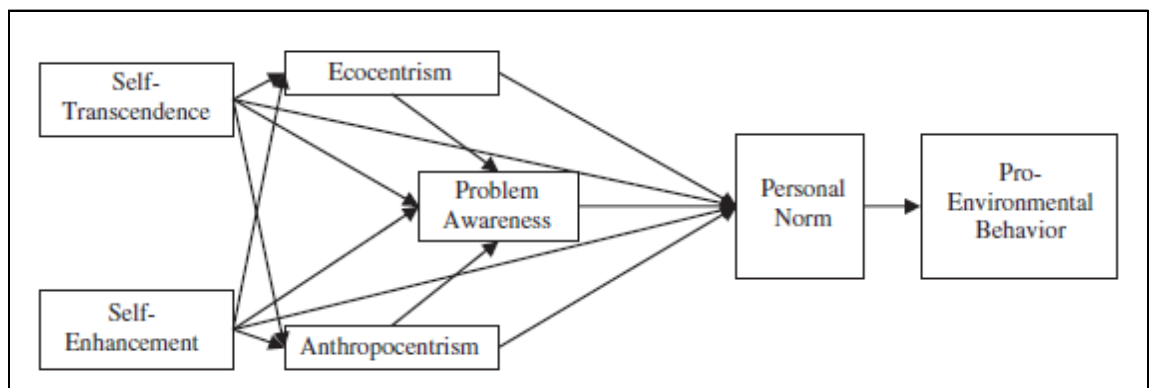
Figure 4: Value Structure Influence on Pro-environmental Behaviour (Nordlund & Garvill, 2002, p. 746).

Nordlund and Garvill (2002) also used Schwartz's Value Inventory Scale which is based off the ideas of self-transcendence, self-enhancement, openness to change and conserve, as well as various motivational factors (Karp, 1996). Karp's (1996) study provides support to Schwartz's theory of values and concludes that values are significantly correlated to a variety of self-reported behaviours. Poortinga et al (2004) adds support for the significant relationship value of orientations and pro-environmental intent and concern (S. Bamberg, 2003; Kollmuss & Agyeman, 2002). Nordlund & Garvill (2002) expanded on this notion by finding that people with collective values, i.e. self transcendence, which are ecocentric, have more concern for environmental problems.

Kaplan (2000) and Corbett (2005) noted environmental concern is increased when problem awareness is raised; however it also leads to people's sense of helplessness. Bamberg (2003) determined that students with increased behavioural control felt better-equipped to perform a behaviour compared to students with low environmental concern. The idea of behavioural control stems from the Theory of Planned Behaviour (I. Ajzen, 1991) which was built from the Theory of Reasoned Action (Madden, Ellen, & Ajzen, 1992).

3.2.2 Perceived Behavioural Control & Self-Efficacy

The Theory of Reasoned Action (TRA), a foundational social behaviour theory, was posed by Martin Fishbein and Icek Ajzen in the 1970s (Armitage & Conner, 1999). TRA was designed to accurately predict behaviour under volitional control[10] by using the expectancy-value model of the attitude-behaviour relationship (I. Ajzen, 1991; Armitage & Christian, 2004; Conner & Armitage, 1998). The expectancy-value model of attitudes was also proposed by Fishbein and Ajzen (1975). This model asserts that attitudes are formed by salient beliefs people hold about a certain object. Beliefs are formed by associating an object with certain attributes such as other objects, people, places, or characteristics (I. Ajzen, 1991). The attitude-behaviour relationship poses that beliefs are formed by considering what may occur due to the given behaviour and how that outcome may benefit or cost a person (I. Ajzen, 1991; Jackson, 2005). Thus, attitudes are formed based on the beliefs held about performing certain behaviour.

According to the TRA, behaviour is determined by intentions, attitudes, and subjective norms (Jackson, 2005). Subjective norms are influenced by salient normative beliefs, while attitude is influenced by salient attitudinal beliefs. Behavioural intention is thus influenced by both subjective norms and attitudes. According to Conner & Armitage (1998), intention is a proximal determinant of volitional behaviour.

However, due to its limit to volitional behaviours, the TRA was insufficient and thus, the Theory of Planned Behaviour (TPB) was created, displayed below in Figure 5: The Theory of Planned Behaviour as proposed by Icek Ajzen (I. Ajzen, 1991; Armitage & Christian, 2004; Armitage & Conner, 1999, 2001; Madden et al., 1992). In their comparison of TRA and TPB, Madden et al (1992) found that TPB was able to explain

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10 Volitional control refers to a person's ability to decide for oneself if the behaviour will be exhibited (I. Ajzen, 1991, p. 182).

more variation of intentions than TRA. TPB added the dimension of perceived behavioural control (PBC).

> "...perceived behavioural control refers to people's perception of the ease or difficulty of performing the behavior of interest" (I. Ajzen, 1991, p. 183).

PBC was found to be directly linked to behaviour as well as an antecedent of intention (Madden et al., 1992). As Bamberg (2003) discovered, perceived control significantly increased student's behavioural intention to act pro-environmentally. However, PBC was found to be a significant predictor of behaviour only when perceptions of control were accurate (Madden et al., 1992).
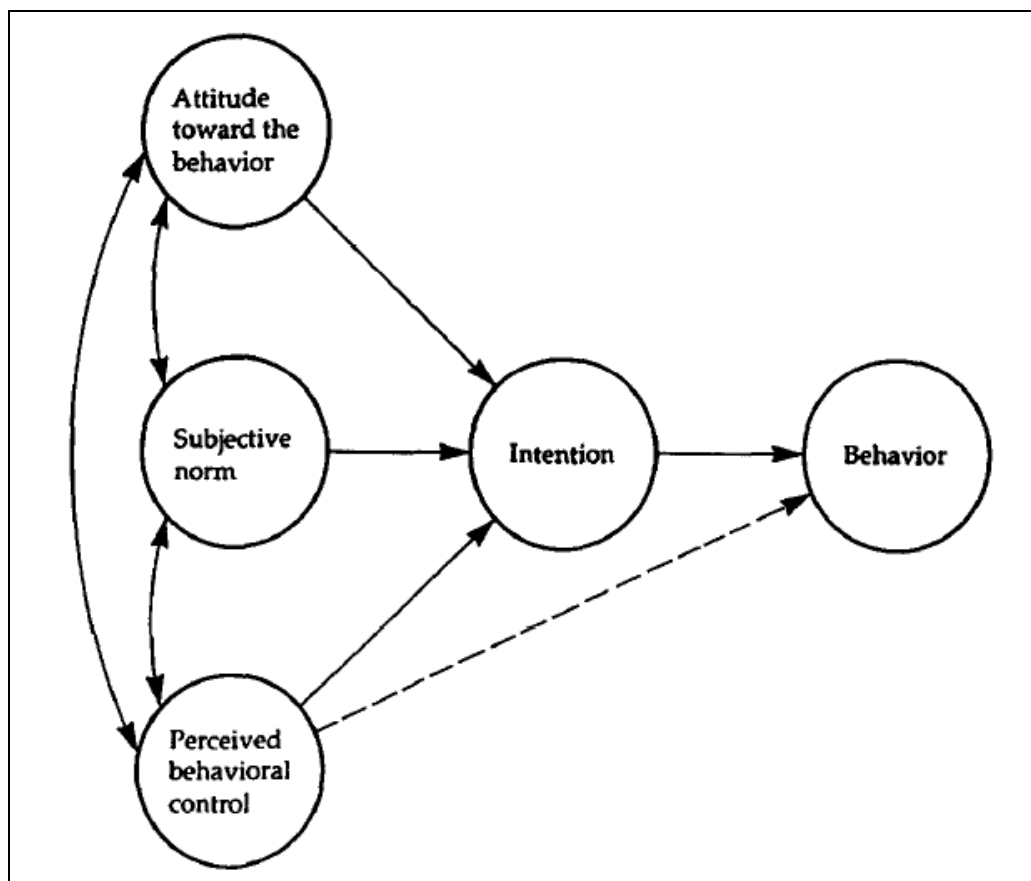
Figure 5: The Theory of Planned Behaviour as proposed by Icek Ajzen (I. Ajzen, 1991, p. 182).

PBC has been compared to Bandura's (1977) perceived self-efficacy concept. Self-efficacy determines how a person acts, preparations they make, level of effort exerted, and thoughts about performance of the activity (I. Ajzen, 1991; Bandura, 1977). Bandura (1977) found that as self-efficacy increased, so did changes in behaviour. Ajzen (1991), however, places PBC in a more general context, interacting with beliefs,

attitudes, intentions, and behaviour.

Armitage & Conner (1999) found that control beliefs explained self-efficacy variation more adequately than PBC. They concluded that a comparison of self-efficacy and PBC needs to be undertaken to determine the two measures' antecedents (Armitage & Conner, 1999). In a study subsequent to the above findings, Armitage & Conner (2001) delineated self-efficacy from PBC by noting its focus on a cognitive perception of internal control, whereas PBC is concerned with external stimuli. They concluded that self-efficacy explained a significantly greater amount of variance in intention than PBC (Armitage & Conner, 2001). However, PBC independently predicted intention and behaviour in a number of cases, re-emphasising its significance (Armitage & Conner, 2001).

3.2.3 Attitudes

Behavioural intention is also preceded by attitudes and norms, as was noted in section 3.2.2. Bamberg & Möser's (2007) meta-analysis of determinants of pro-environmental behaviour, pointed to PBC, attitudes, and norms as able to predict behavioural intention 52% of the time providing support for TPB. Ajzen & Fishbein (2004) highlight the contextual variance of motivational factors as predictors of behaviour. According to the TPB, attitudes are determined by salient attitudinal beliefs and determine behaviour through Ajzen's (1991) expectancy-value model (Armitage & Conner, 1999; Conner & Armitage, 1998; Jackson, 2005).

Grob (1995) found attitudes to be the most significant predictor in his study of the multivariate relationship between environmental attitudes and pro-environmental behaviour. Values, as shown by a number of scholars, underlay beliefs, attitudes, understanding, and concern for the environment (Grob, 1995; Nordlund & Garvill, 2002; Oom Do Valle, Rebelo, Reis, & Menezes, 2005; Oreg & Katz-Gerro, 2006; P. Stern, 2000).

In Armitage & Conner's (1999) study considering the predictive validity of the TPB, behavioural beliefs were found to have little significance in attitude formation. However, they did conclude there was a "fluid relationship" between behavioural beliefs and attitudes (Armitage & Conner, 1999). This relationship may account for variation in predictive ability of beliefs which is noted by other studies (I. Ajzen, 1991;

Armitage & Conner, 1999).

According to Festinger's Theory of Cognitive Dissonance, people behave consistent with their attitudes (J. Thøgersen, 2004). The theory asserts that people seek to have consistent beliefs, attitudes, and behaviours, and that inconsistencies within these would be emotionally disturbing to an individual (J. Thøgersen, 2004). Environmental education and government policies could be useful in influencing people's attitudes (J. Thøgersen, 2004).

3.2.4 Norms

Norms are socially constructed beliefs of personal conduct, reinforced by threats of sanctions or rewards (J. Thøgersen, 2006). As mentioned in the previous section, norms influence behaviour and similar to attitudes are preceded by salient (normative) beliefs (Armitage & Conner, 2001; P. Stern, 2000). According to Thøgersen (2006), norms influence a person's behaviour depending on how internalised they are. For instance, a social norm is derived from societal groups and reinforced by external rewards or benefits. A personal norm may be influenced by society but is formed by self-expectation of how one is to act in a given situation (J. Thøgersen, 2006). Personal norms are often influenced by a person's morals[11], which are largely based on one's values.

Schwartz's Norm Activation Theory proposes that for a norm to affect a person's behaviour it must be activated (Schwartz & Fleishman, 1978; Wall, Devine-Wright, & Mill, 2007). According to Schwartz, behaviour is formed by a combination of personal norms, social norms, and being aware of and taking responsibility for the consequences (Schwartz, 1977). This combination of behavioural motivations forms the model of altruistic behaviour, which proposes that individual behaviour is directly influenced by altruistic personal norms and indirectly by social norms (Oom Do Valle et al., 2005).

Thøgersen (2006) goes on to expand upon the components of personal and social norms to include injunctive, descriptive, subjective social, personal integrated, and personal introjected as shown in Figure 6: The Extended Norm Taxonomy proposed by Thøgersen (2006). Injunctive norms refer to what ought to be done, whereas descriptive

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11 Morals are actions a person considers to be right or wrong in a given situation (J. Thøgersen, 2006). Thøgersen (2006) bases his understanding of morals on Kohlberg's cognitive moral development theory and Hoffman's moral socialisation theory.

norms define what most people are doing (Cialdini, Reno, & Kallgren, 1990). Subjective social norms are purely externally enforced (J. Thøgersen, 2006). Personal norms take on two forms, introjected and integrated. Introjected norms are superficially enforced by feelings of guilt or pride, whereas integrated norms take place when behaviour does not elicit an obvious sanction and, therefore, causes an internal reflection of what could result (J. Thøgersen, 2006). Thøgersen (2006) poses that integrated norms tend to be stronger personal norms for predicting behaviour due to the elaborate mental processes that occur.
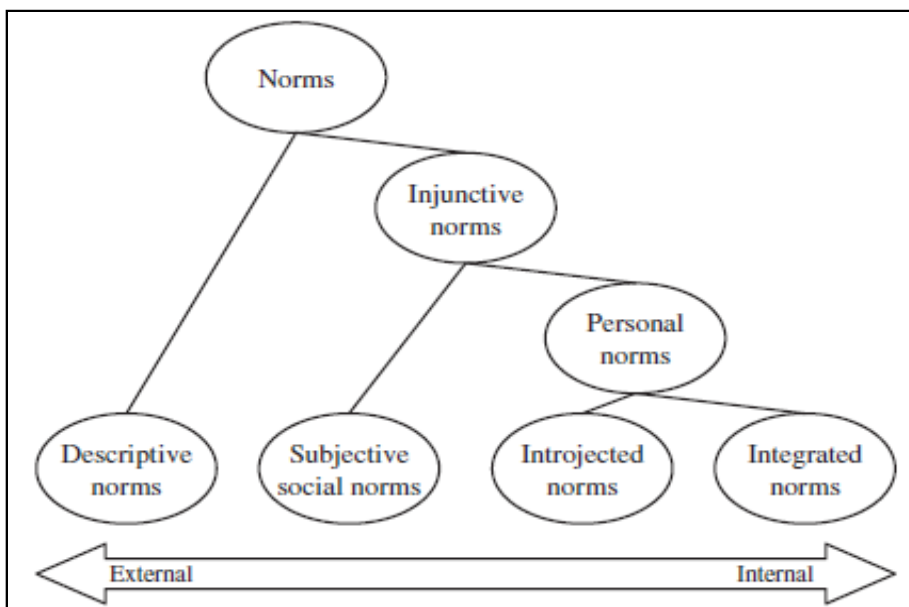
Figure 6: The Extended Norm Taxonomy proposed by Thøgersen (2006).

Cialdini et al (1990) also considers descriptive and injunctive norms to be of significance to behaviour. They conclude that norms may be considered to function at cultural/societal, situational, and individual levels (Cialdini et al., 1990). It may be useful to conclude that norms can take on a variety of forms and influence behaviour in varying degrees in different contexts (Cialdini et al., 1990).

3.2.5 Habits and Past Behaviour

The Theory of Interpersonal Behaviour, as presented by Triandis (1977), poses that interpersonal behaviour is determined by intentions and habits, offering an interface between norms and habits. These intentions, similar to those proposed in TRA and TPB, are influenced by a variety of motivations such as social norms, self-perception, context, perceived consequences, and control, depending on their strength (Triandis, 1977).

Habit has been contrasted with the concept of reasoned action portrayed by TRA and TPB (Aarts, Verplanken, & Van Knippenberg, 1998; I. Ajzen, 2002; Dahlstrand & Biel, 1997; Verplanken, Aarts, & Van Knippenberg, 1997). According to the TPB, behaviour is determined by intention, which is preceded by attitudes, norms, and perceived behavioural control. Habits tend to be more influential when the attitude-behaviour link is weak (Dahlstrand & Biel, 1997). A habit is a behaviour which occurs without deliberation of motivational factors and is automatic (Dahlstrand & Biel, 1997). Triandis (1977) suggests that reasoning occurs only when behaviour is new or when old behaviours no longer occur. Habits take precedence when behaviour is established and occur with little reasoning (I. Ajzen, 2002).

Aarts et al (1998) note that habits, although automatic, are not reflexes. Habits are goal-oriented behaviours instigated by stimuli; the strength of the goal determines the strength of the habit (Aarts et al., 1998). Ajzen (2002) argues that habits can only occur in a stable context. Past behaviour has also been noted as a useful predictor of later behaviour and habit formation (I. Ajzen, 2002). However, past behaviour has not predicted later behaviour well when attitudes and behavioural intentions are strong (I. Ajzen, 2002).

Conner & Armitage (1998) consider habit and past behaviour useful variables for predicting behavioural intentions in certain situations. Through a compilation of data sets from previous studies, Conner & Armitage (1998) found past behaviour was able to explain a mean of 7.2% more variation of intentions after other factors such as norms, PBC, and attitudes were taken into account. From this data, after behavioural intentions and PBC were accounted for, an average 13% variation in behaviour was also found (Conner & Armitage, 1998). Habits may be useful predictors of behaviour adding significantly to attitudes, norms, and PBC.

There are a variety of psychological theories that attempt to explain why people behave in certain ways. In the Theory of Reasoned Action, beliefs, attitudes, and norms shape a person's intentions which then influence the given behaviour (Jackson, 2005). Other theories explored in previous sections include the Theory of Planned Behaviour, the Norm Activation Theory, the Value Belief Norm Theory, the Reasonable Person Model, and the ABC Theory. The following section will consider theories of behaviour change and empowerment.

3.3 Behaviour Change & Empowerment

Change occurs through a series of steps as described by DiClemente (R. Hopkins, 2008). The stages include pre-contemplation, contemplation, preparation, action, and maintenance or termination. These cyclical steps have been adapted from the field of addiction. Dr. Chris Johnstone, in an interview with Rob Hopkins, noted that most people were in the precontemplation stage regarding peak oil and in the contemplation stage regarding climate change (Hopkins 2008). In a research survey conducted in January 2007 it was found that,

> "...just over half of New Zealanders had 'thought' about taking action to prevent climate change" (Hannant, 2007, p. 1).

As New Zealanders continue to contemplate environmental problems, interventions designed to move people into action become pertinent (Taylor & Allen, 2006). Interventions provide people opportunities to change their environmentally significant behaviour to pro-environmental (P. Stern, 2000). Kaplan (2000) provides some possible ways of getting people to change, including: engagement of people in the process; connection of people to the project; facilitating a sense of commitment and ownership; providing clarity enhancement of project objectives; reducing helplessness or empowerment through knowledge; giving people the chance to play a meaningful role as well as feeling needed (Kaplan, 2000).

If people feel they have control over their lives, they will not press for change (Swift & Levin, 1987). However, educating people of environmental problems can often result in information overload causing hopelessness and denial (Jackson, 2005; Oskamp, 2002; Stoll-Kleemann, O'Riordan, & Jaeger, 2001). Stoll-Kleemann et al (2001) found that through denial, people become 'frozen' psychologically and are unable to change. Oskamp (2002) notes this inability is due to habits, selfishness, helplessness, fear, and a belief in a technological fix. The theory of cognitive stress considers the possibility that people may react through problem-focused coping, which increases perceived control and feedback to the resultant behaviour (Homburg & Stolberg, 2006).

Jackson (2005) proposes that behavioural change can be considered to occur in three instances; people are told how to act, they are asked what they want to do, or they are provided information to understand problems and invited to help create solutions.

Kaplan (2000) promotes the third option, known as participatory problem solving. By getting involved, people understand they are not alone in their concerns and feel empowered (Kaplan, 2000). As helplessness and despair subsides, behaviours are able to change. Kaplan (2000) concludes that affective group problem solving can occur by giving people the opportunity to understand, explore, and participate. Teaching people the necessary practical and problem-solving skills provides a sense of achievement, control, or learned hopefulness (Zimmerman, 1990b). Page and Czuba (1999, p. 4) suggest that,

> "…empowerment is a multi-dimensional social process that helps people gain control over their own lives."

Psychological empowerment occurs on the individual level (Peterson et al., 2006; Zimmerman, 1990a, 1995; Zimmerman & Rappaport, 1988) and can be a result of participatory intervention methods mentioned above. Zimmerman et al (1992) noted that participants were likely to develop a sense of empowerment if they were given the opportunity to participate in the design, implementation, and evaluation of an intervention (Taylor & Allen, 2006). According to Zimmerman and Rappaport (1988) empowerment provides a sense of connectedness with others, a concern for the common good, and a self-perception of competence and control (Peterson & Zimmerman, 2004; Rappaport, 1987). Empowerment progresses from perceived control, providing support for people to take action (Zimmerman, 1995).

Stern (2000) concluded that behaviour change programmes have the greatest effect when they are based on a combination of relevant approaches (Lehman & Geller, 2004; Midden, Meter, Weenig, & Zieverink, 1983; Staats et al., 2004). McKenzie-Mohr (2000) proposed a Community-Based Social Marketing approach which targets behaviours, removes barriers, and designs a programme relevant to the context (Jackson, 2005; McKenzie-Mohr, 2000). Jackson (2005) noted several existing initiatives utilise the approach to promote sustainable energy consumption.

De Young (1996), Geller et al (1990), and Staats et al (2004) emphasise three particular intervention methods which are most effectively deployed in concert: providing procedural information, performance feedback, and a supportive social environment (De Young, 1993, 1996, 2000; Dwyer, Leeming, Cobern, Porter, & Jackson, 1993; Schultz, 1998; Staats et al., 2004). According to Matthies and Krömker (2000), to be effective,

interventions must also be adjusted to the context.

Taylor (2005) notes providing a supportive social environment enables long-term behaviour change by building social networks and beneficial relationships (Perkins & Zimmerman, 1995; Zimmerman, 1990a). Speer and Hughey (1996) emphasise that individuals must work together to change social structures or norms such as inefficient energy use and resource depletion (Speer & Hughey, 1995). According to Steg and Vlek (2008) information interventions target aforementioned motivational factors.

The following section will provide a chapter overview and synthesis.

3.4 Synthesis

As previous sections highlighted, behaviour is a highly complex process which occurs in response to a variety of stimuli (3.1.2). Environmentally significant and pro-environmental behaviour literature was considered in the remainder of section 3.1 to provide a basis of understanding for this thesis. Section 3.2 provided an overview of the various motivational factors which influence behaviour. These motivations include values and environmental concern (3.2.1), self-efficacy and PBC (3.2.2), attitudes (3.2.3), norms (3.2.4), as well as habits and past behaviour (3.2.5). From the consideration of these motivational factors and various theories, it can be inferred that factors influence people by varying degrees depending on the context. Section 3.3 presents behaviour change literature in relation to intervention and empowerment sources.

Determining whether transition towns encourage pro-environmental behaviour change can be assessed with this grounding in behavioural literature. The following Chapter 4, Methodology, will present methodologies used throughout this thesis.

Chapter 4: Methodology

4.1 Introduction

This thesis follows methods of qualitative research, as the aim of this research is to determine how effective the techniques used by transition towns are in facilitating pro-environmental behaviour. Considering participant experiences provides insights that may be difficult to find using quantitative methods. By using interviews and focus groups, the motivations of pro-environmental behaviours are explored.

All of this research was conducted in an ethical manner in compliance with Victoria University of Wellington's Human Ethics Policy (VUW, 2007). This policy is similar to the principles set out by Tolich and Davidson (1999). It seeks to do no harm and avoid deceit by having voluntary participation through informed consent, with the choice of confidentiality or anonymity (Lowe, 2007; Tolich & Davidson, 1999). I have sought and gained ethical approval from Victoria's Human Ethics Committee to conduct interviews and focus groups[12].

This chapter presents the methodologies employed throughout this thesis. The second section introduces qualitative research, as well as the ontology and epistemology of this thesis. Section three outlines case study methodology employed through the data collection presented in Chapter 5, Data Presentation, and analysis in Chapter 6, Data Analysis. Interview and focus group methodologies were utilised and are presented in section three. The third section also explains the thematic analysis method utilised in Chapter 6, Data Analysis. A final section highlights the positionality and reflexivity of this thesis.

4.2 Qualitative Research

4.2.1 Description & Relevance

Qualitative research is concerned with interpretation of the social world, based on flexible and sensitive data gathering methods (Mason, 1996). This research is commonly used in the social sciences to appreciate people's experiences and

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12 See Appendix B for ethical approval documents.

interactions with others and the context (Lowe, 2007). Experiences are those human interactions, situations, or social relations as well as social or cultural processes and practices (Mason, 1996). In this thesis qualitative research is used to understand previous and current experiences in their association with transition towns.

4.2.2 Ontology & Epistemology

The ontology and epistemology of this thesis is formed by theoretical frameworks of qualitative research (Hesse-Biber & Leavy, 2004). Ontology refers to assumptions about the reality of existence and action (Guba & Lincoln, 2004; Tolich & Davidson, 1999). Research for this thesis is based on a relativist or constructivist ontology in which reality is constructed socially and locally, dependent on individual conceptions of reality (Guba & Lincoln, 2004). Participants' reality was constructed through education and awareness raising activities employed by transition towns, as well as external sources. This construction of reality assumes climate change and peak oil exist as was presented in Chapter 1, Introduction, providing the necessity for local action by participants.

Epistemology refers to the question of how we know what we know about certain things (Guba & Lincoln, 2004; Tolich & Davidson, 1999). An interpretivist epistemology is utilised in this research, denoting participant 'voices' as essential and unique (Guba & Lincoln, 2004; Lowe, 2007; Williams, 2002). In this view, the social world is constructed by individual conceptions of consciousness and cultural understandings (Williams, 2007). Travers (2001) notes interpretivism seeks insights regarding how people understand their own behaviour. By listening to participants through qualitative, face-to-face, informal interviews, and focus groups, the complexity and diversity of their experiences, behaviour, and context are appreciated (Lowe, 2007).

Participants and their individual consciousnesses are inherently connected to surrounding social structures and environment. Thus, participant experiences cannot be generalised and will be considered in the remainder of this thesis as providing unique interpretations of reality (Williams, 2007). Due to the need to represent individual characteristics of groups studied, case study methodology was utilised and will be introduced in the following section.

4.3 Methodologies

4.3.1 Case Study

> "The meticulous description of a case can have an impact greater than almost any other form of research report" (Gillham, 2000, p. 101).

Case studies are investigations seeking to answer research questions which consider a case or group of people (Gillham, 2000). As Gillham (2000) and Yin (1989) note, case study methodology can present research in an exemplary manner. To do this, case studies must be significant, complete, consider alternative perspectives, display sufficient evidence, and be composed in an engaging manner (Yin, 1989). This thesis seeks to utilise this method of research because of its aforementioned potential.

Three case studies have been chosen to provide snapshots of how the transition initiatives promote pro-environmental behaviour. Aro Valley, Lower Hutt, and Nelson were chosen, as they are located in a suitable proximity to the researcher and thus were most accessible. Utilising three case studies allowed the researcher to gather individual conceptions of reality to aid in the comparative, thematic analysis conducted in Chapter 6, Data Analysis (Yin, 1989). The three case studies chosen also provide varying levels of transition town development, thus allowing for an understanding of the effectiveness of encouraging pro-environmental behaviour.

Gathering participant experiences through qualitative, face-to-face interviews, and focus groups provided an opportunity to understand each case study's context. The following section will outline the focus group and interview methods used in the case studies.

4.3.2 Focus Groups

Focus groups facilitated by the researcher collected data from group discussions and interactions (Lowe, 2007; D. Morgan, 2004; Tolich & Davidson, 1999). Characteristics of focus group participants can influence group interactions, similar to social settings outside research (Fern, 2001; Litosseliti, 2005; Stewart, Shamdasani, & Rook, 2007). Focus groups provided a space for discussion of beliefs and allowed reflection of experiences to occur with fellow transition town members (Krueger, 1998a, 1998b; D. L. Morgan, 1998a, 1998b).

Aro Valley and Lower Hutt focus groups were conducted. Each focus group consisted

of four to eight people and lasted no longer than two hours. Participants were environmentally conscious members of Aro Valley or Lower Hutt transition initiatives. The focus group was facilitated in an informal, fluid manner, and was mediated when appropriate. After Aro Valley and Lower Hutt focus groups were conducted, depth of participant conversations were found to be limited. Thus, a greater number of interviews rather than a focus group were pursued with Nelson.

> "In a complementary fashion, focus group studies have used follow-up interviews with individual participants to explore specific opinions and experiences in more depth, as well as to produce narratives that address the continuity of personal experiences over time" (D. Morgan, 2004, p. 267).

The following section will present interview methodology as it was employed in this research.

4.3.3 Interviews

Interviews are conversations between participants and the researcher which gather contextual and personal experiences (Lowe, 2007; Mason, 2002).

> "The style is conversational, flexible and fluid, and the purpose is achieved through active engagement by interviewer and interviewee around relevant issues, topics and experiences during the interview itself" (Mason, 2002, p. 225).

These experiences were considered by interpreting interview dialogue reflexively as individual understandings of reality and lived experiences (Denzin, 2007). Unstructured interviews functioned by asking participants questions as they arose, similar to natural conversations (Gillham, 2000; Kvale, 1996; Lowe, 2007; Mason, 2002).

> "By creating an impartial emotional space, the interviewer provides the opportunity for people to step back from their ordinary routines and reflect upon their lives" (Gerson & Horowitz, 2002, p. 210).

The purpose of using face-to-face interviews was to allow participants to reflect upon and interpret transition initiatives' influence on their pro-environmental behaviour. Interviewees' perspectives, although environmentally biased, provided insights of transition town effectiveness as interventions methods.

Participants were environmentally conscious and interested, or already involved, in their

local transition town. The researcher's relationship with participants was forged by attending transition meetings and seeking volunteers (Gerson & Horowitz, 2002). Eight, hour-long interviews were conducted with Nelson, Lower Hutt, and Aro Valley participants. A ninth interview with a member of the Carterton transition initiative provided an additional perspective to case study interviews.

The following section will outline analysis methodology utilised in Chapter 6, Data Analysis.

4.3.4 Data Analysis Method

"Thematic analysis focuses on identifiable themes and patterns of living and/or behavior" (Aronson, 1994, p. 1).

Themes emerged from coding transcripts and field notes, providing the basis for the thematic analysis to be conducted in Chapter 6, Data Analysis (Braun & Clarke, 2006). Coding provides a means for categorising and sorting data into meaningful associations (Braun & Clarke, 2006; Tolich & Davidson, 1999; Vaughn, Schumm, & Sinagub, 1996).

"…thematic analysis is a flexible approach that can be used across a range of epistemologies and research questions" (Braun & Clarke, 2006, p. 97).

As this method provided explanatory power in analysing interviews and focus groups, it was utilised. Each case study was evaluated by thematically analysing participant experiences according to three intervention criteria: providing information, feedback, and a supportive social environment (De Young, 1996; Geller, 2002; Staats et al., 2004). Participant experiences relevant to each criterion were considered to determine the case study's approximate level of employment of the criteria.

As Figure 7: Analysis Diagram, illustrates, the level of employment of criteria in the analysis was displayed through circle size, with the overlap of the three circles indicating the level of success of case studies. Once case studies were thematically analysed according to criterion, a comparison of case studies was performed to determine levels of effectiveness of each transition initiative in empowering pro-environmental behaviour (Page & Czuba, 1999; Yin, 1989). If the case study employed all of the criteria the letter I was placed in the overlapping area of the three criteria circles.
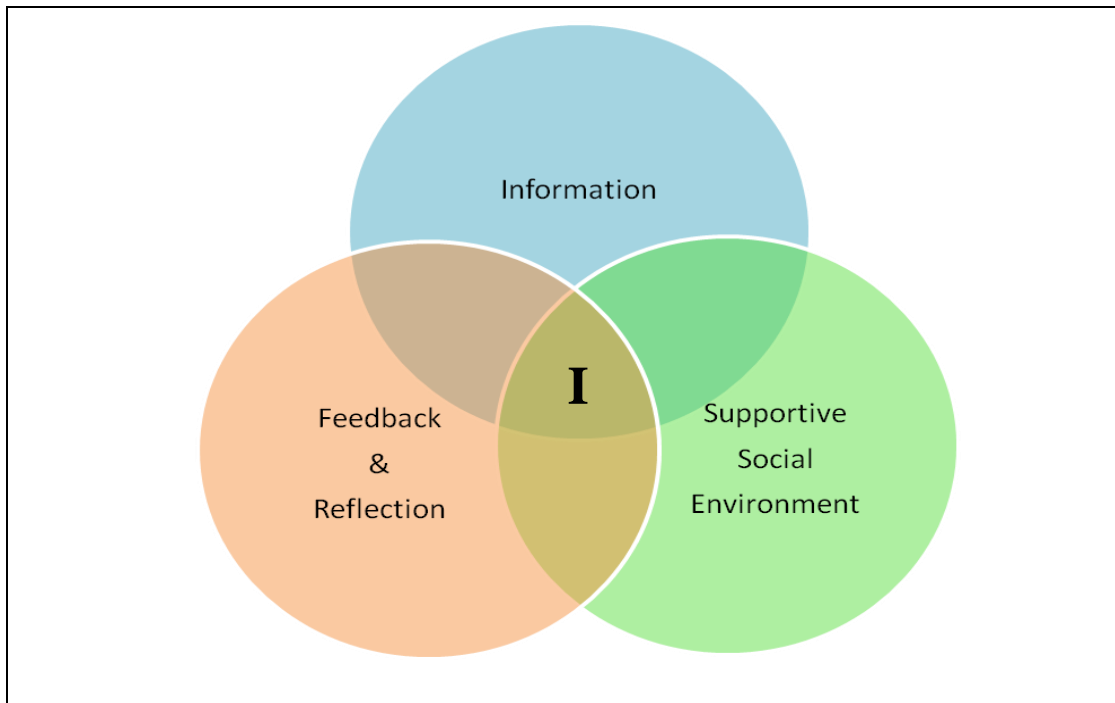
Figure 7: Analysis Diagram.

The following section will present the reflexivity and positionality which influenced this research.

4.4 Reflexivity & Positionality

"Reflexivity involves the realization that researchers are part of the social world that they study" (Ahern, 2007, p. 131).

To be reflexive in the research process, I critically reflected on how I construct and understand knowledge (Guillemin & Gillam, 2007). Ontological and epistemological assumptions of the world and how it works, influenced how this research was planned, conducted, and composed (Guillemin & Gillam, 2007). Recognising my perspective provides valuable insights to the research process by identifying limitations and conversely improving the quality and validity of research produced (Guillemin & Gillam, 2007).

"Our choice of research design, the research methodology, and the theoretical framework that informs our research are governed by our values and reciprocally, help to shape these values" (Guillemin & Gillam, 2007, p. 182).

This research is value laden due to my ontological and epistemological assumptions

(Guillemin & Gillam, 2007; Tolich & Davidson, 1999). Methods utilised and literature reviewed in previous sections and chapters were chosen because of my value structures and knowledge of my position in the social world (Tolich & Davidson, 1999).

> "This reflexivity looks both 'inward' to the identity of the researcher, and 'outward' to her relation to her research and what is described as 'the wider world'" (Rose, 1997, p. 309).

Positionality is intertwined with research processes and must be explicit to understand its influence. Gillian Rose (1997) emphasised the researcher's position of privilege; I decide the questions to ask, the people to include in my study, how the interviews are interpreted, and how it may be presented. This position denotes access to education and middle-class luxuries which influence my ontological, epistemological, methodological, cultural, and social assumptions (Rose, 1997). This research is limited by my biases through my construction of participants' reality in Chapter 5, Data Presentation (Rose, 1997).

> "Thus overgeneralizing, universalizing claims can be countered by making one's position known, which involves making it visible and making the specificity of its perspective clear" (Rose, 1997, p. 308).

I became environmentally conscious in my younger years and have studied environmental theories and practices throughout my tertiary education in the United States, as well as postgraduate studies in New Zealand. Rose (1997) noted the importance of being conscious of the positionality of the researcher and the researched as well as their relationship. This must be done to be certain the discussion and conclusions asserted are not overgeneralizations. As Chapter 5, Data Presentation, will confirm, participants elicited an ecocentric worldview[13].

As an American conducting research with New Zealand participants, international dynamics may have had influential bearing on participant's willingness to convey experiences. These interactions have been considered throughout the research process to ensure universal claims are not asserted. However, due to the vast contextual and personal influences on transition town participants, this research is limited in scope

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13 A concept explained in Chapter 3, Literature Review, section 3.2.1.

(Tolich & Davidson, 1999). Gaps in knowledge are likely to exist and must be acknowledged to increase quality and validity of research (Guillemin & Gillam, 2007). Reflection upon possible gaps and fallibilities of my research allowed for data collection, analysis, discussion, and conclusions which did not make universal assumptions, but those specific to three New Zealand transition towns (Rose, 1997).

> "Reflexive research reflects upon and questions its own assumptions. Researchers must self-consciously reflect upon what they did, why they did it, and how they did it. The values of the researchers become an explicit part of the research process" (Tolich & Davidson, 1999, p. 39).

The following section will provide a synthesis of ideas presented in the methodology chapter.

4.5 Synthesis

This chapter presented the ontology, epistemology, and methodologies employed throughout this thesis. The introduction emphasises the ethical approval gained by Victoria University of Wellington's Human Ethics Committee to perform this research. Qualitative theory, ontological, and epistemological assumptions were explored in section two. The third section presents case study, interview, focus groups, and data analysis methodologies employed. Positionality and reflexivity presented in section four influence the entirety of this thesis.

The following, Chapter 5, Data Presentation, will present a narrative of participant motivations, barriers and pro-environmental behaviours.

Chapter 5: Data Presentation

5.1 Introduction

This chapter presents data collected to consider whether transition towns as a movement facilitate pro-environmental behaviour. Face-to-face interviews and focus groups were conducted in three case studies. The methodology of interviews and focus groups were presented in Chapter 4, Methodology.

Before each case study is presented, a profile of transition towns will be provided. This will set the context for where each case study sits in relation to transition town development in New Zealand. Aro Valley, Lower Hutt and Nelson transition towns were chosen as the case studies to determine the motivations and barriers to change as well as displayed behaviours in transition town members. Each case study will be presented in a separate section of the chapter. A description of participant and group characteristics will be provided followed by a summary of major points raised. After each has been presented, major themes will be highlighted in the last section to provide a platform for comparison of participant's motivations and actions, which will follow in Chapter 6, Data Analysis.

5.2 Transition Town Profile

5.2.1 Transition Town Concepts on the World Stage

Communities throughout the world have utilized Rob Hopkins' (2008), *Transition Handbook* as a guide for starting up local transition initiatives. In New Zealand, transition town concepts have been borrowed from those which were put in place in Totnes, as mentioned in Chapter 2, Background. The concepts provide means for people to respond to both climate change and peak oil. It calls communities to work together to re-skill and re-create resilience that was once there. The challenges of peak oil and climate change can then be countered by installing this resilience and building community cohesion.

5.2.2 New Zealand Transition Town Profile

The concept of transition towns in New Zealand emerged from the Taupo EcoShow in October 2007(Samuel, 2008). Guest speaker Richard Heinberg provided emphasis to

the circulating knowledge of peak oil and climate change. From Heinberg, as well as others who presented the transition town concept, people became more aware and excited about the prospect of community level action.

Through various awareness raising strategies such as movies, guest speakers and discussion sessions the initiative began. One of the first transition towns started on Waiheke Island through James Samuel's efforts. The idea spread quickly through the North Island due to the EcoShow in Taupo, but is also infiltrating the South. Even though the movement as a whole is still relatively young in New Zealand, it has become of interest to many communities.

There are a number of 'official'[14] transition towns in New Zealand. Such towns include: Waiheke Island, Kapiti, Opotiki Coast, Orewa, Whanganui, Brooklyn and Nelson (NZTT, 2008a). There are also a large number of other towns who have started the use of the transition concept, these include: Auckland, Waitakere, Manukau, Coromandel, Kaitaia, Hawkes Bay, Bay of Islands, Aro Valley, Lower Hutt, Whakatane, Motueka, Christchurch and Dunedin among many others as Figure 8: New Zealand Transition Towns, shows by the blue marks on the map (NZTT, 2008a).

Figure 8: New Zealand Transition Towns (NZTT, 2008a).

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14 'Official' refers to those towns which have formalised their adoption of the transition model (NZTT, 2008b).

5.2.3 Case Studies

Of the various transition initiatives springing up through New Zealand, three were chosen for case studies in this research. These were chosen to determine motivations and barriers to change as well as displayed behaviours in transition town members. AroValley, Lower Hutt and Nelson were chosen dependent on their proximity to the researcher. Case study methodology and reasons for its use are explained in Chapter 4, Methodology. Each case study will be presented separately in the following sections. A description of participants will be provided along with a narrative of relevant ideas.

5.3 Aro Valley

5.3.1 Aro Valley Profile

In the southern part of the north island the transition town concept sprung up with the Wellington Central Transition Town. After a few meetings with the larger transition town group, smaller groups relative to suburb communities began to form. With the division of transition town groups, the Aro Valley initiative took shape. In April 2008, the Aro Valley core group[15] was formed (NZTT, 2008b). Aro Valley, a suburb of Wellington, New Zealand, represents a community still in the beginning stages of the transition model.

5.3.2 Participant Profile

To determine the motivations, barriers to change as well as displayed behaviours in the Aro Valley transition town members, two interviews and a focus group was conducted. All participants were members of the Aro Valley transition town. Interviewees were Allison Hoffmann and Andrew Morrison, both were involved in the initial core group. Allison Hoffmann is a resident of the Kelburn suburb, but contributes to Aro Valley due to having no local action in her neighbourhood. Andrew Morrison lives in Aro Valley with a fellow transition town member, but has recently resigned his place in the core group. However, he still supports activities the group facilitates.

Those involved with the focus group included Allison as well as Simon Tegg, Lynsey

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15 The core or steering group guides the initial processes and meetings in the formation of a transition town (R. Hopkins, 2008).

Ferrari, and Anne Heins, all residents of Aro Valley. Each of these people expressed their interest and deep concern for environmental issues. Motivated by various reasons, they decided to initiate the Aro Valley transition movement.

The following section will present ideas put forth in the interviews as well as focus groups. These were unstructured interviews and focus groups which sought to understand what motivations, barriers and behaviours were displayed by the participants. Interviews and the focus group were conducted in early December 2008 and took place in various locations.

5.3.3 Motivations facilitated by Transition Towns

Presently, according to transition town participants, people live in a westernised, industrialised society which focuses on self-proliferation and self-interest. This livelihood has developed through the discovery and production of oil as noted in Chapter 1, Introduction. Oil is the basis of everyday activities. As Allison Hoffmann noted,

> "...our present day life is just floating on oil."

As more people become aware of oil being a finite resource, the fact that it will run out some day becomes real. Along with peak oil, climate change has also become a prevalent issue that requires a change in societal behaviour. Peak oil and climate change paint a rather bleak picture, which is portrayed in many films such as *The Power of Community: How Cuba Survived Peak Oil* and used to convey the issues' urgency (NZTT, 2008a). Andrew Morrison became motivated as his knowledge of the issues increased.

> "I looked at the material, I got scared, I got angry, umm... and I thought there's got to be some way I can make a contribution."

Fear and anger resulting from learning of these major issues often provides a motivator for people such as Andrew, with a holistic worldview to take action[16]. However, this is not always the case; often people become paralysed with fear and are unable to change their unsustainable behaviour. Much of this inability to act comes from various sources

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16 A holistic worldview is similar to a biospheric or altruistic worldview.

in the media as well as scientific movies and documentaries. Andrew Morrison explains how change can be facilitated in this manner.

> "Where I think if you're looking at change I think it is a really important thing to consider that it is not just information that creates a change in people. Often it is about connecting people with our feelings. You get that when you watch a movie about peak oil. It kind of kicks the stuffing out of most people. Most people walk away, if they don't have a chance... That's why I say you need to get to people's hearts and into their guts. Where they see this is real, this is my life. I don't know where the food in my bowl even came from. They start to look at their life and it gets to be a bit more personal."

This realisation of a disconnection with basic necessities such as our food's origin is a motivator for many people involved in the transition movement. Instead of allowing behaviour paralysis, transition town concepts of learning how to grow food provides a feeling of control. One focus group member, Anne Heins, expressed her excitement for how transition towns have increased her ability to be self-sufficient.

> "I can actually do it."

She felt that the skills she was shown through various transition town gardening meetings provided her with confidence that she could survive without relying on the supermarket. Obtaining control over one's life situation is very important for people who learn about these issues and the prospect of a future without cheap oil. Transition towns provide a means for people to learn the needed skills to survive without the supermarket, plastic bags or cars; all of which are products of oil.

Not only do people feel they can reduce their reliance on oil products and activities, but they also have the opportunity to re-connect with their community. As Allison Hoffmann stated,

> "Transition towns is about waking up, getting people to live again. People are too comfortable and don't realise what their life was about when they get to the end of it."

Awakening to a future where we take responsibility for our actions and have the skills to take care of ourselves is one that transition towns promote. Helen Dew a member of the Carterton transition movement and avid gardener expresses her enjoyment of being self-

sufficient.

> "The thing is I actually enjoy being out there and making this happen, the challenge of it. I have my achievement here, tending it, tasting, sharing it and knowing I am taking responsibility for myself. Knowing I am taking responsibility for it."

Helen is a woman who has grown up working in the garden, making jam and being self-sufficient. These values were taught to her by her grandparents as they had gone through the depression and understood how to survive. She grew up with the ethic of taking care of herself without relying on present day necessities such as supermarkets. However, in Helen's view, her generation and the knowledge of self-sufficiency are diminishing. The transition movement recognises the knowledge our elders hold, as one of the twelve steps to transition, and encourages communities to absorb and use it before it disappears.

As our present lives have developed, the passing on of self-sufficiency knowledge has decreased. As the focus group noted, most professions require specialised knowledge, which reduces the time available for people to learn a wide range of practical skills. Transition initiatives seek to counter this specialisation by providing skill swap events where people can learn from others how to garden, sew, or build.

In order to get people involved in learning the needed skills, transition towns also creates a space where people can feel a sense of community and belonging. Participants in the focus group noted the large amount of media negativity and its limitations on people's attitudes towards potential behaviour change. The transition movement seeks to counter this negativity with positive community action. For many, transition towns provide the means for re-connecting with the community and nature. Andrew Morrison explained how transition towns serve this purpose.

> "I think that is something, transition towns are trying to connect people from the industrialised society, because we have the symptoms the worst. To help people to re-indigenise themselves; to have a sense of place, a sense of community, a sense of purpose; convening and belonging; and hav[ing] a world view that helps them have a deep sense of relatedness and a sense that they are part of something worthwhile. That they can contribute through small actions

and make a difference."

By creating community gardens and activities where people can connect with each other, a social support system is created. These community activities reduce feelings of isolation created by media negativity as well as the resultant fear and anger people harbour in response to peak oil and climate change.

The next section moves to the Lower Hutt case study to look at motivations, barriers and behavioural actions exhibited by participants.

5.4 Lower Hutt

5.4.1 Lower Hutt Profile

Similar to Aro Valley, the Lower Hutt transition town emerged from the Wellington Central transition town. Due to Lower Hutt's location north of Wellington, a local group was formed to reduce travelling distances for participants and encourage local activity. Lower Hutt's core group formed in February 2008 (NZTT, 2008b). The Lower Hutt transition town has advanced further in the development of the transition initiative than Aro Valley and formed subgroups which facilitate various activities. Groups formed include Food & Gardening; Energy; Reskilling & Practical Skills Training; Economy & Finance; and Heart & Soul.

5.4.2 Participant Profile

Similar procedures were used for the Lower Hutt case study. Two face-to-face interviews and one focus group were conducted to determine motivations, barriers and displayed behaviours in transition town members. Interviewees included Juanita McKenzie and Paul Kennett. Both of which are residents of the Lower Hutt region. The focus group also consisted of Lower Hutt residents and participants in the Lower Hutt transition town; however due to confidentiality clauses the names of which will not be disclosed.

The focus group and interviews were conducted in December 2008. Section 5.4.3 will narrate various ideas and concepts put forth by participants.

5.4.3 Motivations & Actions Expressed

"Peak oil doesn't have to create a gloomy scenario, if we respond with foresight

and adaptability we can actually grow thriving and cooperative and more joyful community based living. This way of life has actually been lost to us as a result of oil-based industrial and technological 'progress'. We can begin this process by connecting with each other and sharing ideas and practical solutions at a community level. I would like to hear from anyone interested in forming a peak oil group here in the hills that could go on to share and help other communities meet this upcoming challenge."

In part of an article she wrote, Juanita McKenzie explains a process which people can utilise to respond to the challenge of peak oil. This article was written before Juanita attended the EcoShow in Taupo where she learned how the transition town movement positively responds to climate change and peak oil. For her, the transition town concept was the next step for getting her thoughts into action. Others in the Lower Hutt focus group were also inspired by Richard Heinberg and the presentation on transition towns. For Paul Kennett, he learned of peak oil, Rob Hopkins and the transition movement earlier on.

"I learned about peak oil in 2004. I thought holy crap what do we do? I thought I needed to bring up my alternative energy sources. Then I heard about Kinsale in 2005; I read the Energy Descent Action Plan by Rob Hopkins. I thought ah, that's the way we should do it. It needs to be a community response. Because doing it on an individual level didn't make sense. I didn't really know why it didn't make sense until I read the descent plan. So, I desperately thought I needed to start doing the same thing here. How do I start the thing? How do I get to know people who would be interested in doing the same thing?"

Paul's reaction in 2004 was to immediately put the needed steps into action. He figured starting a community garden would be the easiest thing he could do. Along with starting a community garden, Paul took many individual steps to increase his resilience. He installed solar hot water heating, heavily insulated his house, exchanged old light bulbs for LED, created his own garden as well as installing a photovoltaic cell on his roof. From comparison to other participants, Paul has dramatically changed his behaviour. However, this low energy living was previously a part of his life before he heard of peak oil and thus behaviour changes were easier to put into action. He had previously commuted from Lower Hutt to Wellington on his mountain bike daily for work.

As Paul had done a number of individual changes, he figured the next place to make changes was at the community level. Due to his desire to make a difference for his community, the future and society, Paul joined the initial Wellington Central transition town core group. From this, the Lower Hutt group stemmed and Paul became part of its core group. Focus group members noted the importance of taking action to increase their resilience and decrease their impact on the earth. By taking these steps and making the future suitable for generations to come, they felt they were investing in the social capital of the world. Paul's desire to help other people also stemmed from his religious up-bringing and associated morals.

> "The congregational church that I grew up in talked a lot about ethics and how to act morally; I guess that has influenced me to care about the environment and others. I guess it all just kind of makes sense."

For Juanita her motivations are based more on awareness raising concepts. Her passion lays in spreading the word and helping people to understand the issues.

> "If you give people the chance to learn about it and understand it, they will be able to understand why we need to change."

She was also aware of the limitations of people's thinking. Society doesn't allow people to explore marginal ideas which may be a better alternative to the present. An idea such as transition towns is not a central idea that mainstream people take in easily. It is one spread by osmosis, people hear about it, and they tell their friends. A natural process occurs in the awareness raising process which Juanita deems necessary. The subgroup Heart and Soul, formed by the Lower Hutt transition town is one which Juanita believes serves this purpose.

> "That particular group is important to me, because part of what I know about myself is that if I hadn't gone through knowing about myself before I learned about peak oil, I wouldn't be able to be doing what I am doing; because I had a spiritual awakening. Which isn't religious it is about knowing who I am and what I am capable of. That is what I understand as my spiritual awakening. That freeing of believing that we aren't limited in what we want to do, to be creative, brave, or out of our comfort zones. Understanding that and knowing we don't have to be confined in our thinking with a particular set of beliefs that don't

necessarily help us with growing."

For both Juanita and Paul, transition towns provided a link to like-minded individuals who were already pro-active and allowed a community level response to occur. Many of the focus group members emphasised how do-able and fluid the transition concept is. It allows creativity and enthusiasm to catalyse idea formation. This new, free way of thinking is that which Juanita believed was pertinent to changing people's behaviour. Flexibility in the concept of transition towns provides for action to occur in a natural way with group projects forming when the time is right.

Along with re-connecting with the community and one's survival skills, transition towns also provide people means for re-connecting with nature. Focus group members noted how western civilisation disallows people to live with nature due to the demands of current industrialised living. The group noted that people are compartmentalised and specialised making them unable to perform tasks such as growing vegetables. Juanita expressed what transition towns seek to do.

> "Transition towns doesn't want to change the world drastically, it wants to make
> it more resilient."

Transition towns provide a way for people to separate themselves from the unsustainable, industrialised way of living. Helping people to learn about nature, their food sources and how to grow their own food are important actions transition town members seek to proliferate. However, even with the effort put forth by active members to help change perspectives and worldviews, most transition town participants will not take the needed steps until they are hurting financially. Focus group members, as well as Juanita, noted that as the current economic situation becomes more difficult and food prices rise, people are taking a larger interest in growing their own food. Juanita noted her local garden centre is having a phenomenal year due to high food prices.

> "All we need is to have people that want to grow their own food and be resilient.
> That's a lot of times when people would start gardening because food has sky
> rocketed in price, because of economic motivation. People are not going to
> change until they are hurt in the pocket. When the price of oil was going up and
> up people were taking public transport and doing what they could do because it
> was an economic necessity. I heard this guy saying that our selfishness is what is

going to save the planet. Things that affect ourselves will be what will make us change. We'd like to think we do it out of the goodness of our heart or because it's nice, but it's not the general motivation for people. It's obviously the motivation for the people who are starting the movement who are providing the ways and answers for people."

Juanita emphasised, people will not change their behaviour solely because of a change in attitude. There must be a motivator that makes the situation real and necessary. Often money tends to be the most effective motivation due to it making a difference in how people can live their life. The amount of income a person has, determines the lifestyle they live. With less money people turn to alternative, cheaper ways of living which often bring them closer to nature. In response to a comment I made regarding humans as animals and part of the natural order of things, Juanita brought to light an important idea.

"Precisely, it is important that we feel insignificant because we need everything around us to live. We need to create a way of surviving that isn't basically damned by our resources and natural world. We need to sort out how to do it. The problem is we got clever technologically, but our thinking hasn't gotten equally clever. That's like Einstein's half-way cleverness. We might be clever in one way but we are way primitive in another way."

The primitive side of our cleverness Juanita refers to is the ability to be self-sufficient, which we have lost through specialisation and industrialisation. Our cleverness in respect to resilience has the potential to be advanced through the efforts of transition town initiatives. Transition town members such as Juanita hope to increase people's ability to learn new resilient behaviours and re-connect with the community.

Following this section, Nelson transition town initiatives will be highlighted to bring forth motivations and behaviours which have been displayed in the region.

5.5 Nelson

5.5.1 Nelson Profile

Transition Nelson, located in the northern region of the South Island, emerged in late 2007 with the cooperative efforts of three people, Ed Kiddle, Ted Howard and Katy

Steele. These three were involved with the New Zealand chapter of the Association for the Study of Peak Oil (ASPO) which was a pre-curser organisation that raised awareness of peak oil throughout the country. From this organisation, a steering group formed for Transition Nelson consisting of Robert Wallace, Ted Howard, Keith Preston, Alex Pressman, Kathy & Trevor Houghton, Katy Steele and Ed Kiddle.

By June 2008, the group held its first public event and later that month became the fifth Official Transition Initiative in New Zealand. In July 2008, Trevor & Kathy Houghton were employed by Transition Nelson to coordinate awareness raising events, public events, as well as provide guidance and encouragement for groups. This funding came from the Ministry for the Environment, Canterbury Community Trust and Nelson City Council.

Transition Nelson has attracted four hundred members and formed fifteen Topic Groups through community initiation. These groups include Nelson Growables, No Dig Workshops, Permaculture, Open Orchards, Seed Savers, Biocapacity, Business, Community, Energy, Governance, Health, Housing, Local Currency, Transport, and Waste. Transition Nelson is also seeking cooperative effort with various organisations throughout the community.

5.5.2 Participant Profile

The structure for participants in the Nelson Transition Town differed from the previous two case studies. In Nelson four interviews were conducted, one which included two people and the other three being single face-to-face. These interviews were conducted in March 2009, three months following interviews and focus groups with the first two case studies, due to availability of participants.

Interviewees included Trevor and Kathy Houghton, Ted Howard, Katy Steele and Todd Pudgett. Participants were residents of Nelson and members of Transition Nelson. Trevor and Kathy Houghton, as previously mentioned were the coordinators for Transition Nelson. Ted Howard participates in the Governance, Community and Steering groups. He heads the Permaculture Group and is starting the Psychology of Change Heart and Soul Group. Katy Steele participates in the Steering, Transport and Energy Groups. She is also on the Regional Transport Committee and Manager of the Nelson Environment Centre. Todd Pudgett recently moved to Nelson and has since

become involved with the transition movement. He is part of the Governance and Waste Groups.

Motivations, actions and barriers were considered during the interviews. The following section will highlight pertinent ideas expressed by participants in the interviews to provide a basis for comparison of previous case studies.

5.5.3 Motivations, Actions, Barriers & Transition Town's Role

Katy Steele's education in Physics and Environmental Science provided her knowledge early on of various environmental issues such as peak oil and climate change. Along with environmental issues she was also aware of the global inequity that exists and the flaws of the economic model. She understood that the future will look much different than the current consumer, industrial society that we live in if peak oil and climate change are approaching.

> "My motivation is so deeply ingrained in me now that I find it hard to remember what actually motivated me. But it was an awareness when I was seventeen that the world couldn't continue the way it was, degrading the environment and using up non-renewable resources to grow the economy exponentially. My motivation has been that I fundamentally believe the environment is a living being."

In response to my question about her motivations for involvement in transition town initiatives and her environmental actions, Katy Steele couldn't determine her initial motivation. For some people, the environment has always been important and provided a connection which living in the city could not provide. Katy grew up in a poor part of London with little green space. She, however, felt the need to get out of the city and into nature. With this as a portion of her motivation, she moved her family to Nelson, New Zealand eight years ago to escape the industrial development. In Nelson, she felt her children would be able to have a life where the community was important to a child's up-bringing rather than video games and television.

> "People say that New Zealand is a generation behind Britain. What the children got out of being children here was like the childhood I had in England which is gone in England. So I had the freedom to roam around, didn't have to travel around everywhere by car, had the freedom to socialise with other people on the

streets. And make mistakes if they do stupid things, which they tend to do, well boys anyway. But they are making those mistakes at the age of 8, 9 or 10. If they get up to something people don't like they let them know. Whereas in England the kids don't hang out in the streets until they are older and adults are less likely to challenge a gang of 15 year olds."

Living in a place that still had remnants of community and one less consumer oriented was important to Katy. Today, off-setting travelling emissions by cycling, growing her own vegetables, and talking to everyone she knows about these issues has become a normal routine for Katy. As she was a founding member of the Nelson transition town, Katy is deeply involved in the movement, as is Ted Howard. Ted became aware of the issues of climate change and peak oil in the 1980s as he studied geology and physical geography at Auckland University. Eventually Ted settled in Nelson as he felt drawn to the location. His ancestors were passengers on the second ship of German settlers that arrived in Nelson in 1843, making Ted a fifth generation Kiwi. As Ted has become an avid gardener and practices permaculture he noted this interesting synchronicity of his ancestors.

> "And they were rural workers who were pushed off the land in Germany as the enclosure and industrial farming systems started to take off. I find it fascinating that I have been retraining for the last few years in permaculture and working as a gardener and basically heading back to do the same thing, working on the land."

Following his ancestor's previous lifestyle, Ted began learning the skills they possessed. Ted's motivation to work on the land lies not with economics but rather a response to the coming cloud of peak oil.

> "So we have this enormous danger coming at us, but at the same time fabulous opportunities opening up for doing things differently that would make a huge difference for our community and environment."

Ted did not always possess the same ethics he holds today. Early on Ted was a fundamentalist Christian, joined the New Zealand Territorial Army, was a field engineer for eight years, an audio visual specialist in the education core for four years, and has now become a gardener and permaculture teacher.

"And yet I'm now a dirt loving, tree hugging sort of semi anarchist compared to my lifestyle back then. So, if I can change, and more than anything my internal culture can change that dramatically, then I guess there is hope for the main stream, which is pretty much unreachable right now."

Prior to knowledge of transition towns and climate change, Trevor and Kathy Houghton were aware of peak oil and the future it foresees. In response to this low energy future they looked at their lives and decided to make a conscious decision to become more resilient. Their actions ranged from insulating their house, installing solar hot water heating, starting a garden, planting edible fruit and nut trees, planting berries, reducing the use of their car, bicycling, consuming locally, and reusing and building community through trading of honey from their beehive. They hope to instigate a local trade of food with their neighbours by exchanging honey and other excess produce.

"So yeah we got a hive because it seemed like a good resource for ourselves and a really good thing to barter. It's amazing we've given away little pots of honey and neighbours have given stuff back. You know like we are building community within, we've got a nice community here. As we start to give surplus out, we suddenly have nashy pears turning up on our back door step, or apples, or plums or a bottle of jam."

Along with developing neighbourhood relationships, they have changed their career paths from working as a Financial Advisor, for Trevor, and a Midwife at the Nelson Hospital, for Kathy, to both working at the Nelson Environmental Centre as coordinators for Transition Nelson. This, however, will change as the Ministry for the Environment has decided not to fund Transition Nelson in the new financial year.

They also find it important to pick up hobbies such as fishing which teach their son skills for future resilience. Fishing was something neither had done before, but found it important in building their resilience. Involving their son in riding bikes and gardening provides him with the skills he will need in the low energy future. Encouraging him to participate in local activities and befriend local kids his age also teaches him the joy of community focused living.

"My motivation is that my five year old in twenty years time doesn't turn around and say you trashed the place, you know you didn't do anything. It's a huge

motivator, this is his future, he is only five, he is going to live through this next period of time when there are going to be so many changes. That we did our best with our values and what we actually believe. Living with integrity of our values is really important to us."

Todd Padgett, a recent migrant to the Nelson area from the United States, found the community and the future to be important to him as well.

"I guess the things that appeal to me are that it seems to be a community who really care about their lives and their lifestyles. It's not, with the ones I met, it's not about money, it's about quality of life. Whereas back home it was more about quantity of life not quality. That's why I came here; I'd like to keep it the quality of life."

The transition model is one which Todd believes will provide an avenue of change. Living and taking part in a small community such as Nelson provides him with a sense of empowerment, that he can actually make a difference through his voice and activities. His main motivation for taking part, not unlike other participants, is a selfish one.

"I'm more or less looking from the selfish aspect of it of my own, my wife and I's life. I want to be able to live out the rest of our lives in some comfort and without fear."

Todd similar to other participants, voices his fear of an uncertain future. He realises that life after peak oil will be different and the community needs to prepare itself. People cannot survive in a world with less oil without their community. Community provides food security as people learn to grow their own food. Acquiring gardening skills is a step that Todd hopes to take through his involvement with Transition Nelson. His wife has already started a garden in their backyard, while Todd has started riding bicycle instead of driving his car. While peer pressure is not always successful, Ted convinced Todd to start riding bicycle. People such as Ted, Katy, Trevor and Kathy provide encouragement to newer members, such as Todd, to get involved with the groups, as well as activities, such as bicycling.

"Yeah Ted, this was a transportation group he was in and I went to the meeting to see what it was about. So essentially since we represented transportation, it

would be good for everybody to show up on their bikes or walking rather than driving their cars. So, I thought, he's right."

 Todd is a member who has gotten involved and taken action on a personal level. Many people who are members of Transition Nelson still are in the contemplative stage which Trevor explains.

"So we are trying to move these people into contemplating, and from contemplating you are trying to move them to action, which is into the groups."

These stages employed in Nelson, originate from the addiction model of behaviour which also provides a method of setting priorities for the group. By creating an action plan the steering group has identified how much awareness raising, networking, encouragement and support Trevor and Kathy should provide various parties. However, as Kathy noted, they do not have to try to recruit people that are not interested or worry about not informing enough people.

"The other big motivator for me is the hundredth monkey concept. There were a group of these very isolated islands and there were one group of monkeys that the scientists discovered were actually washing their bananas. And they discovered that when it got to be a crucial number of monkeys all doing it, then suddenly all the other monkeys on the other islands started doing it; even though they had no contact. So it's about the concept that individuals can make a difference, so that motivates me."

Relying on the hundredth monkey concept allows Kathy and Trevor to concentrate their efforts on people who are interested in the transition concept. Some people are ready to learn more about climate change, peak oil, and transition towns while others are not as receptive. Along with recruiting interested people, they are hoping to get people into action and form networks with existing organisations. Kathy notes the important role transition towns provide to members.

"A lot of the things we've been setting up have been providing easy steps for people to take. We've got a no-dig gardening group, so that is helping to facilitate people to make those changes to put in the garden by giving them the information, the support. I suppose transition towns are about that support aren't they? Support in numbers, access to information, transition town community

where you are drawn along by people's enthusiasm to make those changes and ideas of what you can do."

Trevor added:

"In many ways we are trying to network people who are like minded or interested in this so they can feel supported. So they can get together and do things, cause you can achieve so much more doing it that way. All the fifteen groups are ideas that came out of the community."

Ted recalled how the energy levels in the groups oscillate before, during, and after events. Many of the people who get involved and come to the group meetings are concerned about the issues put forth, but are not able to respond with a reciprocal behaviour due to lack of knowledge of suitable actions. Trying to get people to commit to changes is the intention of the steering group and coordinators. The Energy Descent Action Plan (EDAP) is a way to get people in the groups to identify and commit to plausible actions.

Drafting the EDAP for Nelson is also a requirement of the funding from the Ministry for the Environment. The EDAP was identified by the steering group as a measurable achievement as well as the twelfth step in the transition handbook. Devoting enough time for its completion has proven difficult with the equivalent of only one coordinator in the full-time paid position. Trevor and Kathy share this role with Trevor working eighty percent of the time and Kathy the other twenty. In comparison, Trevor noted that Totnes has four employed coordinators to run the affairs of Transition Totnes which started in 2005. Transition Nelson is quite advanced in its development as it is already putting together an EDAP after one year, while Totnes is only starting to draft their EDAP now. The steps in the transition model are flexible apart from the first five. These, Trevor and Kathy believe, need to be carried out in the prescribed order.

"You set up a steering group, you start raising awareness, you network with existing organisations, you launch and set up groups, that's sort of the first five steps."

These five steps described by Trevor, have been employed by the coordinators and steering group in Transition Nelson. According to Trevor and Kathy other steps, such as the EDAP and honouring your elders, are more ideas and can be completed in any order.

Ted noted honouring the elders as an extremely important part of building resilience in the community.

> "So we have a whole lot of old people in Nelson who have a lot of wisdom and skill in gardening and they went through the depression. But we also have Māori that we need to be talking to because they have nine hundred years of wisdom of how to live sustainably on this land. And we will need them. In fact in a lot of ways we will need them more than they need us; which is an incredible cultural turn around. But you see one thing that they have that we don't have is they know how to run community; they know how to do the technology of community."

Feeling quite strongly about connecting with Māori, Ted believes the transition town concept will not take off without the support of Māori people. Māori communities are already embracing permaculture as a way to re-train skills that have been lost through the recent influence of industrial culture.

> "But the beauty of it is, it's not just the permanent agriculture side of permaculture, it's also the permanent culture side of permaculture which says the way we are living is not sustainable. Let's look at the culture."

For Ted, understanding that the culture, which influences our actions, is the root of our inability to take care of our environment was a huge relief. Instead of it being humanity that was flawed, he learned it was the modern, industrial culture which has spread throughout the world.

> "William Catton says in fact, it is a species problem. What he says it is not the Homo sapiens that are the problem it is the Homo colossus, high energy, high consuming man. He calls us Homo colossus because you know for instance in the States every person has the energy footprint of seventy energy slaves. You take three hundred million there, what's the energy footprint of the States, its twenty one billion. In New Zealand we got four million people, we use about fifty energy slaves per person. So what's the energy footprint of New Zealand, its two hundred million."

The flaw in the culture he talks of is the inability of people to see the destructive effects of their high energy lifestyles. The effects of this industrialised culture can be seen

throughout New Zealand. Ted noted the health of rivers in New Zealand as a prime example. When he was growing up, he could drink the water in the streams next to Auckland. Now almost every stream has giardia, cryptosporidium, or didymo. However, most people are unprepared to talk about the effects of our energy hungry lives.

> "When in fact we aren't talking about the elephant in the room. And the elephant, it's been a fascinating process for me to discover, the elephant in the room is not peak oil, it's not even climate change, it's not mass extinction at a rate never seen before, which really rips me apart. But these are not actually the real challenge, those are just symptoms, they are all symptoms of the fact that we have this cultural crisis. We are in a dysfunctional relationship with the earth and with each other. At what stage are we going to talk about this major elephant in the room that is actually driving the whole process?"

Ted feels very passionately about this cultural crisis that authors such as Daniel Quinn, Derek Jensen and William Catton talk about. A main motivation is how our food and transport systems are completely dependent on oil. Due to our extremely efficient transport system, our cities have developed in an unsustainable manner. Cities are structured in a way that food and necessary resources are shipped in from surrounding regions. When it is evident oil is beginning to run out and transportation links begin to fail, the carrying capacity of the bioregion will become apparent. The carrying capacity refers to a bioregions ability to support life. This ability is restricted by Liebig's Law of the Minimum, which says there will always be an essential resource which runs out faster than others. When that resource runs out, the bioregion is unable to support any more life and thus the carrying capacity is reached. Ted predicts these limits will be food and water.

Transition towns provide a way to plan for this future with limited resources by means of the aforementioned EDAP. Not only does it allow a plan to be formed, it also provides a support network, empowers its members and builds resilience in the community.

The following section will draw common ideas expressed in the three case studies together.

5.6 Synthesis

5.6.1 Major Themes

Awareness of peak oil and climate change provides a basis for action for participants in the transition movement. While many people fear the future without oil and one with a different climate, participants found it created urgency for action rather than paralysation. This stress came from a connection with their emotional response to the issues. People are also motivated by their values of ensuring a future for their children, their society, and themselves. Participants tended to have broad worldviews, expressing concern for the environment along with their offspring and society.

Transition town initiatives provide a way for participants to respond to these challenges by taking small steps. Preparing for a future with less oil, and having more resilience, provides people with a sense of empowerment over their situation. Often, change is inhibited by time and money constraints which deter people from action. However, much of the transition concept is to provide a community of support which encourages participants to make changes as they become ready. It also provides access to information about gardening, permaculture, and various other possible behavioural actions.

Spreading awareness of the issues will provide a means for the transition town concept to spread by osmosis or the hundredth monkey concept. Involving elders as well as including Māori in the transition town movement, will be important for utilising the aforementioned concept in New Zealand. Without the knowledge of sustainable practices from the indigenous Māori population, the transition movement will be unknowingly reinventing the wheel. This is something transition towns strive to avoid, and thus will consider Māori knowledge in the future to avoid this repetition.

Through networking with existing organisations, providing knowledge, and encouraging people to action, transition towns strive for a future less dependent on oil. Recognising that we live in a culture addicted to oil allows participants to release themselves from addiction and live a more resilient, self-sufficient life. The transition network seeks to encourage this process and support it where necessary.

5.6.2 Summary

A profile of transition towns in the world and more specifically in New Zealand was presented in 5.2. Following this profile, the case studies were presented in three separate sections. Each section provided a case study and participant profile as well as a summary of major themes which arose from the interviews and focus groups. The last section provided a synthesis of ideas which were prevalent throughout the three case studies.

The following chapter will provide an analysis of these themes to create a basis for comparison of motivations, behaviours, and barriers that were identified by participants. By making this comparison, an understanding of whether transition towns as a movement facilitate pro-environmental behaviour can be formed.

Chapter 6: Data Analysis

6.1 Introduction

6.1.1 Chapter Overview

This chapter determines if transition towns are effectively empowering pro-environmental behaviour. As shown in Figure 9: Chapter Overview, a thematic analysis of interview transcripts and focus group field notes provides a basis to evaluate the case studies and determine whether empowerment of pro-environmental behaviour has occurred. Drawing on pertinent themes from the data, the case studies will be evaluated against three criteria which empower successful behaviour change interventions. A final section summarises major findings to be considered in the following discussion chapter.
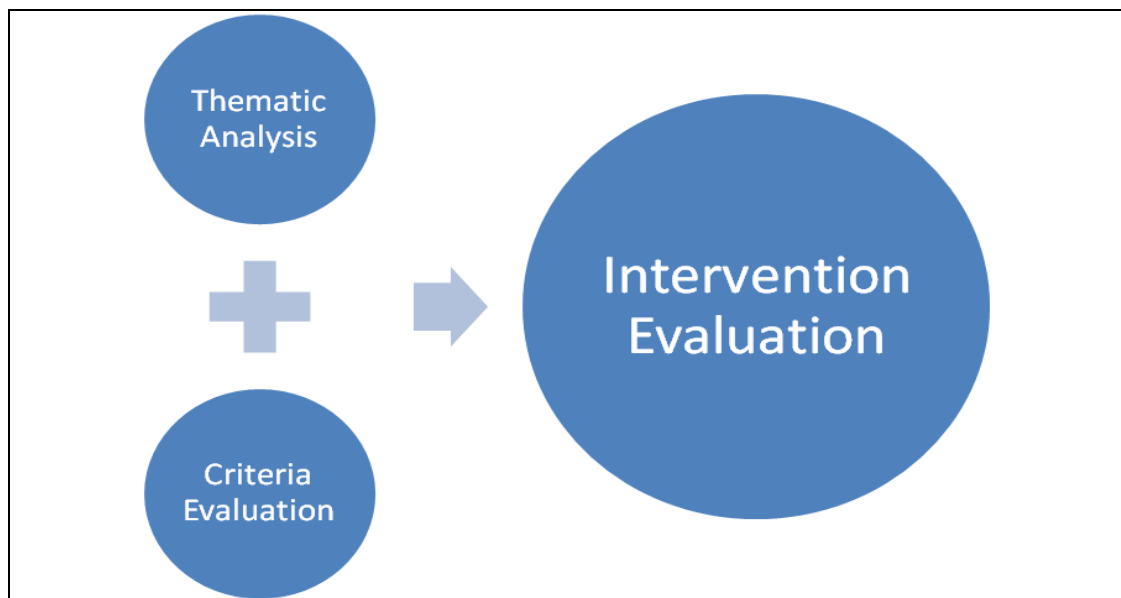
Figure 9: Chapter Overview.

6.1.2 Thematic Analysis

A thematic analysis of interviews and focus groups was conducted as outlined in Chapter 4, Methodology.

> "Thematic analysis focuses on identifiable themes and patterns of living and/or behavior" (Aronson, 1994, p. 1).

This is done through a process of coding and creating themes from transcripts and field

notes. Coding is the process of grouping relevant data into corresponding categories. Themes emerge from this coding process (Tolich & Davidson, 1999).

Each case study was evaluated in this manner against three intervention criteria, which are expanded in section 6.4 (Yin, 1989). The analysis is presented in a narrative form which presents support or lack thereof for each criterion (Braun & Clarke, 2006). This compilation provides a basis from which one of the objectives of this thesis can be considered: Are transition town case studies effectively encouraging pro-environmental behaviour change?

Throughout the analysis the third objective, do transition town interventions empower pro-environmental behaviour change, will be considered but discussed further in Chapter 7, Discussion. The next section will re-iterate what empowerment is and why it is important to consider in the thematic analysis of transition towns.

6.1.3 Empowerment

> "…empowerment is a multi-dimensional social process that helps people gain control over their own lives. It is a process that fosters power (that is, the capacity to implement) in people, for use in their own lives, their communities, and in their society, by acting on issues that they define as important" (Page & Czuba, 1999, p. 4).

As Page and Czuba (1999) explain, empowerment is a mechanism which encourages people to take action on pertinent issues. Multi-dimensional refers to the psychological, economic, sociological, as well as other, dimensions that may influence an individual. Empowerment occurs in relation to other people and on a variety of levels such as the community, group or individual. Page and Czuba (1999) note the interconnectedness of the individual with the community which empowerment provides. Page and Czuba (1999, p. 4) state how this is brought forth,

> "…individual change becomes a bridge to community connectedness and social change (P. Wilson, 1996)."

Through empowerment, individual behaviour change influences communities and eventually catalyses social change. This is the area transition town initiatives influence. Transition towns seek to empower pro-environmental behaviour. Empowerment is a method of pro-environmental behaviour change which is brought forth through

interventions such as transition towns. Considering whether transition towns empower people through the intervention criteria is significant in understanding its success.

Throughout the following analysis, empowerment will be considered. The final section will provide a synthesis of ideas concerning empowerment in relation to each case study and corresponding intervention criteria. Empowerment will be discussed in the following chapter against pertinent literature.

6.2 Criterion for a Successful Intervention

6.2.1 Relevance

> "Considering the many behaviors that need to change if we are to achieve a sustainable society, the issues of durability and the behavioral scope of interventions are of utmost importance" (Staats et al., 2004, p. 343).

Transition towns offer encouragement to change individual and community behaviour in pursuit of a sustainable society. The case studies Aro Valley, Lower Hutt, and Nelson will be evaluated against three pertinent intervention method criteria; set out by De Young (1996) and re-emphasised by Staats et al (2004). These criteria include providing information, a supportive social network, and feedback (Staats et al., 2004). All three of these must be employed for a successful intervention to occur according to De Young (1996) and Geller (2002).

6.2.2 Information

Providing information is one of the most widely used techniques for pro-environmental behaviour change (Staats et al., 2004). This can be done through raising awareness, speakers, providing examples of other peoples' actions, posters, sending out information to people, as well as other methods. Informing people of environmental problems, such as climate change and peak oil, often influences their attitudes but is not always sufficient to change behaviour (Staats et al., 2004). This criterion will be evaluated for each case study in section 6.5.

6.2.3 Supportive Social Environment

Creating a network of support for individuals is an important but insufficiently documented part of an intervention (Staats et al., 2004). This social environment

provides means for people to discuss, support, and encourage each other to change their behaviour. In transition towns, this may occur through the use of open-space[17], café forums, discussion sessions, as well as other aspects. These communities help to enforce a change in behaviour through peer support and encouragement. Determining whether each case study provides this supportive social environment will be assessed in section 6.6.

6.2.4 Feedback & Reflection

Another method of enforcement of behaviour change revolves around feedback and reflection. Reviewing what changes have been made provides a sense of individual or collective accomplishment (Bandura, 1977). This often increases perceived control over one's situation. Feedback may also encourage change for alignment with personal and social norms in the community (Schultz, 1998). This feedback and reflection may occur through personal reflection, group discussions, incentive programmes, or community feedback mechanisms, as will be discussed in the analysis of feedback and reflection in section 6.7.

6.2.5 Use of Criteria

In order to determine whether transition towns are effectively encouraging pro-environmental behaviour change, an evaluation based on these criteria is conducted. Through the thematic analysis of the data, three research questions were asked.

4. Do transition towns provide information to participants?
5. Do transition towns provide a supportive social network?
6. Do transition towns provide feedback and means for reflection for participants?

The following three sections will present the analysis through thematic coding of data for these questions respectively. Through the use of Figure 10: Analysis Diagram, as was previously mentioned in Chapter 4, Methodology, a final section will provide a synthesis of findings to evaluate whether the case studies have effectively encouraged pro-environmental behaviour change.

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17 See Chapter 1, Introduction, section 1.2.3, Terms & Definitions for a defintition of open space.
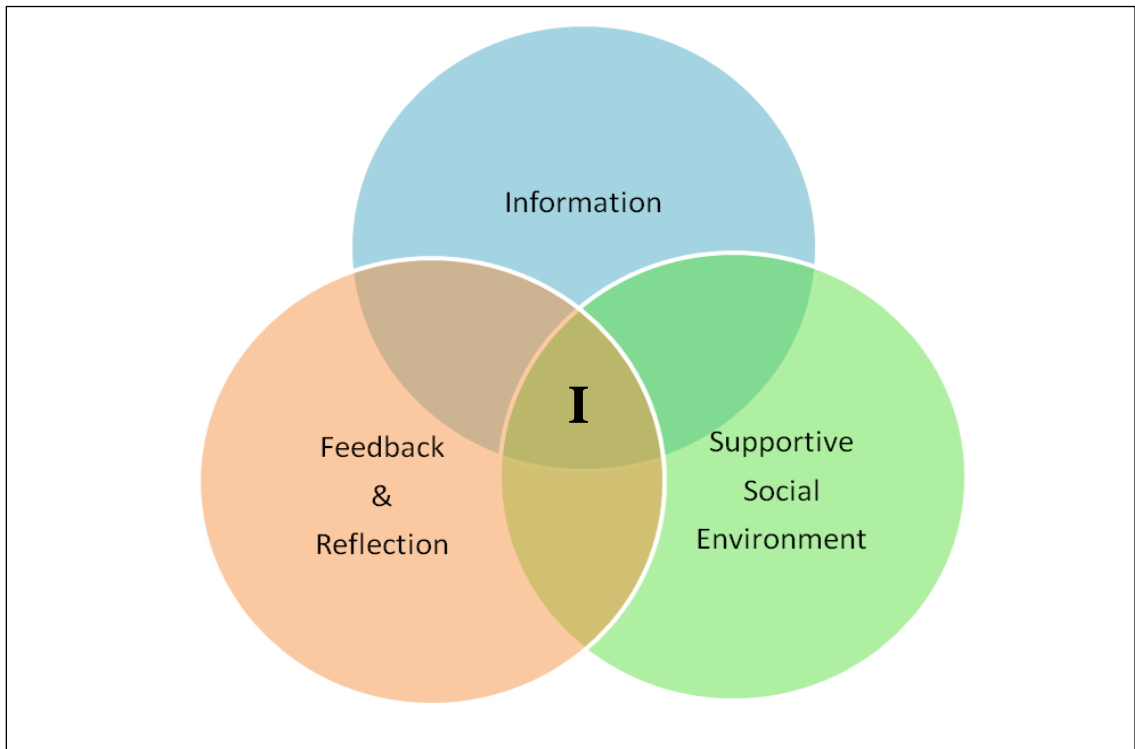
Figure 10: Analysis Diagram.

6.3 Information

6.3.1 Section Overview

This section will analyse the case studies against the information criteria. A thematic analysis assisted in the identification of how each transition town has spread information to its community members. By identifying whether transition towns utilised the use of information dissemination, an evaluation of whether transition towns are effectively encouraging pro-environmental behaviour can be conducted in the final section of this chapter.

6.3.2 Analysis

> "If you give people the chance to learn about it and understand it, they will be able to understand why we need to change."

For Juanita McKenzie of the Lower Hutt transition initiative, raising awareness and providing information to people was inherently one of the first steps. This is a reasonable place to start for transition towns. Each case study initially focused on

spreading information to raise awareness[18] around the transition town concept. As Juanita explained:

> "Transition towns do not want to change the world drastically; they want to make it more resilient."

With the ambition of motivating people to change to become more resilient, transition town initiatives seek to overcome obstacles such as the media. The media tends to be very selective on the information it distributes. Issues such as climate change, peak oil, and appeals for change are generally not always heard. The Aro Valley and Lower Hutt focus groups expressed their frustration with media negativity towards these issues. They discussed how the media has portrayed climate change and peak oil in such a negative light, discouraging any action.

People involved in the transition initiative, such as my research participants, became motivated by the same material. Participants in the case studies tended to have worldviews which considered the environment, society, and the future important.

> "My motivation has been that I fundamentally believe the environment is a living being. My motivation for Transition Nelson was that I felt that climate change was urgent, we didn't have long to make transformative change, and we needed to raise awareness amongst the community. Because I had the knowledge and I felt that I had the obligation to go and let people know."

People such as Katy Steele felt a calling to spread this information to the public. For others such as Andrew Morrison of the Aro Valley transition town, their motivation stemmed from fear and anger of the daunting issue of peak oil.

> "I had a motivation because I looked at the material, I got scared, and I got angry. You get that when you watch a movie about peak oil. It kind of kicks the stuffing out of most people, most people walk away."

As Andrew Morrison expressed, people often find the information around peak oil and climate change disabling. The approach the media takes in delivering the information tends to disarm action and induce fear and anger into many. Media sources such as

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18 Raising awareness is the second step in the twelve steps of transition presented in the Transition Handbook (R. Hopkins, 2008).

newspaper or magazine articles attempt to shock people instead of motivate them towards pro-environmental behaviour through empowerment. The media is a method of information distribution which could be used in concert with intervention methods. According to members of the Aro Valley and Lower Hutt transition towns, media negativity stifles action.

The Transition Nelson group has started to bridge this gap through an article in The Nelson Mail home and garden section (Copeland, 2009). The article explains why transition towns are seeking local action in response to climate change and peak oil. It also announces what various transition town groups are doing in the local community. In the article, Kathy and Trevor explain their role as coordinators for the Nelson initiative.

> "We raise awareness within the community about the big changes climate change and peak oil will bring, and connect people who want to take action locally" (Copeland, 2009, p. 16).

Instead of attempting to scare people into action, transition towns seek to provide information around possible actions people can take. In this way, the initiative considers the dilemma of peak oil and climate change in an empowering and opportunistic light. Ted Howard explained:

> "So we have this enormous danger coming at us, but at the same time fabulous opportunities opening up for doing things differently that would make a huge difference for our community and environment."

By considering the opportunities and possible ways of living positively, transition towns provide a message of hope rather than fear. Positive thinking also serves to give people a sense of empowerment that they have control over their situation. One Aro Valley focus group participant expressed this sense of control, which was attributed to the transition town teaching her gardening skills.

> "I can actually do it."

Providing the member with the knowledge of gardening empowered her and gave her inspiration to take individual action. Giving people the opportunity to learn these skills is also important as interventions present information.

Trevor and Kathy explained further what they do as coordinators to spread information when the transition initiative begins.

> "So when transition towns first start, one of the key things is to raise awareness. And this is what we call the general public, the pre-contemplative stage, they don't know what climate change or peak oil is. This is a whole series of events or promotional material we do whether its events, being movies, presentations, speakers, articles in the newspaper or on the radio, flyers, brochures, or booklets. And then we have displays, which we might do. We just had one at the library, at the environmental film festival, EcoShow, and Code Red."

Along with these methods, Lower Hutt had a lecture series and a film event which screened four films in four nights. A film noted significant by the transition initiatives was *The Power of Community: How Cuba Survived Peak Oil* (NZTT, 2008a). The Cuba film is powerful because it shows how the country was cut off from their oil supply and was able to adapt to a low energy world, live self-sufficiently, and build sustainable community structures. Cuba's survival is a testament of human ingenuity and ability to adapt to a world without cheap oil. By screening this film, people can see the type of change which the transition movement seeks to initiate.

Other methods of disseminating information include a skill swap put on by the Aro Valley transition initiative where some people would provide information on how to garden and others would provide the labour to create it. As previously mentioned, the empowerment of the Aro Valley focus group participant occurred in conjunction with this skill swap for gardening. Transition initiatives provide opportunities for people to come along and learn about peak oil, climate change, and observe demonstrations of practical solutions for matters such as reducing energy consumption. A Nelson based incentive initiative Code Red, also seeks to empower and encourage pro-environmental behaviour. The group launched the initiative by having an event where people could come along and learn how to grow vegetables or other skills.

> "A lot of people said they liked that it was very much what you could do, it was practical actions really. It meant the launch was very much about practical actions and what you can do as an individual."

As Katy Steele emphasised, providing people with knowledge and information for

practical action is often well received. The transition initiative provides people with these practical solutions which often bring feelings of power and control over an individual's situation. For Ted Howard, working as a gardener for people around Nelson has been very rewarding. As he gardens he also disseminates information to these people to show them how to grow their own food.

"Most people in this culture would say gardening, bloody monotonous, horrible work. It's like no; a, I get my hands back in the soil which I find incredibly healing. It brings me a lot of joy to see especially over a series of seasons, where I start to get in touch with how those gardens are working and how those people are working. Because I see the changes, not just seasonally, but also over a couple years I can see gradually the edible landscape start to creep in and take over. But it's also in the way that people's thinking has changed."

Although his job is separate from the transition initiative, his motivations come from the movement because of his involvement with Transition Nelson. Ted was one of the co-founders of Transition Nelson and is heavily involved with the initiative.

Being able to employ coordinators to distribute information is a benefit the Transition Nelson initiative has experienced through funding they were able to gain from the Ministry for the Environment as well as the Canterbury Community Trust. Both Katy Steele and Ted Howard noted the advantage of having funding for coordinators.

"It certainly helps having people who can keep the groups together, keep the information flowing, newsletters, articles into the media. Awareness raising; which a small group of people can only do so much of before they get burned out. So it's pretty handy having a core funded group of people."

Katy Steele, having experience in grant applications, instigated the request for funding. It has been advantageous for the group, but recent funding from the Ministry for the Environment has been cut which could slow down activity in the group. Still, group members expressed their will to keep moving forward and spreading information to the public to raise awareness around the issues. Unlike Nelson, Aro Valley and Lower Hutt had not employed coordinators but have managed to raise awareness. However, the level of involvement of people in these initiatives compared to the Nelson initiative may be testament to the benefit of coordinators. Aro Valley had a steering group consisting

of less than ten people and Lower Hutt had around 10-15 people. Aro Valley's initiative has slowed down quite significantly in recent months, whereas Lower Hutt is still moving, but at a much slower pace than Nelson. Discussions with members of the Aro Valley transition town illustrated the 'burn out' Katy Steele previously discussed.

> "The problem is people only have so much energy. You've got excitement on one level but not determination to see this through."

Allison Hoffmann of the Aro Valley transition town noted the presence of group ambition. However, even with ambition, if not enough people are sharing the role of distributing information and raising awareness, the task can become overwhelming. Often, people do not have enough time outside of their careers to commit to volunteering for the transition cause. The trouble Aro Valley had with energy levels of group members could have been corrected by sufficiently distributing roles among group members. Juanita McKenzie is very active in raising awareness due to her passionate motivation. She has focused on providing information to people in Lower Hutt and has taken on that role for the transition initiative there.

> "That was the motivation where I understood that was what I was passionate about. Some people were passionate about gardens or transport issues. My motivation was that I get the information out there for people to be exposed and learn about the material."

Not every group has a member similar to Juanita, where she has largely taken on that role with limited support. The challenge for the transition initiative is to spread the information enough to draw people in to share responsibility for these roles. Andrew Morrison viewed the challenge as a problem with distributing power and responsibility to people who came along to hear about the initiative.

> "One of the challenges we had with the group is transferring responsibility of leadership to the people. People would say I really enjoyed the video screening, when's the next one? And I would say well you tell me, because if you would like to do a video screening I'd like to support you. But since I'm on the steering group, I'm going to be involved. I mean it's about trying to empower people to do what they want to do and get them to act on their ideas. Otherwise you have a very small group of people doing all the work, and they are going to get tired."

Andrew illustrates the limited capacity of empowering pro-environmental behaviour change through information. Simply showing people peak oil and climate change movies or presentations does not adequately encourage change. Often meetings are conducted through the use of movies, presentations, and discussions. These are very good for disseminating information, but often do not instigate action into people. Frequently, the lack of other elements of intervention methods such as a supportive social environment or feedback, stifle further action. This is another example of how information does not always provide sufficient motivation for pro-environmental behaviour change. Coupling information with the other criteria for a successful intervention must be done if empowering behaviour change is to be instigated.

6.3.3 Section Synthesis

The various data extracts presented in the previous section show that transition towns seek to provide information and raise awareness in various ways. Transition initiatives provided information through movies, lecture series, film events, demonstrations, providing examples of what people can do, articles, radio, flyers, the EcoShow, and skill swaps.

Transition Nelson was very effective at spreading information due to the employment of coordinators. The other case studies also raised awareness, but not as proficiently as Nelson. Aro Valley struggled with raising awareness as energy levels and time of volunteers was limited. Lower Hutt is still able to spread information sufficiently through efforts of committed steering group members. From these findings it is apparent that the transition town case studies do provide information to people.

Transition towns go beyond simply providing the facts of climate change and peak oil, they demonstrate how people can respond and take action. Showing people practical steps gives them a sense of empowerment and control in a changing world. By raising awareness and providing information around climate change, peak oil, and the transition initiative, the first criteria of an effective intervention method has been met. However, as section 6.3.2 illustrated, providing information alone is not sufficient to change behaviour in the majority of people, it is in need of other intervention criteria which will be analysed in the following sections.

6.4 Supportive Social Environment

6.4.1 Section Overview

This section will determine whether transition town case studies provide a supportive social environment. Similar to the previous section, a thematic analysis of the case study data will be presented. The analysis of this criterion will feed into the evaluation of transition towns as an effective intervention method in the final section.

6.4.2 Analysis

> "I think that is something transition towns are trying to connect people from the industrialised society, because we have the symptoms the worst; to help people to re-indigenise themselves to have a sense of place, a sense of community, a sense of purpose of convening and belonging. To have a worldview that helps them have a deep sense of relatedness and a sense that they are part of something worthwhile and they can contribute through small actions and make a difference. Often people feel just as an individual."

Andrew Morrison expressed the ambitions of the transition initiative by implying that reconnecting people helps to rebuild community and support networks which have not been utilised in western industrial civilisation. Without the support of others, making pertinent changes in behaviour is difficult, as was shown in the previous section highlighting the use of information. Andrew went on to note the very individualistic and isolated aspect of present culture. Not only are individuals not connected to community structures, but many people would find it difficult to determine where their food comes from. As section 6.1.3 explained, empowerment infers that the individual and community are inherently interconnected. Thus, reviving this connection is important to increase individual empowerment and action.

 Aro Valley focus group participants showed their disgust with this unawareness and inability to be self-sufficient. Both Aro Valley and the Lower Hutt focus group participants highlighted how compartmentalised people are. Many people have very specific knowledge pertaining to their individual careers but have very little knowledge of how to survive if they were left without the current ways of buying products. Kathy and Trevor Houghton used to have specialised careers.

Trevor: "I suppose also our careers; both of our careers have changed. Where Kathy was a midwife up at the hospital, has been for ten years. Now we both work at the Environment Centre on the project which we share. I use to be a financial advisor for the share markets, so business oriented. And then realised there was a huge gap in awareness for the general public and so we joined the steering group, we volunteered twenty to thirty hours a week.

Kathy: We're just compelled to do it. Once you get this information you're just like you wanted to do what you could to help yourself and your community."

Kathy and Trevor now share the role of coordinator for Transition Nelson. Much of the time they spend raising awareness, but also supporting and encouraging people to participate in groups and catalyse group action. With the loss of funding mentioned in the previous section, Kathy and Trevor may have to abandon their role as coordinators, but expressed their desire to continue their supportive roles. The loss of coordinators may have a variety of effects on the Nelson transition initiative, but are yet to be observed.

Nonetheless, participants noted how transition towns provide skill training as well as a supportive social network.

"The thing about transition towns is that it addresses climate change and energy security. It provides a model for a community scale response to those and other issues. It indirectly builds a sense of community."

Paul Kennett noted how transition towns provide a model of response for the community level. By responding at this level, transition town members utilise networks of support and encouragement. Ted Howard explained the spread of the transition initiative as a tribal network.

"So to a certain degree what I think of Transition Nelson is basically trying to very quietly bring in a tribal network of interconnectedness that says there is a good chance that this is all going to hit the wall and it may hit the wall fast and we may not be ready for it but we've at least started to get networks of control, not control but of support."

According to Ted, we cannot survive only as individuals in the future. We need support networks to provide us direction, easy steps to change, and overcome feelings of

isolation which come from contemplating climate change and peak oil. Juanita McKenzie explained the importance and empowering capacity of the transition town group.

> "If you are worrying about this stuff by yourself, you feel alone. That's where the group is so good. That is exactly why transition towns are important because you are getting together with the same sorts of people that you can discuss and help them along. So you can understand how things are. And as the transition town model says, you can get together and talk about these things that are so huge and life changing. But because you are focusing on things you can do, I always look forward to going to the meetings and talking about the end of the world as we know it. We are always thinking of what we can do next to create an event and help each other to be creative."

For Paul Kennett starting a community garden was a logical step for building community. This was a way to get people to start working together and teaching each other the important skills of growing food. Other ways which transition towns seek to bring people together is through café forums, which Helen Dew noted as the place where the transition concept was brought forth in her community.

> "It's out of that group that the transition town group was first formed. We became aware of the transition town movement in Kinsale and we saw it was much bigger than what the café forum group could take on."

The forum was a way for people to meet and discuss things which they considered important. Thus, the transition group in the Wairapa formed out of interested people from the café forum. The transition concept also seeks to provide a space for discussions to take place through open space technology. Open space is a method of meeting where everybody gets a chance to be heard, networking takes place between participants, and many ideas and visions are discussed[19] (Hopkins 2008). These methods of discussion serve to empower people because they can see their thoughts are important and relevant to others. Ten of the groups in Transition Nelson were launched through the use of open space. By allowing for discussions people can voice their concerns and ideas which create an appreciation that they are not alone in their feelings.

"To go to the meetings and realising we're not the two mad ones on the hill and that there is plenty of those people. There are four hundred people on the database who are thinking some of this is wrong. That's really important for our sanity perspective."

Trevor and Kathy Houghton noted their relief after finding out other people had similar feelings concerning climate change and peak oil. By providing opportunities for discussions, transition initiatives help to overcome feelings of isolation through empowerment. Building a community of support for these like-minded individuals encourages them to make behaviour changes which may not occur when feelings of isolation are overpowering.

Transition initiatives also seek to network with existing organisations which helps to strengthen community cohesion.

"Of all these organisations, rather than duplicating what is already happening, we wanted to find out what they are already doing, and then start educating them as well. We could take council as an example, local government. So they need to understand what climate change and peak oil is. They've just written a climate change action plan, do we have any thoughts, comments, on that or input on that? So we go do presentations and make submissions."

Trevor noted the importance of finding out what is already being done in the community and to avoid replicating current initiatives. It is better to utilise organisations that already exist than, what Trevor noted as, 'reinventing the wheel'. Two ways Transition Nelson seeks to do this is through their involvement in the Biodiversity and Sustainability forums. The Nelson Sustainability Forum consists of various actors in the Nelson region who have an interest in issues of sustainability. They come together to apply for funding for the region for various purposes as well as to prevent conflict in overlapping events. By working together, they can cross-promote ideas and speakers. This forum is organised by the Nelson Environment Centre; while the Biodiversity Forum is facilitated by the Nelson City Council.

Networking is a pertinent element of a supportive social environment. Utilising elder

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19 Utilising open space is the sixth step in the twelve steps to transition outlined in the Transition Handbook (R. Hopkins, 2008).

knowledge is an important networking aspect to consider. The transition initiative notes this as an essential step, as do research participants such as Ted Howard[20].

> "So part of the process of the transition town list is that we need to upscale but we also need to honour the wisdom of the elders. So we have a whole lot of old people in Nelson who have a lot of wisdom and skill in gardening and they went through the depression. But we also have Māori that we need to be talking to because they have nine hundred years of wisdom of how to live sustainably on this land. And we will need them. They will hopefully, in fact in a lot of ways, we will need them more than they will need us; which is an incredible cultural turn around. But you see one thing that they have that we don't have is they know how to run community. They know how to do the technology of community."

The technology of community has been neglected for a number of years as society became specialised and compartmentalised as mentioned at the beginning of this section. The transition concept seeks to re-localise and empower people to build community and support networks. However, the majority of people involved in the transition movement are predominantly working class Pākehā. Ted speculated the problem with this is the transition initiative will likely not succeed if the Māori population is not brought into the network. Due to individual disconnection from nature and survival skills, utilising elder and Māori knowledge will likely become essential if we are to become more resilient.

6.4.3 Section Synthesis

Of the case studies, Nelson and Lower Hutt noted strong creation and use of a supportive social environment. Aro Valley was still in the early awareness raising stages and was beginning to network, but had not developed networks as extensively as Nelson. These transition initiatives created a supportive social environment through discussions using open space and forums as well as networking individuals, organisations, and utilising elder and Māori knowledge. Transition Nelson had an advantage, as specific coordinators were able to support and encourage activity of group members. This role was distributed between various members in both Lower Hutt and

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20 Honouring the elders is step ten in the twelve steps of transition in the Transition Handbook (R. Hopkins, 2008).

Aro Valley. Lower Hutt steering group members were able to provide encouragement and support to various groups as each was involved with a certain group.

In conclusion, two out of the three case studies were able to provide an empowering supportive social environment for its members relatively well. This allowed for people to feel they were not alone and empowered to take action. The Aro Valley transition initiative also sought to provide this support, but was not as successful as the other two initiatives. Thus, as Lower Hutt and Nelson provided this supportive social environment, it can be inferred that the transition initiative largely does fulfil this second criteria.

6.5 Feedback & Reflection

6.5.1 Section Overview

This section will determine whether transition town case studies provide sufficient feedback and reflection for members through a thematic analysis. Feedback is the third criterion which will be utilised for evaluation of an effective intervention method for pro-environmental behaviour change in the final analysis synthesis.

6.5.2 Analysis

> "That's the question, who cares? Lots of people don't, lots of people don't see the relevance of it. We have been so attuned to the old model, the learned model of the supermarket. In 1950 I remember the supermarket… the change in the store from ordering what you needed and they got it for you from behind the counter. To shelves where you picked up what you needed and brought it to the counter."

By looking back on past social norms in food stores, Allison Hoffmann reflects on the current use of supermarkets compared to past trends of local food stores. This provides Allison a type of feedback which considers how social norms have changed from her childhood to the present. As Allison now goes to the local farmers market, she has changed her personal norm from that advocated as the popular social norm: the supermarket. Although her behaviour was not a direct result of involvement in the Aro Valley transition initiative, a feedback mechanism such as this is an important part of an intervention. Ted Howard explained how feedback works.

"Behaviour that supports the community, the environment and ecosystems to survive are honoured and the wisdom of those people that understand the need to live in ecological balance is the driving foundation of that community. So behaviour that supports the community and keeps peace in the community is honoured. And behaviour that is destructive to relationships in the community or to the environment is disallowed and if necessary publicly shamed."

Through public shaming, the community provides feedback to the individual who chose to act in a destructive manner. Ted notes that many indigenous communities possess this feedback mechanism for behaviours. Current society however, lacks this mechanism.

"Within the violent, destructive cultures, there seems to be individual pursuit of happiness, a lot of environmental destruction and warring. Behaviour that benefited the community and the environment around them was not honoured, recognised and in some cases disallowed. So there is this wisdom about the technology of community and effective community feedback mechanisms that we could have but we pretty much don't."

Ted explained what he learned from an anthropologist in the United States. Industrialised society looks very similar to the description of one which does not recognise pro-environmental behaviour as necessary. Considering the various environmental problems we are faced with, such as climate change and peak oil, this description may be fairly accurate. Transition towns try to overcome this complacency and bring people back to reality. Allison Hoffmann explains:

"Transition towns are about this too. It's about waking up, getting people to live again. People are too comfortable and don't realise what their life was about when they get to the end of it. People aren't interested in these questions."

Through the use of reflection in discussions, open space, and forums, transition town initiatives constantly adapt their methods to increase the ability to instil longer term change in people. Lower Hutt focus group members noted the transition initiative as being rather fluid in structure allowing for idea generation and the ability of the community to take appropriate action. They explained the flexibility in structure created endless possibilities of how to use resources of the community and created a behaviour setting which encouraged the re-skilling of people. One Aro Valley focus group member

noted having a productive garden encouraged her to continue her behaviour. This positive feedback from her garden is the type of reflection and feedback which is necessary for Transition Nelson as Trevor Houghton explained.

> "Yeah it's like everything we do, we start something then we review it and go okay we need to change this, this and this based on the feedback."

The fluidity of the transition model allows it to be applied to a variety of communities. However, the Aro Valley transition initiative proved to be a community where there was a lack of feedback and follow through after an event, as explained by Andrew Morrison.

> "I think it happened with the last event, the screening of 'The Power of Community'. I think the event was had, positive energy and names were gathered, but no one took on the job of following up and calling people. It isn't a glamorous job and is time consuming and I think part of the reason it happened is the general issue of capacity, time, and energy available for people to walk the walk. It's kind of an anti-climatic thing when we are like yeah we did it, but in reality we only just started."

This lack of follow through may be a major reason for the absence of recent activity in the Aro Valley transition initiative. Simply providing people with information and discussion sessions does not always provide sufficient reflection to take place. Utilising reward schemes such as Code Red initiated in Nelson, presented in the previous section, helps to give people feedback as Katy Steele explained.

> "So businesses or individuals can pledge to do things and then their names are put in a hat, and we check out the ones that there name is pulled out of the hat each month. So we don't check that everyone has done everything. We check out the ones that have got their name pulled out of the hat each month. Depending on how big the prize is, then we talk to them, interview them and then they have a chance of winning a prize."

This feedback to individuals or businesses provides incentive to make the change they pledged. How effective this method may be is yet to be determined as the incentive scheme began around the time of my data collection, and prizes were not to be awarded for a certain period of time thereafter. However, as Ted Howard previously mentioned, indigenous knowledge regarding the technology of community may be more easily

utilised and be an effective method of behaviour change which has worked throughout history for these populations.

> "The way that Derek Jensen describes it is brilliant he has had this discussion with Jeanette Armstrong, who is this Okanagan Indian. She said we've had the same crap and shit to deal with in our relationships where we live that you do. The difference is that our families are going to have to deal with these things because we know that they are going to be living together in five hundred years time. We have a whole set of conflict resolution processes and ways of being in community that sort all this out so we can live together and we can protect our environment in a sustainable way. So it's like a lot of that sort of wisdom is held in indigenous communities."

Indigenous communities may provide an avenue for which more effective feedback mechanisms could be learned. At the time of our interview, Ted Howard had ambitions to start conversations with local Iwi, but had yet to make sufficient contact. Learning of what relationships may have developed between Māori and the Transition Nelson initiative may be of future interest. However, as no such relationships existed at the time of my research, I can only speculate that creating a network from which the two communities can converse and discuss issues may become increasingly important in the future. This must be done with cultural understanding of Māori practices, processes, and traditions before a successful interaction can or should take place.

6.5.3 Section Synthesis

As transition towns provide people with opportunities for discussion and reflection with others, empowerment through feedback is attained in some instances. Aro Valley transition initiative, however, did not attain sufficient feedback and reflection for its members. Lower Hutt seems to have provided opportunities for reflection through discussions and meetings. Transition Nelson appears to have created the most ample opportunities for people to attain feedback according to their actions through the Code Red initiative as well as discussion through group interactions. One Transition Nelson member may be bringing another aspect of feedback into the group if Māori and local Iwi are contacted. However, as previously noted, this must proceed in a culturally sensitive manner. Thus, feedback and reflection may need to be increased in all of the case studies if the transition initiatives are to be effective intervention methods.

6.6 Intervention Analysis

6.6.1 Analysis Overview

In order for an intervention method to be effective it must empower people by employing three criteria. First, it must supply people involved information; second, it must offer a supportive social environment; and third, it must provide sufficient feedback and reflection. Three case studies were considered through qualitative face-to-face interviews and focus groups. Experiences from participants were coded and used in a thematic analysis to determine how each case study was using or not using the three criterions for an effective intervention method. The following section will provide a synthesis of the analysis of these case studies.

6.6.2 Analysis

Case studies considered were at different levels of development at the time of data collection. Aro Valley was fairly slow moving, Lower Hutt had a bit more energy and Nelson was quite a ways down the path of development of a transition initiative. To determine whether the three case studies were successful behaviour change intervention methods, three criteria were considered.

In the Aro Valley Transition initiative represented in Figure 11: Aro Valley Analysis, providing information was done the most through raising awareness, movie nights and presentations. There were remnants of a supportive social environment through demonstrations, discussions following movies or presentations. However, feedback and reflection was not provided sufficiently, as was noted by Aro Valley transition members in section 6.5, to be effective and contribute to an empowering intervention method.
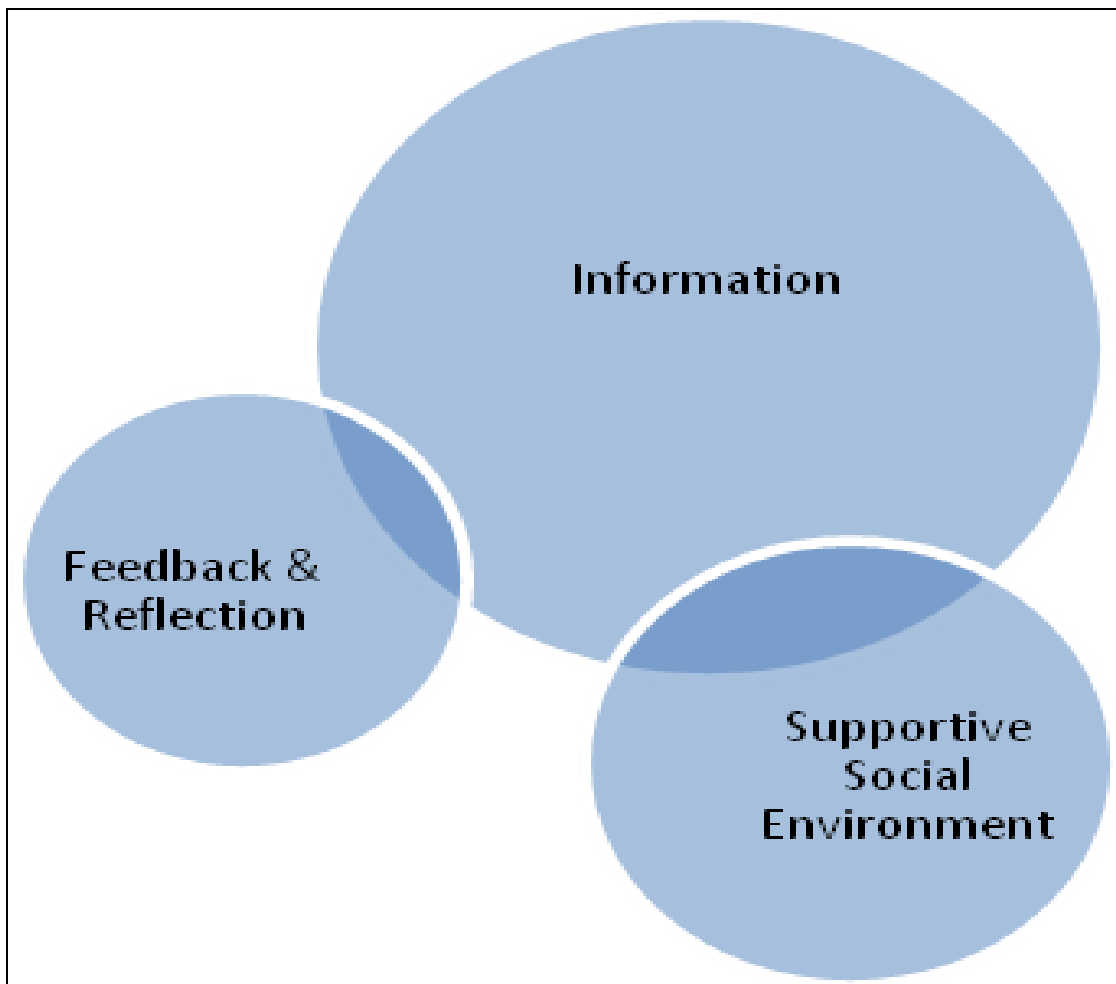
Figure 11: Aro Valley Analysis.

The Lower Hutt Transition Town was able to provide sufficient information to people through awareness raising, film events, distributing flyers, articles, and lecture series. A rather devoted member of the Lower Hutt initiative, Juanita McKenzie, provides a large portion of energy to this cause and may be a driving force for the continuing efforts. However, she is supported by other steering group members and for this reason; Lower Hutt also possesses a supportive social environment. This support, encouragement, and empowerment occur through discussions, group activities, and workshops. Networking and community building also are prevalent in Lower Hutt through initiatives such as the community garden. For these reasons the information and supportive social environment circles in Figure 12: Lower Hutt Analysis, are of similar size. However, the feedback and reflection circle is smaller due to it not being as widely utilised as the other two criteria. Overall, Lower Hutt has been a fairly successful intervention method of empowerment and behaviour change, according to participant accounts of the initiative's activities. This is represented by the three circles overlapping which is marked by I for intervention.
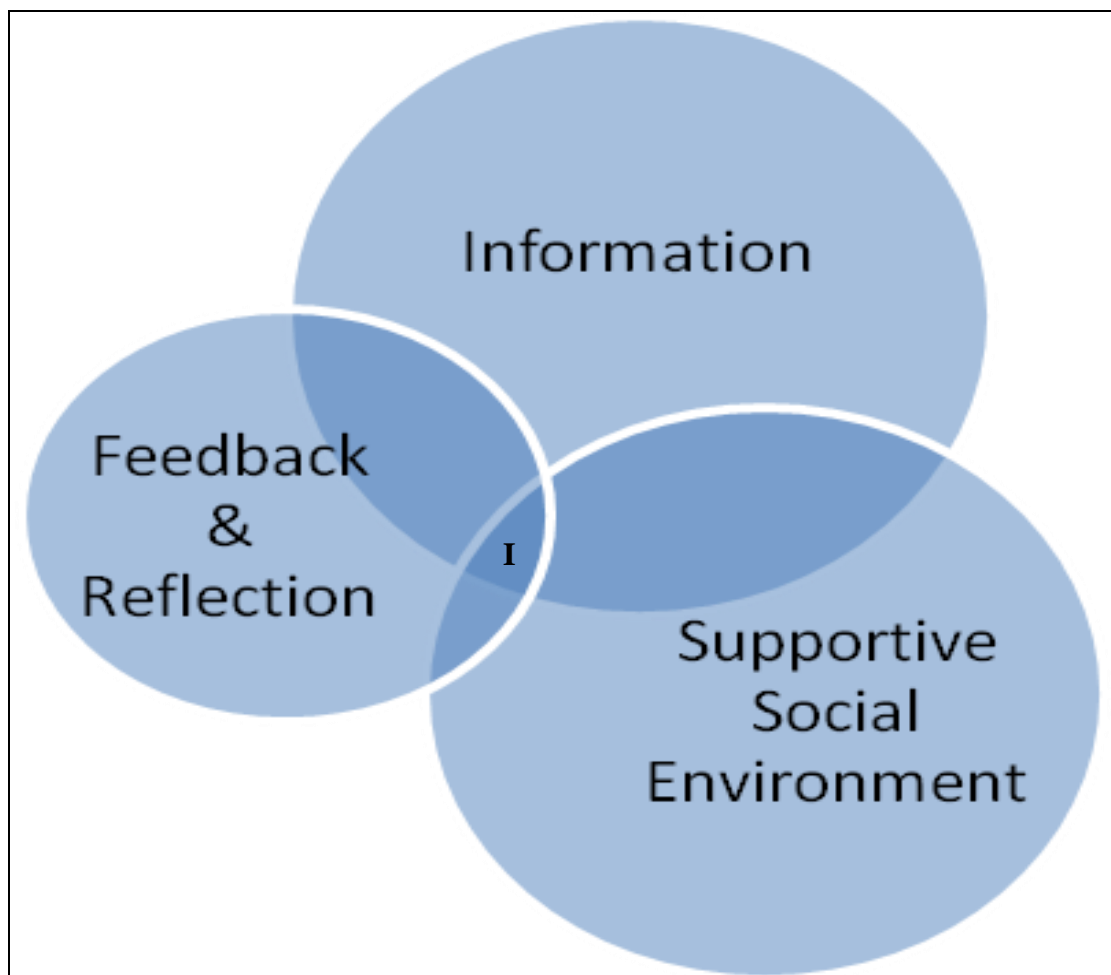
Figure 12: Lower Hutt Analysis.

Transition Nelson is the most advanced according to the intervention criteria. Raising awareness, providing information, giving presentations, demonstrations, writing articles, and organising events have been completed quite sufficiently through the employment of coordinators. The coordinators also are able to support, encourage, and empower groups because they have time and energy available to do so, unlike the other two case studies. Creating a database of members and networking people, organisations and forums are done as part of the coordinator role which is supported by other transition members. The use of coordinators also provides capacity for feedback and reflection to occur, as they can catalyse this in groups and transition members through discussions and providing direction for activities. This is however the weakest criterion in relation to being an intervention method. Suggestions for creating more effective feedback mechanisms, through the use of indigenous knowledge of the technology of community, may increase future effectiveness of Transition Nelson as an intervention method. According to the use of the three criteria, Transition Nelson is a fairly strong intervention method as represented by I in the overlapping areas of the three criteria in Figure 13: Nelson Analysis.
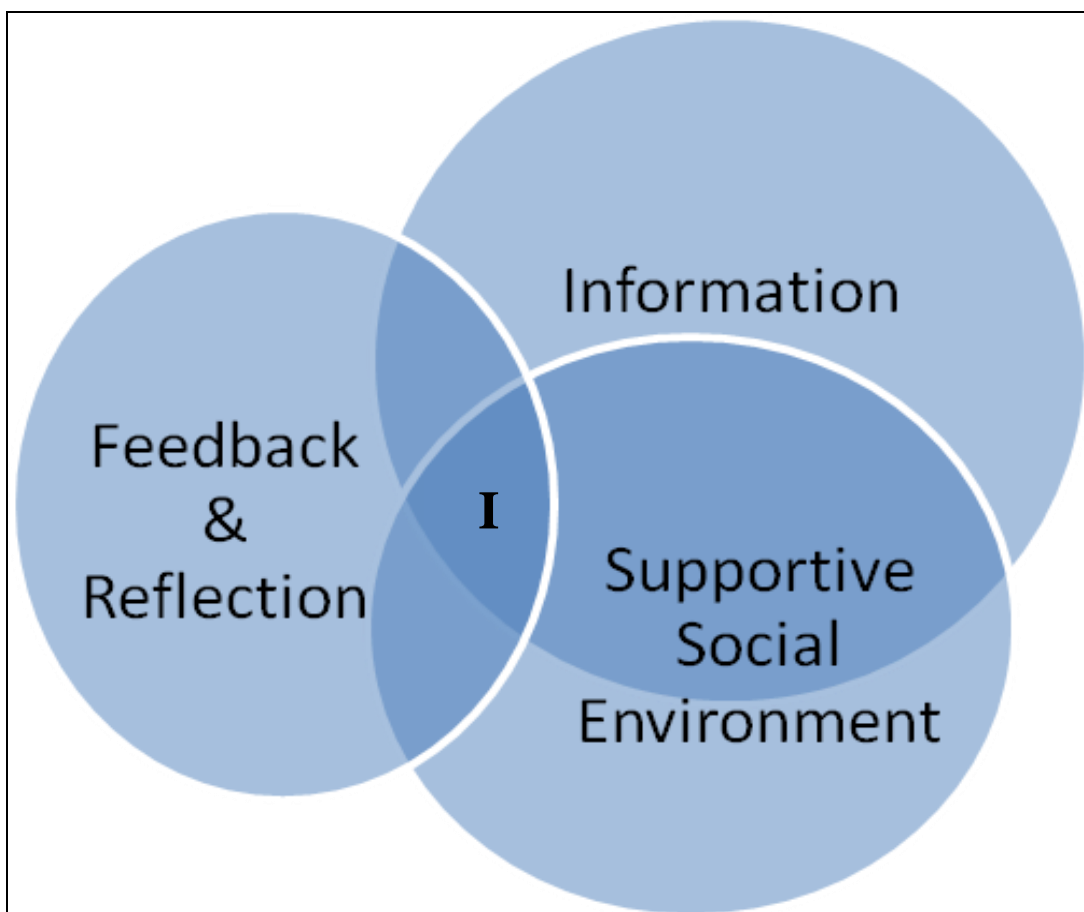
Figure 13: Nelson Analysis.

From this analysis of the three case studies it can be determined that transition town initiatives seek to utilise all three elements of a successful intervention method. However, the deployment of each is not always equal, and is dependent on participant capacity and the corresponding context. Transition initiatives may increase their effectiveness by concentrating on providing each of the three elements in concert. Utilising only one or two is not sufficient, as was apparent in the lack of empowerment of Aro Valley participants. Employing a coordinator increases the ability of the initiative to utilise each criteria, as Nelson showed. However, the use of a coordinator may not be necessary as the Lower Hutt group was able to provide all of the elements necessary without one. Support for the use of the three criteria in deploying a successful intervention can be given due to the relative success of both the Nelson and Lower Hutt transition initiatives in empowering people to change their behaviour. Thus, the intervention method is a strong and useful approach in empowering pro-environmental behaviour change according to this research.

6.7 Synthesis

This chapter provided a thematic analysis of transcripts and field notes. The following research questions were considered for each case study.

1. Do transition towns provide information to participants?
2. Do transition towns provide a supportive social network?
3. Do transition towns provide feedback and means for reflection for participants?

Each question was analysed separately in three sections 6.3-6.5. The final section, 6.6, provided a synthesis of the section analyses to evaluate case study transition initiatives and determine whether they have been effective methods of empowering pro-environmental behaviour change. This analysis will be discussed in relation to pertinent literature in the following chapter.

Chapter 7: Discussion

7.1 Introduction

7.1.1 Chapter Overview

This chapter discusses the objectives in relation to pertinent literature. Figure 14: Chapter Overview, provides an illustration of the objectives and aim of this thesis, whether transition towns encourage pro-environmental behaviour change. In this section, a brief outline of each objective will note where they have previously appeared in this thesis and what literature will be discussed. In separate sections following the introduction each objective will be considered against pertinent literature.
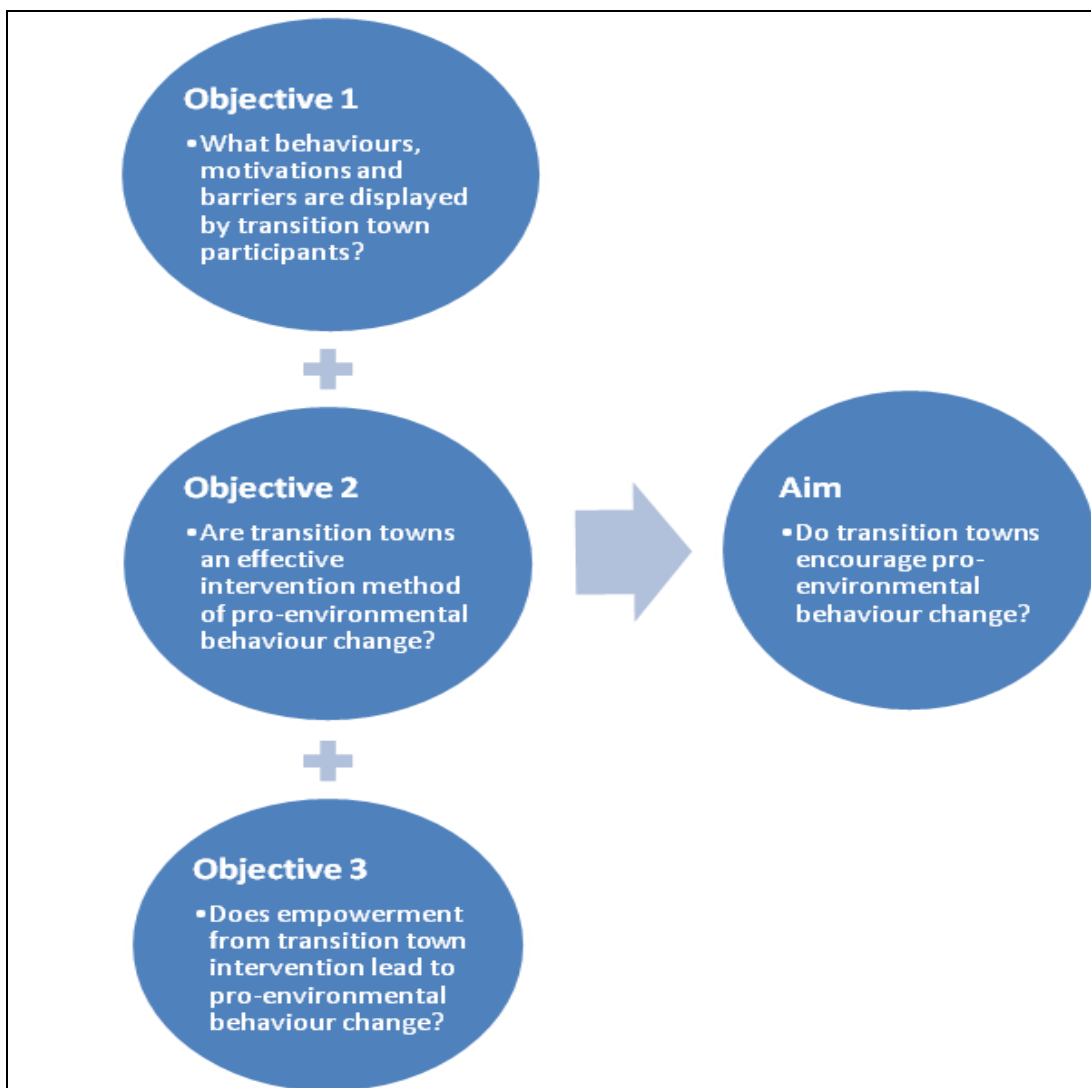
Figure 14: Chapter Overview.

7.1.2 Objective 1

Chapter five presented participant experiences of behavioural motivations, barriers, and displayed actions. These experiences were collected through qualitative, face-to-face interviews and focus groups with each case study. By gathering this information an understanding each transition town was gained. This also served to answer the first objective: what behaviours, motivations, and barriers are displayed by transition town participants? Section 7.2 will provide further discussion of participant experiences in relation to background science presented in chapter one and pertinent literature from chapter three.

7.1.3 Objective 2

From this context the second objective is able to be addressed through a thematic analysis of interviews and focus groups. In chapter six, an analysis of case studies was conducted to determine whether they are effective intervention methods of behaviour change. To be effective, three criteria outlined by Staats et al (2004) were to be upheld; providing participants information, a supportive social environment, and feedback. The level at which these three criteria were exhibited in the case studies was determined by participant experiences noted in the interviews and focus groups. Section 7.3 will consider the thematic analysis conducted against intervention, pro-environmental behaviour, and behaviour change literature which were presented in Chapter 3, Literature Review.

7.1.4 Objective 3

By determining each case study's effectiveness an understanding of whether they were able to empower people to change their behaviour can be achieved. This step will be discussed further in section 7.4, to determine whether the case studies encourage pro-environmental behaviour change. Each case study exhibited intervention criteria to varying degrees and thus will likely empower its participants in different ways. Considering the analysis conducted in chapter six against empowerment literature will allow for an understanding of levels of empowerment attained by transition town members. From this we can begin to understand to what degree transition towns empower people to change their behaviour to be pro-environmental.

7.1.5 Aim

The final section of the discussion chapter will provide a synthesis of ideas to answer the aim of this thesis. Do transition towns encourage pro-environmental behaviour change?

From this summary an understanding of how transition towns encourage pro-environmental behaviour can be attained. Major findings will be highlighted as well. The following conclusion chapter will consider methodologies used, bias, and possible limitations in research discovered. Likely avenues of future research and how this research can guide transition town communities will also be investigated.

7.2 Objective 1 - Motivations, Barriers & Behaviours

7.2.1 Discussion

> "Where I think if you're looking at change I think it is a really important thing to consider that it is not just information that creates a change in people. Often it is about connecting people with our feelings. You get that when you watch a movie about peak oil. It kind of kicks the stuffing out of most people. Most people walk away, if they don't have a chance… That's why I say you need to get to people's hearts and into their guts. Where they see this is real, this is my life. I don't know where the food in my bowl even came from. They start to look at their life and it gets to be a bit more personal."

For many of the transition town participants, similar to Andrew Morrison, learning about peak oil and climate change created an emotional response. Participants noted an increased motivation to spread information and raise awareness about the issues. Often people are overcome with fear, helplessness and denial when confronted with these problems (Oskamp, 2002).

> "I had a motivation because I looked at the material, I got scared, I got angry, umm… and I thought there's got to be some way I can make a contribution."

These feelings expressed by Andrew Morrison, often paralyse action and cause people to turn away from the problem. They allow other barriers such as time and money to stand in the way of changing to pro-environmental behaviour. Members of the Aro Valley transition initiative noted the lack of time available to volunteer to run meetings

and raise awareness. Much of their troubles were due to a low number of core group members to distribute the work load. The Lower Hutt transition initiative more effectively distributed these roles and continues to run meetings and raise awareness. Transition Nelson has employed coordinators to facilitate and encourage group participant activities which reduce the need for volunteer hours. Of these groups, Transition Nelson, being further along in its intervention development, as noted in Chapter 6, Data Analysis, notably benefited from the coordinators ability to raise awareness and encourage group activity.

Nonetheless, transition town participants became motivated by this material, not because it shocked them into action, but because it was presented in a manner which allows for ingenuity and creativity to be fostered. Through open space and discussion sessions facilitated by transition town initiatives, participants are allowed to interact with others who have similar concerns[21]. Participants tended to hold a broad, ecocentric (Nordlund & Garvill, 2002) worldview introduced in Chapter 3, Literature Review, as Katy Steele expressed.

> "My motivation is so deeply ingrained in me now that I find it hard to remember what actually motivated me. But it was an awareness when I was seventeen that the world couldn't continue the way it was; degrading the environment and using up non-renewable resources to grow the economy exponentially. My motivation has been that I fundamentally believe the environment is a living being."

Participants, such as Katy Steele, from Transition Nelson note that they had previously had environmental concern from sources other than transition towns. Nordlund and Garvill (2002) found that ecocentric people tended to be more aware of their surrounding environment and communities, were more concerned with environmental problems, and more likely to be motivated towards pro-environmental behaviour (Steg & Vlek, 2008). Case study participant characteristics were observed to be similar to this ecocentric description.

Learning of environmental problems, such as peak oil, climate change, and participating in transition town discussions led to decreased feelings of isolation which in turn

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21 See Chapter 1, Introduction, section 1.2.3, Terms & Definitions for open space definition.

facilitated action. Transition towns provide social support for participants, creating feelings of belonging and community while counteracting isolation. Many of the participants noted they wanted to change their behaviour to pro-environmental for future generations, their children, and society, as well as for self-interest. Values and concern expressed by participants is consistent with the ecocentric worldview previously mentioned. Pierrehumbert (2006) noted the intergenerational dimension of climate change which Kathy Houghton also emphasised as pertinent to her values.

> "My motivation is that my five year old in twenty years time doesn't turn around and say you trashed the place, you know you didn't do anything. It's a huge motivator, this is his future, he is only five, he is going to live through this next period of time when there are going to be so many changes. That we did our best with our values and what we actually believe. Living with integrity of our values is really important to us."

Along with future generations, participants noted the importance of re-connecting to community, Pākehā and Māori elders, and finding a sense of purpose as previously mentioned. Andrew Morrison explained how transition initiatives are trying to re-create this connection that has been weak or lacking in many communities.

> "I think that is something, transition towns are trying to connect people from the industrialised society, because we have the symptoms the worst. To help people to re-indigenise themselves; to have a sense of place, a sense of community, a sense of purpose; convening and belonging; and hav[ing] a world view that helps them have a deep sense of relatedness and a sense that they are part of something worthwhile. That they can contribute through small actions and make a difference."

Re-building community and social networks provides a supportive environment which people can belong. Building this network not only breaks down barriers of time and money but motivates action and empowers people. As Peterson and Zimmerman (2004, p. 129) explain Rappaport (1987) and Solomon's (1976) findings,

> "Empowerment is an active, participatory process through which individuals, organizations, and communities gain greater control, efficacy, and social justice."

Psychological empowerment (Peterson et al., 2006; Zimmerman, 1990a, 1995; Zimmerman et al., 1992; Zimmerman & Rappaport, 1988) is an important contributing motivation for pro-environmental behaviour as expressed by case study participants[22]. Participants, such as Ted Howard, noted the incredible opportunities the environmental situation provided rather than the inconveniences.

> "So we have this enormous danger coming at us, but at the same time fabulous opportunities opening up for doing things differently that would make a huge difference for our community and environment."

This optimistic thinking is promoted by the transition town initiatives through encouraging people to get involved in group activities, providing information, and support for action. Education and information helps people to understand why and how they need to change (De Young, 1993), and often influences environmental concern and attitudes (P. Stern, 2005; C. Wilson & Dowlatabadi, 2007). As Juanita McKenzie expressed,

> "If you give people the chance to learn about it and understand it, they will be able to understand why we need to change."

Highlighting environmentally destructive behaviour makes people face their cultural assumptions about acceptable practice. These cultural assumptions are shaped by social and personal norms, as explained in Chapter 3, Literature Review. Norms are socially constructed beliefs about how people should behave in situations, reinforced by threats of sanctions or rewards (J. Thøgersen, 2006). Informing people of their environmentally destructive behaviour does not always provide enough motivation to create an actual change. However, lack of knowledge regarding the destructive behaviour can be a barrier to action as well (Schultz, 1998).

The personalisation of environmental problems such as peak oil and climate change brings people to see their significance. Evidence presented in Chapter 1, Introduction, and reiterated here provides an understanding of this significance. The IPCC reported that about eighty per cent of the global increase of CO_2 concentrations between 1970 and 2004 is due to anthropogenic activities forcing unnatural levels of CO_2 into the

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22 See Chapter 1, Introduction, section 1.2.3, Terms & Definitions for a definition of psychological empowerment.

atmosphere (IPCC 2007a). This unnatural increase of CO_2 has likely influenced sea level rise, contributed to increased storm intensity, increased temperature extremes and likely contributed to heat waves and drought according the IPCC *Climate Change 2007: Synthesis Report; Summary for Policymakers* (IPCC, 2007a).

> "Driving a car, using electric power, buying anything whose manufacture or transport consumes energy – all those activities generate greenhouse gases that contribute to climate change. In that way, what we each do for our own benefit harms others" (Broome, 2008, p. 1).

Broome (2008) highlighted various human activities which emit greenhouse gases, contributing to climate change. Making participants aware of their environmentally significant behaviour brings forth understanding of the effects they have on their surrounding environment. Environmentally significant behaviour here refers to what Paul Stern (2005) describes as personal, private-sphere, environmentally significant behaviour. It is,

> "…the purchase, use and disposal of personal and household products that have environmental impact" (P. Stern, 2005, p. 10786).

Aro Valley, Lower Hutt, and Nelson participants explained that awareness raising activities by transition town initiatives provided information about these environmental problems. The Stern Review noted increasing energy efficiency, as well as adopting technologies which do not produce emissions for power, transport, and heating, could contribute to cutting emissions (S. N. Stern, 2006). Many of these actions are encouraged through transition town awareness raising and group activities. Various actions participants expressed include:

- Creating community gardens
- Riding bicycles
- Taking public transport
- Walking
- Limiting trips by car
- Growing their own food
- Installing solar hot water heaters
- Using LED lights
- Insulating their house more efficiently
- Using less energy
- Reusing and reducing material possessions
- Going to the farmer's market

- Creating a local trade in their communities
- Changing their careers

These actions decrease emissions and fossil fuel usage as well as being straightforward solutions individuals can employ.

The world is dependent on fossil fuels, such as oil, for 80% of its energy (IEA, 2008a, 2008b). As Chapter 1, Introduction stressed, this is a problem due to fossil fuels being finite resources. Hirsch (2005, p. 12) emphasised that,

> "If large quantities of new oil are not discovered and brought into production somewhere in the world, then world oil production will no longer satisfy demand. That point is called the peaking of world conventional oil production."

Oil discovery and production peaking has implications for various areas, notably transportation and food. According to Hirsch (2005) the world consumes about fifty five percent of oil in the transportation sector. The industrialised food system is largely dependent on oil as well.

> "Without fuel-fed tractors and petroleum-based fertilizers, pesticides, and herbicides, it is questionable whether crop yields can be maintained at current levels" (Heinberg, 2005, p. 477).

Making people aware of how reliant they are on the industrialised food system is increasingly important with the possibility of losing cheap oil. Matt Savinar, a California lawyer expressed his frustration with people's ignorance regarding peak oil.

> "I bet that once we get within a few years of oil production peaking you'll see the U.S. invade the last large deposits. Oh wait, that already happened. You'll see rising food prices. Oh wait, that already happened. You'll see sky rocketing oil prices. Oh wait, that already happened. If you imagine your worst nightmare, we're right on track for that to come true. Just look at the news" (Kirby & Campbell, 2008, p. 4).

With these looming problems, fear is often instilled in people rather than hope and possible action. However, motivating people to change by inducing fear is commonly unsuccessful, as Stern (2005, p. 10789) noted,

> "Fear appeals can lead to constructive action, but can also lead people to

minimize or ignore problems. Generally, adaptive coping is most likely to occur when threats are perceived to be severe and personal and when cost-effective responses are known and available."

The transition town seeks to increase people's awareness of these environmental problems by triggering personal motivations and psychological empowerment. This is not done through instilling fear into people, but awareness of the problems, providing possible solutions, and a supportive social environment. As Vaclav Smil (2006) re-emphasises what Ted Howard previously stated, we should consider these looming changes as opportunities, rather than inhibiting factors.

7.2.2 Synthesis

This section presented participant motivations, barriers, and behaviours in relation to science and pertinent literature. Case study participants possessed an ecocentric worldview which allowed them to have a wide set of values and concern for the environment. As Nordlund & Garvill (2002) noted, those who were ecocentric tended to display pro-environmental behaviour more readily as previously mentioned. This finding is congruent with transition town participants as they noted their values of future generations, society, the environment, as well as of self-interest.

Awareness of environmental problems, such as peak oil and climate change, as presented in the discussion instilled fear and anger into many of the participants. Andrew Morrison and Juanita McKenzie noted this was overcome as they became involved in the transition initiative. Aro Valley transition town participants were not able to make the needed behaviour changes to pro-environmental due to time and money constraints (Jackson, 2005). Other motivational factors that may have contributed but were not directly addressed include attitudes, norms, and habits. For instance changing behaviour tends to make people confront norms and habits such as going to the supermarket. Those able to make the changes displayed a wide variety of pro-environmental behaviours from creating community gardens, using public transport, and riding a bicycle to using LED lights, solar hot water heating and insulating their houses to be more energy efficient. These actions were facilitated by transition town involvement which allowed for people to become empowered and gain a sense of control over their situation.

The following section will provide a discussion of whether transition towns are an effective intervention method. This will be done through comparison of the data analysis in chapter six to pro-environmental behaviour, behaviour change, and intervention literature.

7.3 Objective 2 - Transition Towns an Effective Intervention

7.3.1 Defining an Effective Intervention

An intervention is

> "…any regulation, policy, program, measure, activity, or event that aims to influence behavior" (C. Wilson & Dowlatabadi, 2007, p. 170).

According to Taylor and Allen (2006) the most effective behaviour change interventions include setting goals, reflection, a behavioural contract, encouraging action, and providing feedback. They also explain that providing information, explaining consequences of actions, and providing examples to others were the most frequently used intervention methods (Taylor & Allen, 2006). The least effective methods included inducing fear and regret into participants (Taylor & Allen, 2006). As was noted in the previous section, fear in conjunction with involvement of the transition initiative catalysed action in participants.

Chapter 6, Data Analysis, sought to determine whether transition towns are an effective intervention method of pro-environmental behaviour. Staats et al (2004) brought forth three intervention strategies which should be employed together to induce the most effective intervention. This three part intervention was argued by De Young (1996) and Geller et al (1990) and re-iterated by Staats et al (2004): providing information, feedback, and a supportive social environment.

In comparison to Taylor and Allen's (2006) list of effective behaviour change strategies, providing information, although the most frequently used, provides a starting point to raise awareness. Providing feedback was noted as one of the most effective strategies, while providing a supportive social environment was not explicitly detailed, but is a construct of reflection, encouraging action and providing examples to others. This combination of strategies is argued by De Young (1996) to produce long-term, self-sustaining pro-environmental behaviour change.

> "We raise awareness within the community about the big changes climate change and peak oil will bring, and connect people who want to take action locally."

Trevor Houghton, coordinator of Transition Nelson explained what transition towns seek to do within the local community. Similar to other information strategies, the initiative raises awareness of environmental problems such as peak oil and climate change, as previously mentioned in section two, but also provides easy steps people can take. Kathy and Trevor Houghton explained further what their role as coordinators are, which is also what the transition initiative tries to accomplish.

> "So when transition towns first start, one of the key things is to raise awareness. And this is what we call the general public, the pre-contemplative stage, they don't know what climate change or peak oil is. This is a whole series of events or promotional material we do whether it's events, being movies, presentations, speakers, articles in the newspaper or on the radio, flyers, brochures, booklets. And then we have displays, which we might do. We just had one at the library, at the environmental film festival, EcoShow and Code Red."

Awareness raising and distributing information to the community is a time consuming job that can be inhibiting if there are not enough volunteers, or there is no one employed. This was apparent in the Aro Valley transition initiative as there were not enough people in the core group to keep the awareness raising efforts up. The Lower Hutt initiative was doing fairly well, due to Juanita McKenzie being devoted to the task with the support of other core group members.

> "That was the motivation where I understood that was what I was passionate about. Some people were passionate about gardens or transport issues. My motivation was that I get the information out there for people to be exposed and learn about the material."

It seems having someone designated to complete this task is necessary to effectively disseminate information over a long period of time. Without this, groups such as Aro Valley, have participants who run out of energy and excitement as Allison Hoffmann noted. Katy Steele described the benefit of having a core group of people who were paid

to take on the task of raising awareness.

> "It certainly helps having people who can keep the groups together, keep the information flowing, newsletters, articles into the media. Awareness raising; which a small group of people can only do so much of before they get burned out. So it's pretty handy having a core funded group of people."

Although information can influence people's attitudes and environmental concern, it has been found to have limited effectiveness on its own and can increase a sense of helplessness (Corbett, 2005; Kaplan, 2000). According to Midden et al (1983), raising awareness and providing information can be utilised most effectively by supporting other intervention methods, such as feedback. Lehman and Geller (2004, p. 18) go on to emphasize this point:

> "Education and information have often been combined with other intervention components, and they have generally focused on the positive environmental impacts or personal savings achievable by increasing pro-environmental behaviors."

Transition towns provide information as well as demonstrate practical steps people can take. One initiative started by Transition Nelson, Code Red as previously mentioned, provided a base for transition groups to show people how to garden or build a solar oven. The community received these efforts well and expressed their desire for this practical information as Katy Steele explained.

> "A lot of people said they liked that it was very much what you could do, it was practical actions really. It meant the launch was very much about practical actions and what you can do as an individual."

Providing people information and easy steps gave them a sense of control over their situation. As presented in Chapter 3, Literature Review, one's perceived behavioural control helps predict intention and behaviour (Armitage & Conner, 2001). Informational strategies commonly target motivational factors such as attitudes, values, norms, and perceived control (Steg & Vlek, 2008). The previous section highlighted motivations expressed by participants including ecocentric values and empowerment. However, these motivational factors are more effective when deployed in concert with other intervention strategies, as previously mentioned and noted by Staats et al (2004).

7.3.3 Feedback

> "Yeah it's like everything we do, we start something then we review it and go
> okay we need to change this, this and this based on the feedback."

Trevor Houghton explained the reflection and feedback Transition Nelson employs to make sure the initiative is providing an appropriate intervention for their community. Feedback from transition town members regarding information techniques shapes the information strategy to the community's needs. As noted in Chapter 6, Data Analysis, the transition model allows for fluidity of the initiative (R. Hopkins, 2008). According to Stern (2005, p. 10790),

> "Research shows that the best way to change such behaviors depends on the
> behavior and its context and that interventions in the context are often more
> effective than directly targeting individuals with verbal appeals, information, or
> efforts to change attitudes or beliefs."

Without the feedback mechanism, the transition initiative is less successful due to an inability to change to community demands. Adjusting the transition concept to the relevant community context is pertinent to its success and is done most effectively through feedback mechanisms. Andrew Morrison noted the lack of feedback in the Aro Valley transition initiative to participants.

> "I think it happened with the last event, the screening of *The Power of
> Community*. I think the event was had, positive energy and names were gathered,
> but no one took on the job of following up and calling people. It isn't a
> glamorous job and is time consuming and I think part of the reason it happened
> is the general issue of capacity, time and energy available for people to walk the
> walk. It's kind of an anti-climatic thing when we are like yeah we did it, but in
> reality we only just started."

The reality of this situation was Aro Valley lacked enough core group members to provide this feedback. Lower Hutt, having a larger core group, was able to give this feedback. Transition Nelson was able to provide the most feedback due to the employment of Kathy and Trevor Houghton. Their job is to raise awareness, provide feedback, and support to groups members. Trevor and Kathy provide feedback to groups for activities they could be doing, and to encourage further activity. In many

ways the transition initiative is seeking to provide community feedback to encourage pro-environmental behaviour and discourage environmentally destructive behaviour. Ted Howard explains how community feedback works.

> "Behaviour that supports the community, the environment and ecosystems to survive are honoured and the wisdom of those people that understand the need to live in ecological balance is the driving foundation of that community. So behaviour that supports the community and keeps peace in the community is honoured. And behaviour that is destructive to relationships in the community or to the environment is disallowed, and if necessary, publicly shamed."

Transition towns hope to re-localise people to re-build community structures and useful feedback mechanisms such as that mentioned. A community feedback mechanism may provide a means for encouraging good behaviour. As Lehman and Geller (2004, p. 21) note,

> "A feedback strategy involves providing information to participants about their environment-relevant behaviors. Such data make the consequences of behavior (e.g., money spent, environmental degradation or protection) more salient, and increase the likelihood of behavior change corresponding with the consequences."

Similar to Lehman and Geller (2004), Schultz (1998) also noted the usefulness of feedback to encourage behaviour change. Staats et al (2004, p. 344) predicted an increased

> "…sense of individual and collective efficacy (Bandura 1977)…"

as well as,

> "…appeals to social and personal norms (Schultz, 1998)"

which may occur when feedback is given. However, Staats et al (2004) also explains that information and feedback interventions have not been able to establish long term behavioural change. This inability to induce longevity of change is why the third condition previously expressed in the text by De Young (1996) and Geller (2002), is needed.

7.3.4 Supportive Social Environment

Providing a supportive social environment occurs through group discussions and interaction (Staats et al., 2004). Social support as an intervention method is not documented well, but is held by De Young (1996) and Geller (2002) as well as Staats et al (2004) as an important component of the three part intervention method they prescribe. As Andrew Morrison previously expressed in the second section of this chapter, transition towns seek to connect people to give them a sense of belonging and community.

> "So to a certain degree what I think of Transition Nelson is basically trying to very quietly bring in a tribal network of interconnectedness that says there is a good chance that this is all going to hit the wall and it may hit the wall fast and we may not be ready for it but we've at least started to get networks of control, not control but of support."

Ted Howard explained how creating a supportive social environment and networking with existing organisations will be increasingly important to survive in a localised situation. The transition initiative seeks to network with community organisations to avoid replicating existing efforts and build relationships to extend its influence. It also provides social support to its participants to encourage pro-environmental behaviour. As Steg and Vlek (2008, p. 5) explain,

> "…social support and role models can be provided to strengthen social norms, and to inform actors about the perceptions, efficacy and behaviour of others. Modelling and providing information about the behaviour of others appeared to be successful in supporting pro-environmental behaviour."

Social support serves as an additional motivation to change as well as continued behaviour. This helps to reinforce the need to make the change and to empower people to do so. Transition towns provide this encouragement and attempts to model pro-environmental behaviour through group activity and demonstrations. Juanita McKenzie explained how the transition town groups provide this social support.

> "If you are worrying about this stuff by yourself, you feel alone. That's where the group is so good. That is exactly why transition towns are important because you are getting together with the same sorts of people that you can discuss and

help them along. So you can understand how things are. And as the transition town model says, you can get together and talk about these things that are so huge and life changing. But because you are focusing on things you can do, I always look forward to going to the meetings and talking about the end of the world as we know it. We are always thinking of what we can do next to create an event and help each other to be creative."

Transition town groups provide encouragement, practical actions people can take, as well as reducing feelings of isolation. This isolation is diminished by giving people a place to discuss their concerns with other like-minded individuals, as Juanita explained. Transition initiatives give people the opportunity to talk about environmental concerns, foster creativity, and empower action.

7.3.5 Synthesis

This section provided a discussion of the second objective, which was addressed in Chapter 6, Data Analysis. Through a thematic analysis, the previous chapter considered whether transition towns are an effective intervention method of behaviour change. Transition towns were compared against three criteria: providing information, feedback, and a supportive social environment. As the literature noted, providing information tends to be the most frequently used intervention method but is not successful when disseminated on its own. Transition town case studies all sought to raise awareness; however Aro Valley was not as successful as the other two case studies due to a low number of core group members to spread information.

Feedback was noted as an intervention method that is very effective. Again, literature showed it was more effective when in concert with other techniques. Transition Nelson was able to provide the most feedback through the employment of coordinators, Trevor and Kathy Houghton. They were able to provide feedback to group members as well as utilise feedback from participants to tailor their efforts to the community context. Aro Valley participants noted the lack of feedback in certain instances, which noticeably reduced continued participation from community members.

Providing a supportive social environment was the third criterion for a successful intervention method, as noted by Staats et al (2004), De Young (1996) and Geller (2002). Transition Nelson was again able to provide this most effectively due to the

employment of coordinators. Lower Hutt transition town also was able to provide a supportive social environment through a large number of core group members. This support is extended through networking other community organisations. Transition participants are also provided social support through group discussions where they can converse with like-minded individuals.

As each case study displayed varying levels of each criterion, it is difficult to say whether transition towns are an effective intervention method. Depending on the context and people involved, the transition concept can be very effective at changing behaviour, as was the case in Nelson. However, in cases such as Aro Valley, behaviour change was not facilitated as much due to a lack of feedback. Lower Hutt displayed the three criteria as well; however it was not as developed as Transition Nelson. Therefore, the case studies exhibited a variety of levels of effectiveness. Case studies which employed the three criteria were more successful in facilitating pro-environmental behaviour change. Hence, from the data analysis and comparison to literature, it can be inferred that utilising the three criteria creates an effective intervention method. Transition towns which employ these criteria tend to be more successful than those which do not.

The following section will address the third objective, whether transition towns empower people to change their behaviour to pro-environmental. The discussion of transition town effectiveness will be considered in relation to empowerment, pro-environmental behaviour, and behaviour change literature. The final section of this chapter will address the aim of this thesis: do transition towns encourage pro-environmental behaviour change?

7.4 Objective 3 – Transition Towns & Empowerment

7.4.1 Defining Empowerment and Environmentally Significant Behaviour

> "…empowerment is a multi-dimensional social process that helps people gain control over their own lives" (Page & Czuba, 1999, p. 4).

The transition initiative seeks to empower action at the community and individual level. As the case studies expressed in chapter five and section two of this chapter, raising awareness gives people an understanding of the environmental problems: climate change and peak oil. Providing people information regarding these problems builds

awareness of behaviours which are environmentally significant. This thesis considers the personal, private-sphere environmentally significant behaviour as previously expressed in section two; which includes;

> "…the purchase, use, and disposal of personal and household products that have environmental impact" (P. Stern, 2005, p. 10786).

How transition towns empower people to change their behaviour to pro-environmental is the third objective. It is worth noting that pro-environmental behaviour and environmentally significant behaviour are of close relation. For clarity Bamberg and Möser (2007, p. 15) provide a description of pro-environmental behaviour, which was presented in Chapter 1, Introduction.

> "Pro-environmental behaviour is probably best viewed as a mixture of self-interest (e.g., to pursue a strategy that minimises one's own health risk) and of concern for other people, the next generation, other species, or whole ecosystems (e.g., preventing air pollution that may cause risks for others' health and/or the global climate."

Through qualitative, face-to-face interviews and focus groups, an understanding of participant experiences in relation to transition towns provided insight to what behaviours had changed due to involvement with the transition initiative. These experiences were presented in chapter five, followed by an analysis of the gathered experiences in chapter six. A thematic analysis provided a basis for comparison against effective intervention criteria, presented by Staats et al (2004), De Young (1996) and Geller (2002). Each of these was previously discussed in sections two and three of this chapter respectively.

This section will consider whether the case study transition towns empowered people to change their behaviour. By considering participants pro-environmental behaviour and the intervention methods used by the transition initiative in each case study against pro-environmental behaviour, behaviour change and empowerment literature, an understanding of whether empowerment was facilitated, can be gained. The following section will provide this insight.

7.4.2 Empowering Action

Actions displayed by participants were presented earlier in this chapter in section two.

To bring them to the forefront they will be listed once more for the reader's ease.

- Creating community gardens
- Riding bicycles
- Taking public transport
- Walking
- Limiting trips by car
- Growing their own food
- Installing solar hot water heaters
- Using LED lights
- Insulating their house more efficiently
- Using less energy
- Reusing and reducing material possessions
- Going to the farmer's market
- Creating a local trade in their communities
- Changing their careers

Each of these behaviours can be considered to be an environmentally significant behaviour, as they seek to reduce CO_2 emission through limiting car use or using public transport, to being more conscious of the amount of energy they use. The reduction in emissions is important, as noted in section two and Chapter 1, Introduction by various literary sources (Barrett, 2006; Campbell, 2008; IPCC, 2007a; Kellstedt, Zahran, & Vedlitz, 2008; S. N. Stern, 2006). Through awareness raising activities, the transition initiative attempts to disseminate information regarding the need to reduce emissions and energy consumption, as well as promote pro-environmental behaviours. As Trevor and Kathy Houghton explained to a newspaper writer,

> "Transition Nelson is about reducing carbon emissions and becoming less dependent on fossil fuels like oil, gas and coal," they told me. "We raise awareness within the community about the big changes climate change and peak oil will bring, and connect people who want to take action locally" (Copeland, 2009, p. 16).

In each of the case studies, raising awareness was an important first step as it mobilised people to be able to change (Swift & Levin, 1987). Swift and Levin (1987) explained that if people feel they have control over their lives, they will likely not attempt to change their behaviour. Transition town initiatives provide information regarding environmental problems to raise awareness of the need to change environmentally destructive behaviours. However, without giving people examples of what they can do and a supportive social environment, providing information can be debilitating and

isolating. Andrew Morrison expressed his feelings in response to information regarding peak oil.

> "I had a motivation because I looked at the material, I got scared, and I got angry. You get that when you watch a movie about peak oil. It kind of kicks the stuffing out of most people, most people walk away."

As previously discussed in section two, due to participant's ecocentric worldview they were more apt to channel this negativity into action. However, this was aided by the other intervention methods, providing social support and feedback. Using multiple interventions in concert often increases behaviour change efficacy according to Wilson and Dowlatabadi (2007). The Lower Hutt transition initiative was able to provide this support and feedback in meetings and discussion sessions. Speer and Hughey (1995) emphasise reflecting on emotional reactions to information and environmentally significant behaviours facilitates individual empowerment. Juanita McKenzie described the benefit of having these social structures and spaces for reflection.

> "If you are worrying about this stuff by yourself, you feel alone. That's where the group is so good. That is exactly why transition towns are important because you are getting together with the same sorts of people that you can discuss and help them along. So you can understand how things are. And as the transition town model says, you can get together and talk about these things that are so huge and life changing. But because you are focusing on things you can do, I always look forward to going to meetings and talking about the end of the world as we know it. We are always thinking of what we can do next to create an event and help each other to be creative."

This social support provides a space for discussion, allowing participants to feel their opinion is valid and important. A sense of community is also developed, as noted by Andrew Morrison in Chapter 6, Data Analysis. Marc Zimmerman (1990a, p. 171) explained the importance of sense of community:

> "They found that sense of community had a direct effect on one's level of involvement in a neighbourhood association and it has an even stronger effect on constructs that are directly linked to empowerment – environmental perception and perceived control. This is consistent with Maton and Rappaport's

(1984) finding that sense of community was associated with individual empowerment for members of a religious organization."

Both Juanita McKenzie and Andrew Morrison described this community of support which created a sense of control and empowerment. The transition concept was created with psychological considerations of behavioural motivations such as perceived control and empowerment. The sixth transition town principle notes using psychological insights as important to facilitating behaviour change. Rob Hopkins (2008, p. 142) describes what the transition concept attempts to do:

> "The Transition model uses these insights firstly through the creation of a positive vision (see Principle I, p.141), secondly by creating safe spaces where people can talk, digest and feel how these issues affect them, and thirdly by affirming the steps and actions that people have taken, and by designing into the process as many opportunities to celebrate success as possible."

Taylor and Allen (2006) noted that giving people the opportunity to reflect on issues and encouraging action were among the most effective behaviour change strategies, as previously mentioned in section three. Allowing transition town participants to participate in awareness raising activities and discussions provided means for empowerment. Zimmerman and Rappaport (1988) suggest becoming involved in community decisions can create a sense of psychological empowerment, as mentioned in section two (Peterson et al., 2006; Zimmerman, 1990a, 1995; Zimmerman et al., 1992; Zimmerman & Rappaport, 1988).

As Rappaport (1987) explained, setting up an intervention in concert with the local community and providing opportunities for people to participate, empowers people while networking other organisations, community members, and resources. Case study transition initiative structures were adopted from Rob Hopkins' (2008) transition concept, but have been altered to fit the community context. It is a flexible model allowing for variations to be instigated to utilise community resources as well as empowering action.

In the Nelson transition initiative easy steps for people to take were provided through demonstrations and social events such as the unleashing of Code Red. According to Oskamp (2002), demonstrating practical steps provides a sense of empowerment as it

removes behavioural barriers such as helplessness, denial, and fear.

> "A lot of people said they liked that it was very much what you could do, it was practical actions really. It meant the launch was very much about practical actions and what you can do as an individual."

Katy Steele explained that people who attended Code Red enjoyed learning about things they could do as an individual. Gaining a sense that they could actually do something to combat climate change provided this empowerment. Often people are also empowered as they become involved in collective action as Oskamp (2002, p. 180) goes on to explain:

> "Cooperative activity toward common goals builds group cohesiveness and helps to overcome the obstacles of inertia, selfishness, helplessness, and fear. Such organized activity can sometimes be remarkably effective in changing public policies, and it is also important in building a motivational sense of collective efficacy that will empower people toward greater pro-environmental efforts."

This feeling of collective efficacy and empowerment was expressed by Juanita McKenzie as noted earlier in this section. She expressed her decreased feeling of isolation and excitement with being involved in a group which fosters creativity and empowers action. The social support afforded by transition town activities empowered Juanita to feel as though she could make a difference. Rhys Taylor (2005) emphasised that a supportive social environment enables long-term behaviour change to be instilled. Social support is important on a number of levels, enabling long-term change, reflection, reducing feelings of isolation, and providing people a sense of group efficacy through empowerment (Peterson & Zimmerman, 2004).

> "Empowerment-oriented interventions enhance wellness while they also aim to ameliorate problems, provide opportunities for participants to develop knowledge and skills, and engage professionals as collaborators instead of authoritative experts" (Perkins & Zimmerman, 1995, p. 570).

Although the transition concept and case studies were not specifically created with empowerment as an objective they have exhibited qualities of being able to perform this task.

7.4.3 Synthesis

This section provided a discussion of the third objective: do transition towns empower pro-environmental behaviour change. Looking back to the analysis conducted in chapter six provides an understanding of whether case study transition towns were effective intervention methods. Three criteria were employed to determine effectiveness as supported by Staats et al (2004), De Young (1996) and Geller (2002). To consider whether case studies empowered pro-environmental action, the criteria were examined through participant experiences. These experiences were compared to pro-environmental behaviour, behaviour change, and empowerment literature to determine whether empowerment had occurred.

Participants exhibited a large number of pro-environmental behaviours which were presented at the beginning of this section. One of the first actions transition towns take is to raise awareness around the environmental problems of peak oil and climate change as was noted by Kathy and Trevor Houghton. This brings the urgency and seriousness of the problems to people's attention (Swift & Levin, 1987). Intervention methods, however, are noted to be more effective in conjunction with other methods (C. Wilson & Dowlatabadi, 2007). Case studies, as was determined in Chapter 6, Data Analysis, employed three intervention methods: providing information, feedback, and a supportive social environment. Each of the case studies was able to deploy the three methods to varying degrees.

Nelson and Lower Hutt transition initiatives provided a supportive social environment that decreased feelings of isolation while increasing perceived control. A supportive social environment also allowed participants the ability to reflect on environmental problems and create possible solutions. In this way, participants felt their voice was important and were empowered to take action. Taylor and Allen (2006) noted reflection and encouraging action as some of the most effective intervention methods of behaviour change. Transition town case studies also attempted to provide a sense of community, as was expressed by Andrew Morrison of the Aro Valley transition initiative. Being part of a community reduces peoples' feelings of isolation and hopelessness and increases empowerment, according to Oskamp (2002).

Overall, transition town case studies empowered people to pro-environmental action through the use of supportive social environments, information, and feedback.

Determining which intervention method provided the most empowerment could only be done through speculation. When considering participant experiences, it is apparent that many felt empowered by the supportive social environment which was deployed. This empowerment often led to pro-environmental behaviour, but was supported by practical steps being provided, and reflection to be conducted. Therefore, it can be concluded that empowerment in case study participants led to pro-environmental behaviour when each of the criteria were utilised in concert. This must be considered in context as many of the participants held an ecocentric worldview prior to involvement in transition town initiatives.

7.5 Synthesis

7.5.1 Aim – Do transition towns encourage pro-environmental behaviour change?

Transition town case studies employed the three criteria for an effective intervention noted by Staats et al (2004) as providing information, feedback, and a supportive social environment. Case studies were able to do this to varying degrees, depending on those involved and the context. Feelings of empowerment were expressed by participants of transition initiatives which employed the criteria. For a large majority of the participants this empowerment led to pro-environmental behaviour change.

However, as this study gathered participant experiences through face-to-face qualitative interviews, the degree of empowerment and association to pro-environmental behaviour change can only be reported as was expressed by participants. Many of the participants held an ecocentric worldview prior to involvement with the transition town initiative and were prone to performing pro-environmental behaviours.

Thus, the level of influence transition towns had on encouraging pro-environmental behaviour cannot be accurately determined. It can be concluded that practical behaviour change steps and a supportive social environment provided by transition towns did encourage further pro-environmental behaviour change[23].

7.5.2 Chapter Overview

This chapter discussed objectives in relation to pertinent literature presented in previous

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23 See Appendix C for a Summary for Participants.

chapters. Section two presented objective one in relation to science from chapter one and literature from chapter three. Behavioural motivations, barriers, and displayed behaviours were considered in this section to provide an understanding of transition town participant experiences. Section three revisited objective two to determine whether transition towns are an effective intervention method of pro-environmental behaviour change. Participant experiences of three criteria, providing information, feedback, and a supportive social environment were compared to various literary sources.

The fourth section sought to answer objective three, does empowerment from transition town intervention lead to pro-environmental behaviour change? Again participant experiences of the three criteria for an effective intervention method were considered. These were compared to pro-environmental behaviour, behaviour change, and empowerment literature. The final section provided a discussion of the aim of this thesis; do transition towns encourage pro-environmental behaviour change? This was completed by considering findings from the previous three sections and pertinent literature.

Chapter 8, Conclusion, will end this thesis with a summary of findings, the appropriateness of methodologies, limitations of the research, and recommendations.

Chapter 8: Conclusion

8.1 Introduction

This chapter will conclude the thesis. The second section will provide a brief discussion of the appropriateness of methodologies used, which were introduced in the Chapter 4, Methodology. Re-visiting the aim and objectives in section three will synthesise pertinent findings and emphasise their significance in the context of climate change, peak oil, and New Zealand transition initiatives. Figure 15: Aim and Objectives, presents the aims and objectives which were discussed in depth in Chapter 7, Discussion, and will be re-emphasised in section three. The final section of the chapter will provide recommendations based on the findings of this research.
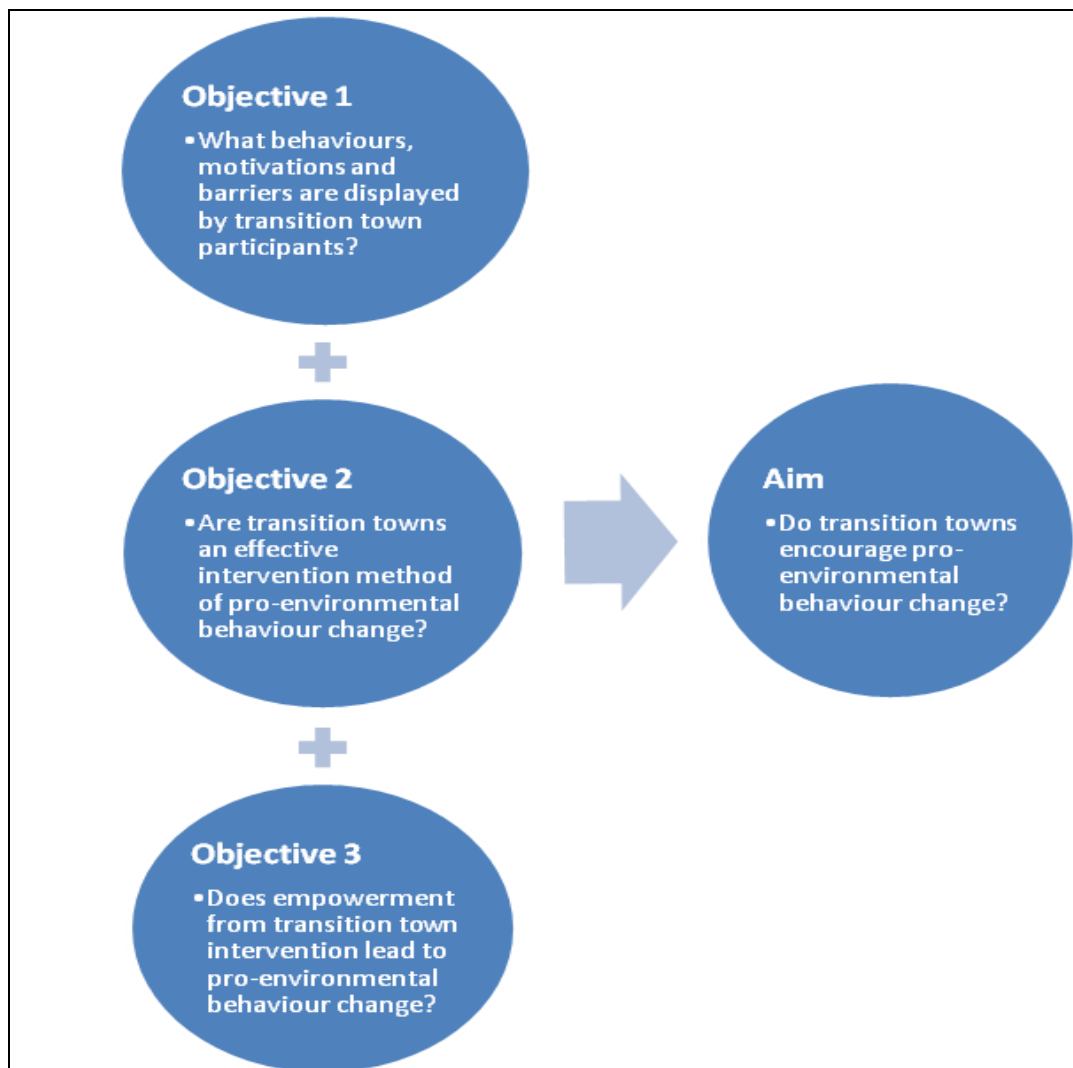

Figure 15: Aim and Objectives.

8.2 Appropriateness of Methodology

8.2.1 Methodologies Used & Appropriateness

A literature review set the context of this thesis to appreciate the relevance of studying transition towns and behaviour change science. Reviewing literature was important to explore relevant epistemologies: climate change, peak oil, pro-environmental behaviour, empowerment, and behaviour change. A literature review presented in chapter three, provided a basis from which to compare research findings in Chapter 7, Discussion. Chapter seven considered participant experiences in relation to pertinent literature to answer research objectives and the aim of this thesis as presented in Figure 15: Aim and Objectives.

This thesis is based on qualitative research conducted through face-to-face informal interviews and focus groups. From three case studies, Aro Valley, Lower Hutt, and Nelson, nine interviews and two focus groups were conducted, voice recorded, and transcribed. The informal structure of interviews and focus groups provided a relaxed atmosphere where participants were more receptive to questions and discussion with other participants.

Transcriptions and field notes of participant experiences presented in Chapter 5, Data Presentation, provided a basis from which a thematic analysis could be conducted in Chapter 6, Data Analysis (Aronson, 1994; Tolich & Davidson, 1999). To evaluate transition town case studies, the data was coded based on three criteria: information, feedback, and a supportive social environment (De Young, 1996; Geller et al., 1990; Staats et al., 2004). The evaluation helped to verify whether the case studies were effective intervention methods of pro-environmental behaviour change (Taylor & Allen, 2006).

Case study narrative employed in the data presentation, analysis, and discussion chapters, provided an understanding of the variability of participant experiences in relation to contextual factors (Braun & Clarke, 2006; Yin, 1989). Determining the effectiveness of transition town case studies helped decipher if they were able to empower participants to change their behaviour to pro-environmental (S.; Bamberg & Möser, 2007; Page & Czuba, 1999).

8.2.2 Weaknesses

As there were only nine interviews and two focus groups conducted, a possible weakness of methodologies used may be the small sample size. However, the experiences portrayed by participants were very useful and relevant in addressing each of the objectives. Even though there were a limited number of participants, a substantial amount of information was gathered concerning their involvement with transition initiatives.

Section three will provide an understanding of where this research fits in the broader scientific context of climate change, peak oil and New Zealand transition initiatives.

8.3 Findings

8.3.1 What does this research tell us?

Transition town participants exhibited a number of pro-environmental behaviours from growing their own food, walking, and installing solar hot water heaters to insulating their houses more efficiently, using less energy, and going to the local farmer's market. Participants expressed their motivations, barriers, and environmentally significant behaviours through interviews and focus groups, presented in Chapter 5, Data Presentation. Many of the participants noted motivational factors such as their values of society, their children, the future, as well as self-interest. A large majority of participants held an ecocentric worldview which allowed them to channel negativity from the media around climate change and peak oil to positive action encouraged by the transition initiatives.

A thematic analysis of participant experiences showed that transition initiatives successfully encouraged pro-environmental behaviour through the use of three intervention strategies. As De Young (1996), Geller et al (1990) and Staats et al (2004) emphasised, providing information, feedback, and a supportive social environment are pertinent to deploying an effective intervention.

Nelson and Lower Hutt case studies were more successful than Aro Valley at employing all three strategies, which was reflective in the level of development and participation. Transition Nelson's coordinators were able to employ all three intervention strategies because they were paid to facilitate them. Comparatively, in Lower Hutt, a core group

was able to raise awareness, provide a supportive social environment, as well as feedback. This was at a lower level than Nelson due to participant limitations of time and money. These restrictions were also reflective in Aro Valley and were more inhibiting because of the smaller number of core group members.

Success levels were also determined based on the case study's ability to empower people to change their behaviour to pro-environmental. Nelson and Lower Hutt case studies were able to employ all three intervention criteria and empower participants more effectively. This was evident in the experiences expressed by participants in chapters five, six, and seven. When a supportive social environment was provided, participants noted decreased feelings of isolation and increased feelings of perceived control. This perceived control, or empowerment, was due to the transition initiative providing information about environmental problems and practical steps participants could take as a response. The supportive social environment also gave people the feeling that their thoughts and voices were important. Taylor and Allen (2006) determined reflection and encouragement strategies, such as those utilised by transition towns, are among the most effective intervention methods of behaviour change.

Empowering pro-environmental behaviour change occurred in transition town case studies through the use of information, feedback, and a supportive social environment. Participants which held an ecocentric worldview were positively affected by climate change and peak oil information. Instead of allowing paralysis to occur, they were motivated to take action and change their behaviour.

8.3.2 Why is this important?

The changes transition town participants achieved was due to the imminence of climate change and peak oil. The estimated world annual death toll due to climate change according to the World Health Organization (WHO), beginning in the year 2000 was as high as 150,000 people (Broome, 2008). According to Stern (2006), climate change will probably affect many basic elements of survival for people such as hunger, water shortages, and coastal flooding (IPCC, 2007a). In 2006, CO_2 emissions were estimated to be 430 ppm (parts per million) and are rising 2 ppm each year (S. N. Stern, 2006). If stabilisation is to occur, emissions must be reduced by 80% below current levels (S. N. Stern, 2006). New Zealand contributes less than 1% of global emissions according to the Ministry for the Environment (2007). However, the nation's CO_2 has also increased

from 324 ppm in 1970 to 379 ppm in 2006 (MfE, 2007).

With these predictions and evidence presented by the Intergovernmental Panel on Climate Change (IPCC) (2007a), Stern (2006), and the Ministry for the Environment (2007), encouraging communities to become more resilient for coming changes will become increasingly important. New Zealand can make an impact through behavioural changes such as those demonstrated by transition initiative participants. According to the IPCC (2007a, p. 19),

> "Delayed emission reductions significantly constrain the opportunities to achieve lower stabilisation levels and increase the risk of more severe climate change impacts."

Hence, even as New Zealand emits a fraction of global emissions, there is no indication from the IPCC that inaction is appropriate.

One of the main culprits of CO_2 emissions is the burning of fossil fuels in industrialised nations (Hansen, 2008). This is significant due to the world's dependence on fossil fuels for eighty percent of total primary energy in 2006 (IEA, 2008a, 2008b). This infatuation is disconcerting due to the predicted peak of oil reserves, leading to increasing oil prices and the necessity for different energy sources, as was previously mentioned in Chapter 1, Introduction (Heinberg, 2008; Hirsch et al., 2005; Holland, 2008). However, as one participant noted, climate change and the peaking of oil should be seen as an opportunity to creatively respond, adapt, and do things differently rather than a basis for inaction and paralysis (Smil, 2006).

Climate change and peak oil are major problems in the environmental field. A large amount of scientific attention has been afforded to the study of these to gain insights. Transition towns offer an intervention method which seeks to change behaviours to be more pro-environmental and reduce emissions due to the necessity presented by climate change and peak oil science.

> "A wide array of adaptation options is available, but more extensive adaptation than is currently occurring is required to reduce vulnerability to climate change" (IPCC, 2007a, p. 14).

For that reason, studying transition towns to consider how they function and motivate people is pertinent and vital to advance possible adaptation techniques for a future with

a changing climate.

8.3.3 Limitations

This thesis provided insights to transition town participant experiences to determine whether they were encouraged and empowered to change their behaviour to pro-environmental. Participants were members of the core groups in each of the case studies and were inclined to an ecocentric worldview prior to their involvement with transition towns. Empowering these people to change their behaviour was facilitated through involvement with the transition initiative. Although the intervention strategies employed by the case study transition towns were effective, caution must be taken when applying the same techniques to other contexts with people who may not already possess an ecocentric worldview.

The scale of transition initiatives may also be an inhibiting factor. Having enough people to facilitate the intervention methods may be a limitation if the transition initiative is attempting to be applied to a large community. Due to the amount of volunteer hours needed to support the transition initiative, a smaller community would likely be easier to empower.

8.4 Recommendations

New Zealand transition towns are still very new and much is to be learned about how they function and influence communities and individuals. Continuing research will provide suggested improvements for the transition model's ability to facilitate behaviour change. Much can be learned from the first transition initiatives, Kinsale and Totnes, as they have experimented with various approaches for promoting pro-environmental behaviour and resiliency.

Utilising transition towns as an intervention method which empowers people to change their behaviour to pro-environmental will continue to be useful in the wake of climate change and peak oil. In this study, participants changed their behaviour to pro-environmental more willingly once they felt empowered from transition initiatives. Hence, transition towns may find it useful to focus on empowering individual behaviour change in communities through the use of information, feedback, and a supportive social environment.

Community research may also find engaging in transition initiatives valuable, as case study interventions have been successful in initiating re-localisation and building community through networking. The furtherance of research discourse around transition towns in the environmental studies programme and related fields should also continue so that a greater appreciation of transition town, empowerment, intervention, and behaviour change processes can be attained.

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Appendix A

Permaculture Principles

David Holmgren's Permaculture Principles

(adapted from *Permaculture: principles and pathways beyond sustainability*)

The Transition concept
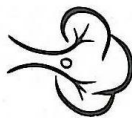
1. Observe and Interact

The power of good observation is something not many of us have, and detailed observation of where we are will underpin any actions we undertake. A post-peak world will depend on detailed observation and good design rather than energy-intensive solutions.
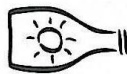
2. Catch and Store Energy

Energy passes through our natural systems, and is stored in a variety of ways, in water, trees, plants, soils, seeds and so on. We need to become skilled at making best use of these, and move our idea of 'capital' from what we have in the bank, to the resources we have around us. I once heard Holmgren say that a good woodpile, such as you would see in Eastern Europe, is a far more reasonable indicator of national wealth than GDP.

3. Obtain a Yield

This principle states that any intervention we make in a system, any changes we make or elements we introduce ought to be productive, e.g. productive trees in public places, edible roof gardens, or urban edible landscaping.

4. Apply Self-regulation and Accept Feedback

A well-designed system using permaculture principles should be able to self-regulate, and require the minimum of intervention and maintenance, like a woodland ecosystem, which requires no weeding, fertiliser or pest control.

5. Use and Value Renewable Resources and Services

Where nature can perform particular functions, be it aerating soil (worms), fixing nitrogen(clover) or building soil (trees) we should utilise these attributes, rather than thinking we can replace them. Where nature can take some work off our hands we should let it.

6. Produce No Waste

The concept of waste is essentially a reflection of poor design. Every output from one system could become the input to another system. We need to think cyclically rather than in linear systems.
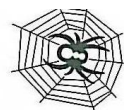
7. Design from Patterns to Details

We need to be able to keep looking at our work from a range of perspectives. This principle argues that we need to see our work in the wider context of watershed, regional economy and so on, so as to keep a clearer sense of the wider canvas on which we are painting, and the forces that affect what we are doing.
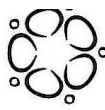
8. Integrate Rather Than Segregate

Permaculture has been described as the science of maximising beneficial relationships. In a powered-down settlement, what will become increasingly important is the relationships that we can weave between different elements of the place (a principle demonstrated in Tool 5, p.101). Solutions are to be found in integrated wholistic solutions rather than increased specialisation and compartmentalisation.

9. Use Small and Slow Solutions

This principle represents the core argument of this book, that, as Holmgren puts it, "systems should be designed to perform functions at the smallest scale that is practical and energy-efficient for that function." Our solutions will be based on the principle that the smaller and more intensive they can be, the more resilient they will be.

10. Use and Value Diversity

Monocultures are incredibly fragile and prone to disease and pests, more diverse systems have much more inbuilt resilience. Our towns will be much more able to prosper during energy descent if they have a diversity of small businesses, local currencies, food sources, energy sources and so on than if they are just dependent on centralised systems, globalisation's version of monoculture.

11. Use Edges and Value the Marginal

One of the observations used a lot in permaculture is the idea of 'edge', that at the point where two ecosystems meet is often more productive than either of those systems on their own. This principle reminds us of the need to overlap systems where possible so as to maximise their potential.

12. Creatively Use and Respond to Change

Natural systems are constantly in flux, evolving and growing. The way they respond to shock, such as forest fires, can teach us a great deal about how we might manage the transition away from fossil fuels. Remaining observant of the changes around you, and not fixing onto the idea that anything around you is fixed or permanent will help too.

Appendix B

B.1 Ethical Approval

TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI

VICTORIA
UNIVERSITY OF WELLINGTON

MEMORANDUM

Phone   0-4-463 5676

Fax   0-4-463 5209

TO	Jessica Rudningen
COPY TO	Dr Jessica Hutchings
FROM	Dr Allison Kirkman, Convener, Human Ethics Committee

DATE	October 14, 2008
PAGES	1

SUBJECT	**Ethics Approval: No 15908, Transition Towns: a tool for creating pro-environmental behaviour.**

Thank you for your application for ethical approval, which has now been considered by the Standing Committee of the Human Ethics Committee.

Your application has been approved from the above date and this approval continues until 1 July 2009. If your data collection is not completed by this date you should apply to the Human Ethics Committee for an extension to this approval.

Best wishes with the research.

Allison Kirkman

Convener

B.2 Consent Form

VICTORIA
UNIVERSITY OF WELLINGTON

TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI

Master's Thesis Research Project:
"Transition Towns a tool for creating pro-environmental behaviour."

INFORMED CONSENT FORM

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Introduction
The Victoria University of Wellington Human Ethics Committee, which has approved this research project, requires that all research involve Participants who are: 1) fully informed about the nature of the research; and 2) consent to participate. This "Informed Consent Form" has been designed in accordance with these requirements, to inform all Participants about the nature of the project and their participation in it. It is meant to ensure that research Participants and their communities are protected from any harm potentially arising from their participation in the research process.

Purpose of the Study
This study, for my master's thesis, is intended to answer the following question:
•Do the techniques used by transition towns facilitate pro-environmental behaviour within communities, if so, which ones and how?
Please also see the attached 'Information Sheet'

Research Format
Qualitative field research will be undertaken by interviewing a variety of Participants or conducting a focus group in selected Case Study Transition Towns. Participants will be asked to take part in an informal interview or focus group (type will be specified upon contact with the Researcher), at a time and place that suits them. Participants are asked to consent to either: 1) provide their knowledge in an interview regarding the success of transition town techniques within the initiative they are involved, or 2) discuss the research question defined above in a focus group that will allow for lively debate regarding successful and unsuccessful techniques that have created a space for more community members to get involved and act pro-environmental. Questions are not of a personal nature. Each interview will last approximately an hour, each focus group will not exceed two hours.

VICTORIA
UNIVERSITY OF WELLINGTON

Please circle one

1. I agree to an audio recorded interview with Jessica Rudningen   Y / N

2. I agree that my real name can be used in publications or other outputs. Y / N

If "no", please answer **3.** If "yes", please skip to **4.**

3. I would like to be identified as (please circle one):

An 'official' from the organisation I represent, a letter code, or Other (please specify): _____

4. I understand that I will have an opportunity to correct how my contribution is represented, and will be able to provide any corrections by reviewing the draft data collection chapter.   Y / N

5. I understand that the data I provide will not be used for any other purpose than described in the 'Information Sheet' or released to others without written consent.

Y / N

6. I would like to receive a summary of the results of this research when it is completed.   Y / N

If yes, My address is:

My email is:

Participant:
**I have read and understood the information sheet and have all my questions related to my participation in this research answered to my satisfaction.

Name: _____Date: _____

Signature:_____

Researcher:
I certify that this form and its attached "Information Sheet" cover letter provide a complete and accurate description of the aims and processes of this research project.

Jessica Rae Rudningen   Date:

B.3 Information Sheet for Focus Groups

VICTORIA
UNIVERSITY OF WELLINGTON

TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI

Master's Thesis Research Project:
"Transition Towns a tool for creating pro-environmental behaviour."

PARTICIPANT INFORMATION SHEET FOR FOCUS GROUPS

2008-2009

Researcher: Jessica Rudningen, BA
Telephone: 04 973 9272
Mobile: 027 339 8944
Supervisor: Dr. Jessica Hutchings
04 380 0625
J.V.Hutchings@massey.ac.nz
Email: jess_rudningen@hotmail.com
School of Geography, Environment and Earth Sciences (SGEES)
Victoria University of Wellington
Office 101
PO BOX 600
Wellington 6140
(04) 463-5337

Dear Project Participant,

You are being asked to take part in a focus group for my master's thesis at Victoria University of Wellington. The project will investigate the techniques used in transition towns to facilitate pro-environmental behaviour in community members. The key words and phrases underlying this research include: transition towns, peak oil, climate change, behaviour change and pro-environmental behaviour. The study will answer the following major question:

Do the techniques used by transition towns facilitate pro-environmental behaviour within communities, if so, which ones and how?

The study will use a variety of research methods including a literature review, qualitative interviews and focus groups. This project has attained ethical approval by Victoria University of Wellington. I am inviting you to participate in this focus group that will not exceed more than two hours.

Confidentiality
At the beginning of the focus group session, you will be asked in clear, non-technical language whether you wish your identity to remain confidential. I will explain in detail how the results of the research may be used, including the potential for publication in the public domain, in the form of academic papers in peer reviewed journals or presentations at conferences. The Informed Consent Form (attached) will ask you whether you require confidentiality or not, and how you wish to identify yourself in the research. If you require confidentiality you will be referred to as Participant #, or in any other way you request (see #3. on the Informed Consent Form).

No names will appear on the transcripts. A letter-number code will be assigned to each focus group respondent, and only this code, or other title specified by you, will appear in the published results (unless confidentiality is waived as described above). The real names associated with the codes will be kept securely by me, and never made public without the permission of the individual(s) involved.

Storage and Disposal of Data
Access to the written and electronic material will be restricted to my supervisor and myself. All written material will be kept in a locked file, and all electronic material will be password protected. At the conclusion of the research, any focus group material, or similar will be destroyed and the audio recordings of the focus groups will be electronically wiped.

The results collected will be reported in my thesis, and will be potentially presented in academic journals and conferences. The thesis will be submitted for marking to the School of Geography, Environment and Earth Sciences, Victoria University of Wellington.

Right of Withdrawal
During the course of the focus groups, you will have the right to withdraw from the focus group or decline to answer any question(s) at any time. You may request that the transcript of your focus group be destroyed and not used in the study. You must inform me of your withdrawal no more than 2-3 weeks after the date of the focus group.

Provision of Feedback
You have the right to check how your input is represented, and will be able to provide any corrections by reviewing the draft data collection chapter.

Community Access to Research Results
In order to ensure that the results of this research project are accessible to the participants, a summary of the completed research output will be available. You may request it by circling 'Yes' in Question 7 of the 'Informed Consent Form' (attached), or on later request (by email to jess_rudningen@hotmail.com with "Transition Town Focus Group" as subject line). Furthermore, copies of the completed research output will be available from the School of Geography, Environment and Earth Sciences Library, and in the Victoria University of Wellington electronic database of theses.

If you have any other questions about this project, please feel free to ask me now, or contact me, or my supervisor Dr. Jessica Hutchings later, from the contact details provided on the first page of this sheet.

Thank you for participating!
Sincerely,

Jessica Rudningen

B.4 Information Sheet for Interviews

TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI

VICTORIA
UNIVERSITY OF WELLINGTON

Master's Thesis Research Project:
"Transition Towns a tool for creating pro-environmental behaviour."

PARTICIPANT INFORMATION SHEET FOR INTERVIEWS

August, 2008

Researcher: Jessica Rudningen, BA
Telephone: 04 973 9272
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Supervisor: Dr. Jessica Hutchings
        04 380 0625
        J.V.Hutchings@massey.ac.nz
Email: jess_rudningen@hotmail.com
School of Geography, Environment and Earth Sciences (SGEES)
Victoria University of Wellington
Office 101
PO BOX 600
Wellington 6140
(04) 463-5337

Dear Project Participant,

You are being asked to take part in an interview for my master's thesis at Victoria University of Wellington. The project will investigate the techniques used in transition towns to facilitate pro-environmental behaviour in community members. The key words and phrases underlying this research include: transition towns, peak oil, climate change, behaviour change and pro-environmental behaviour. The study will answer the following major question:

Do the techniques used by transition towns facilitate pro-environmental behaviour within communities, if so, which ones and how?

The study will use a variety of research methods including a literature review, qualitative interviews and focus groups. This project has attained ethical approval by Victoria University of Wellington. I am inviting you to participate in this interview that will not exceed more than two hours.

Confidentiality
At the beginning of the interview, you will be asked in clear, non-technical language whether you wish your identity to remain confidential. I will explain in detail how the results of the research may be used, including the potential for publication in the public domain, in the form of academic papers in peer reviewed journals or presentations at conferences. The Informed Consent Form (attached) will ask you whether you require confidentiality or not, and how you wish to identify
yourself in the research. If you require confidentiality you will be referred to as Participant #, or in any other way you request (see #3. on the Informed Consent Form).

No names will appear on the transcripts. A letter-number code will be assigned to each interview respondent, and only this code, or other title specified by you, will appear in the published results (unless confidentiality is waived as described above). The real names associated with the codes will be kept securely by me, and never made public without the permission of the individual(s) involved.

Storage and Disposal of Data
Access to the written and electronic material will be restricted to my supervisor and myself. All written material will be kept in a locked file, and all electronic material will be password protected. At the conclusion of the research, any interview material, or similar will be destroyed and the audio recordings of the interviews will be electronically wiped.

The results collected will be reported in my thesis, and will be potentially presented in academic journals and conferences. The thesis will be submitted for marking to the School of Geography, Environment and Earth Sciences, Victoria University of Wellington.

Right of Withdrawal
During the course of the interviews, you will have the right to withdraw from the interview or decline to answer any question(s) at any time. You may request that the transcript of your interview be destroyed and not used in the study. You must inform me of your withdrawal no more than 2-3 weeks after the date of the interview.

Provision of Feedback
You have the right to check how your input is represented, and will be able to provide any corrections by reviewing the draft data collection chapter.

Community Access to Research Results
In order to ensure that the results of this research project are accessible to the participants, a summary of the completed research output will be available. You may request it by circling 'Yes' in Question 7 of the 'Informed Consent Form' (attached), or on later request (by email to jess_rudningen@hotmail.com with "Transition Town Interview" as subject line). Furthermore, copies of the completed research output will be available from the School of Geography, Environment and Earth Sciences Library, and in the Victoria University of Wellington electronic database of theses.

If you have any other questions about this project, please feel free to ask me now, or contact me, or my supervisor Dr. Jessica Hutchings later, from the contact details provided on the first page of this sheet.

Thank you for participating!

Sincerely,

Jessica Rudningen

Appendix C

Summary for Participants

Transition Towns: An Intervention Method for Encouraging Pro-environmental Behaviour Change

By: Jessica Rudningen, BA

Introduction

The transition concept was developed by Rob Hopkins to provide a guide to relocalise and make more resilient communities in response to threats imposed by climate change and peak oil. New Zealand's transition movement is still relatively new. However, there are seven official transition towns that have been created: Waiheke Island, Kapiti, Opotiki Coast, Orewa, Whanganui, Brooklyn, and Nelson (NZTT, 2008a, 2008b). The New Zealand communities of Aro Valley, Lower Hutt, and Nelson are the case studies in this thesis.

Project Description

This Masters of Environmental Studies thesis followed methods of qualitative research, as the aim of this research is to determine how effective the techniques used by transition towns are in facilitating pro-environmental behaviour. By using interviews and focus groups, the motivations of pro-environmental behaviours were explored.

Findings

Transition town participants exhibited a number of pro-environmental behaviours from growing their own food, walking and installing solar hot water heaters to insulating their houses more efficiently, using less energy and going to the farmer's market. Participants expressed their motivations, barriers and environmentally significant behaviours through interviews and focus groups. Many of the participants noted motivational factors such as their values of society, their children, the future as well as self-interest. A large majority of participants held an ecocentric worldview which allowed them to channel negativity from the media around climate change and peak oil to action encouraged by the transition initiatives.

A thematic analysis of participant experiences showed that transition initiatives successfully encouraged pro-environmental behaviour through the use of three intervention strategies: providing information, feedback and a supportive social environment.

Nelson and Lower Hutt case studies were more successful than Aro Valley at employing all three strategies which was reflective in the level of development and participation. Transition Nelson's coordinators were able to employ all three intervention strategies because they were paid to facilitate them. Comparatively, in Lower Hutt, a core group was able to raise awareness, provide a supportive social environment as well as feedback. This was at a lower level than Nelson due to participant limitations of time and money. These restrictions were also reflective in Aro Valley and were more inhibiting because of the smaller number of core group members.

Success levels were also determined based on the case study's ability to empower people to change their behaviour to pro-environmental. Nelson and Lower Hutt case studies were able to employ all three intervention criteria and empower participants more effectively. When a supportive social environment was provided, participants noted decreased feelings of isolation and increased feelings of perceived control. This perceived control or empowerment was due to the transition initiative providing information about environmental problems and practical steps participants could take as a response. The supportive social environment also gave people the feeling that their thoughts and voices were important.

Empowering pro-environmental behaviour change occurred in transition town case studies through the use of information, feedback and a supportive social environment. Participants which held an ecocentric worldview were positively affected by climate change and peak oil information. Instead of allowing paralysis to occur, they were motivated to take action and change their behaviour.

Why is this important?

The changes transition town participants achieved was due to the imminence of climate change and peak oil. The estimated world annual death toll due to climate change according to the World Health Organization (WHO) beginning in the year 2000 was as high as 150,000 people (Broome, 2008).

According to Stern (2006), climate change will probably affect many basic elements of survival for people such as hunger, water shortages and coastal flooding (IPCC, 2007a). In 2006, CO_2 emissions were estimated to be 430 ppm (parts per million) and are rising 2 ppm each year (Stern, 2006). If stabilisation is to occur, emissions must be reduced by 80% below current levels (Stern, 2006).

New Zealand contributes less than 1% of global emissions according to the Ministry for the Environment (2007). However, the nation's CO_2 has also increased from 324 ppm in 1970 to 379 ppm in 2006 (MfE, 2007).

With these predictions and evidence presented by the IPCC (2007a), Stern (2006) and the Ministry for the Environment (2007), encouraging communities to become more resilient for coming changes will become increasingly important. New Zealand can make an impact through behavioural changes such as those demonstrated by transition initiative participants. According to the IPCC,

"Delayed emission reductions significantly constrain the opportunities to achieve lower stabilisation levels and increase the risk of more severe climate change impacts" (2007a, p.19).

Hence, even as New Zealand emits a fraction of global emissions, there is no indication from the IPCC that inaction is appropriate.

One of the main culprits of CO_2 emissions is the burning of fossil fuels in industrialised nations (Hansen, 2008). This is significant due to the world's dependence on fossil fuels, such as oil, for 80% of its energy (IEA, 2008a, 2008b). This infatuation is disconcerting due to the predicted peak of oil reserves, leading to increasing oil prices and the necessity for different energy sources

(Heinberg, 2008; Hirsch, Bezdek & Wendling, 2005; Holland 2008). However, as one participant noted, climate change and the peaking of oil should be seen as an opportunity to creatively respond, adapt and do things differently rather than a basis for inaction and paralysis.

Climate change and peak oil are major problems in the environmental field. Transition towns offer an intervention method which seeks to change behaviours to be more pro-environmental and reduce emissions due to the necessity presented by climate change and peak oil science.

"A wide array of adaptation options is available, but more extensive adaptation than is currently occurring is required to reduce vulnerability to climate change" (IPCC, 2007a, p.14).

For that reason, the continued study of transition towns to consider how they function and motivate people is pertinent and vital to advance possible adaptation techniques for a future with a changing climate.

Limitations

This thesis provided insights to transition town participant experiences to determine whether they were encouraged and empowered to change their behaviour to pro-environmental. Participants were members of the core groups in each of the case studies and were inclined to an ecocentric worldview prior to their involvement with transition towns. Empowering these people to change their behaviour was facilitated through involvement with the transition initiative. Although the intervention strategies employed by the case study transition towns were effective, caution must be taken when applying the same techniques to other contexts with people who may not already possess an ecocentric worldview.

The scale of transition initiatives may also be an inhibiting factor. Having enough people to facilitate the intervention methods may be a limitation if the transition initiative is attempting to be applied to a large community. Due to the amount of volunteer hours needed to support the transition initiative, a smaller community would likely be easier to empower.

Recommendations

New Zealand transition towns are still very new and much is to be learned about how they function and influence communities and individuals. Continuing research will provide suggested improvements for the transition model's ability to facilitate behaviour change. Much can be learned from the first transition initiatives, Kinsale and Totnes, as they have experimented with various approaches for promoting pro-environmental behaviour and resiliency.

Utilising transition towns as an intervention method which empowers people to change their behaviour to pro-environmental will continue to be useful in the wake of climate change and peak oil. In this study, participants changed their behaviour to pro-environmental more willingly once they felt empowered from transition initiatives. Hence, transition towns may find it useful to focus on empowering individual behaviour change in communities through the use of information, feedback and a supportive social environment.

Community research may also find engaging in transition

initiatives valuable, as case study interventions have been successful in initiating re-localisation and building community through networking. The furtherance of research discourse around transition towns in the environmental studies programme and related fields should also continue; so that a greater appreciation of transition town, empowerment, intervention and behaviour change processes can be attained.

Acknowledgements

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