Graphic + Service + Social Design:

An exploration into using design skills and methods for social problems.

Leigh Parker

2011

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Attestation of Authorship

"I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning."

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Acknowledgements

Ethics Approval

Abstract

This action research project explores the ways design skills and methods can be applied to a social problem. A social project, which focuses on a topical social issue, is used as a medium to explore the research question. This social project is an investigation into 'How cost may be a barrier preventing or limiting isolated rural residents from accessing enough fresh fruit and vegetables'. The investigation takes place in an isolated rural community, within the South Taranaki Region of New Zealand. A service design approach is utilized for both researching the issue and designing solutions. Three service design research methods are used including directed storytelling, service blueprinting and photo journals. The social project forms the central component of the design project work, from which the practical work is generated.

This thesis comprises an 50% practice-based and a 50% written component. The practice-based component consists of a design practical task and a series of graphic/information design works. The design practical task is presented in written form within Chapter Three.

"The new designers and their new design thinking began in Britain with the likes of Tim Brown at IDEO when the country's manufacturing base disappeared. They took the methodology of product design and applied it to services. Now they are moving beyond that to systemizing design methodologies for all kinds of arenas, including social problems. What better way to deal with the health care crisis than to use design?"

(Nussbaum, 2005, para. 6).

Introduction

The purpose of this introduction section is to show how the various components of the research project are pieced together. A personal positioning statement of the researcher is provided, as is a brief content summary of the subsequent chapters.

A Project Within a Project

The purpose of this research is to answer the research question '*How can the existing design skills and methods of a graphic designer be utilised within the context of a social issue to address a social problem?*' In order to explore and answer the research question, a design practical task was constructed that included a social project. The practice-based and written works of this research inquiry are closely entwined. The social project forms the central component of the design practical task [DPT] contributing content and providing a platform for actively exploring the action research project's question.

Table 1 shows the thesis component links and interdependent contributions. The column 'Exegesis' lists the contents of this document and the 'Design Works' column lists the series of design projects created throughout the design practical task. The central column 'Design Practical Task' depicts links between the task and social project activities with the other components.

Table 1.
The relationships between various thesis components.

	(written) **Exegesis**	**Design Practical Task**	**Design Works** (practice-based)
Research Question	In what ways can design skills and methods be applied to a social problem?	How is cost a barrier preventing or limiting isolated rural residents from accessing enough fresh fruit and vegetables?	In what ways can design skills and methods be applied to a social problem?
Method	Action Research	Service Design	Graphic/Information Design
Contents	Literature Review *(Chp 1)*	- - - - -	- - - - -
	Methodology *(Chp 2)*	‹ Contributes Approach ›	- - - - -
	The Design Practical Task *(Chp 3)*	‹ Contributes Platform ›	- - - - -
	- - - - -	‹ Social Project ›	Project Opportunity Visual *(a)* & Funding Application *(b)*
	DPT Project Selection *(3.2)*	‹ Contributes to Selection ‹	
	DPT Research Methods *(3.5 & 3.6)*	‹ Contributes Methods ‹	Research Tools *(c)*
	DPT Key Findings *(3.5 & 3.6)*	‹ Contributes Data › + ‹	Conference Materials *(d)*
	DPT Design Solution *(3.7)*	‹ Contributes Observations › + ‹	Design Product *(e)*
	Discussion *(Chp 4)*	‹ Contributes Observations › + ‹	*(a-e)* + Social Design Booklet *(f)*

Note. The ‹ and › symbols are used as arrows showing the workflow between design practical task and written or practice-based thesis components. Exegesis chapter and design works references are provided in italised brackets.
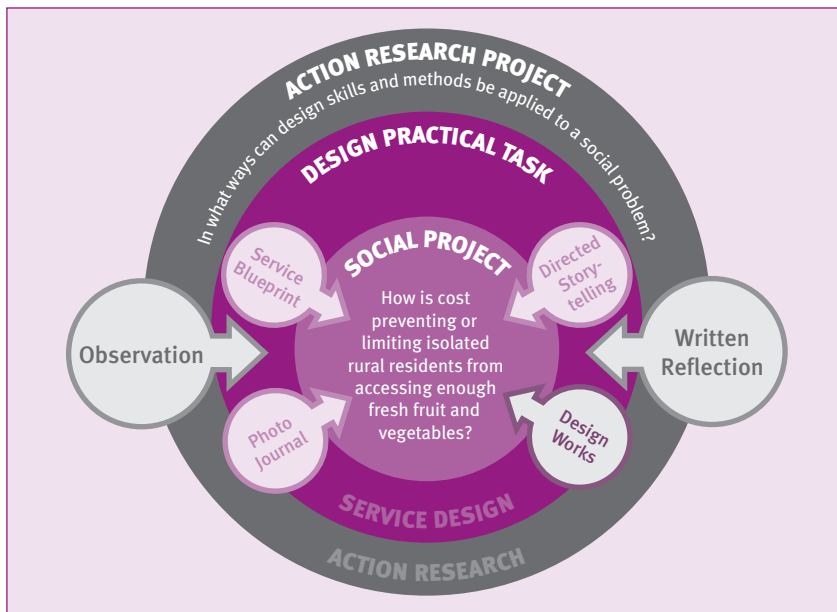
Figure 1.
Methodology diagram.

Complimentary to Table 1, Figure 1 shows the concentric structure of this research. In this figure the research methods, used both in the action research and the design practical task, are positioned in relationship to the thesis components.

Personal Position

Up until a few years ago I felt that my job as a graphic designer was restricted to creating visual communication projects — visuals that informed, branded and/or promoted products or services, and were heavily directed towards final outcomes and formats, including logos, brochures, advertising and packaging. This personal perspective has changed. Upon reflection on my previous work I am sure the final artwork is neither still in use, nor of any value. My practice as a graphic designer needed to be realigned with some emerging different values, such as the importance of social responsibility, creating work that was truly needed and making a positive difference to people's lives. What would happen if I tried to do something a little different with my skills? Is it possible my skills could contribute to society in a different way? This personal moral dilemma marked the beginning of this research journey.

I was interested to know whether graphic designers can use traditional skills to help identify, define, understand and finally help create solutions to a social issue from scratch. I was personally keen to explore social problems, find an opportunity to help and collaboratively develop a design solution with members of the community of need. However, in doing this the main focus point was to give back to society and encourage other graphic designers into similar endeavours.

As identified in section 1.2.2 (p. 16) concerns have been raised around graphic design purpose and ethics. However without an understanding or example of what else is possible, it is hard to move forward from the negative criticism. By engaging in a social project, recording and documenting the process, recording skills/method opportunities or disciplinary cross-overs and through this adding it to the body of knowledge for the local design community, maybe

others would be inspired and liberated to follow a similar pathway.

Throughout this project I experienced real excitement about the journey I was on. The projects that I became involved in via the design practical task were so completely different from any design work I had been doing previously. My previous design work had always been technically or commercially focussed. This project had a feeling of 'goodness' about it, I felt rewarded for engaging in design work for social purpose. One of my big hopes for this project was that it would not only improve my practice by realigning it with my values, but that it would be of use to propose an alternative course of action for other designers who face similar moral dilemmas to the one I experienced.

This research journey has raised my awareness of an internationally emerging design discipline, Service Design. A Service Design approach provided a framework for exploring the research question. Since beginning this thesis journey international service design and social research has simultaneously transformed the international design field of practice. The thesis supports this transformation and the emergence of service design by adding to the body of research through exploring the use of service designs processes for social purpose. Buchanan and Margolin have been used as key pivotal authors in the development of this design research. Both were selected because they are recognised as key figures well known in this type of design. There are many other contributors to the field (such as Everson, Hanington, Koskinen & Mager).

Exegesis Overview

The following is a brief outline of each of the chapters of this exegesis:

Chapter One contains the context of the study. The body of literature relating to the subjects of 'design', 'good design', 'social design' and 'service design' is discussed.

Chapter Two outlines the action research methodology and the use of a double narrative. The research objectives and methods are presented. A description of how the methods were used to gather the data is provided, as well as rationales behind the selection of each approach. The methodology and service design approach used in the design practical task is introduced.

Chapter Three contains the design practical task, from the design phase of discovery through to development. Details of the social project selection, issues of access and ethics, a review of related literature, the research methods, data collection and analysis are documented. Key findings from the social project are presented and the chapter concludes with the development of a design solution. The practice-based design works are referenced and discussed throughout this chapter.

Chapter Four provides a summary of the knowledge gained throughout the study, a reflection on the achievements and concluding statements. The limitations of the study are identified and suggestions made for future research.

The final part of the exegesis is made up of a reference list and appendices. The appendices include a complete set of the ethic application forms, referenced unpublished materials and full scale images of the screen capture figures that have been included as thumbnails within the exegesis.

Charles Eames was an American designer whose work spanned several design disciplines. Just over 30 years ago he was asked, "*What are the boundaries of design?*" ... The response he gave was, "*What are the boundaries of problems?*"

(as cited in Neuhart & Neuhart, 1989, p. 14).

1. Literature Review

This research explores the ways in which design skills and methods can be applied to social problems. The literature relating to the subjects of 'design', 'good design', 'social design' and 'service design' are explored. These topics combine together to provide insight into the philosophical viewpoint of both this research and of the researcher. The purpose of this chapter is to describe the theoretical framework, to further clarify the practitioner's positioning and explain the influence that the literature had on the project.

1.1 A Broad Perspective of Design

Traditionally design is categorised into a range of distinct professional specialisations, such as architecture, product/industrial, interior, multimedia or graphic design (Design Council UK, 2011; Design Institute of Australia, 2011; Designers Institute of New Zealand, 2011). Up until recently there has been a common societal perception of what each professional design specialisation does. Regardless of discipline, a designer's role is seen as the task of making products look good (Buchanan, 2000). There has also been a common point of time when designers have been employed. Generally they are employed in the final stages of product styling (Mok, 2003).

Buchanan (2000) describes this common societal perception as restrictive. Viewing design in this manner fails to encompass the profession, illuminate the flexibility of the process and to a certain extent this view is holding back the field of design. Instead Buchanan (2001a, p. 9) provides the following generalised definition: "Design is the human power of conceiving, planning, and making products that serve human beings in the accomplishment of their individual and collective purposes". This interpretation allows for an exploration of the role of design in a much broader context. Design is absolute, it is not qualified, limited or diminished in any way. It allows for the inclusion of specialisations such as product, interior or graphic, but also includes practices such as design thinking, strategic planning and business management. Rather than being about making a specific product, design by this description is considered to be about creating and making something with intent.

In recent years there has been a significant shift in where, when and by whom design practice is being applied. Examples of this shift can be found in Service and Transformation Design endeavours. Rather than responding to a client's brief for final product styling, service designers have begun helping clients to define the problems that projects should address (Burns, Cottam, Vanstone, & Winhall, 2006). This has required a fundamental shift in the perceived value of design. The shift is one in which the design process has been accepted as invaluable to the entire problem solving process and as such has been fully integrated into every aspect of the entire life cycle of a product or service, from research and development through to distribution and customer experience (Oram, 2010).

The perspective of design encapsulated in the Eames' quotation (on the facing page) captures the philosophical viewpoint (as cited in Neuhart & Neuhart, 1989). The hypothesis, that this research supports, is that the skills of a designer and methods of design contribute positively to the entire problem solving process. And, that the sorts of problems designers solve should not be restricted to creative and aesthetic development of products.

1.2 Good Design and Design Goodness

1.2.1 Evaluating Good Design

When the task of a designer is perceived as being to make products look good it follows that the success of a design product is judged against visual aesthetic criteria. In the opinion of several professional designers this is a limited perception of success (Burns, et al., 2006). For example Berman (2009, p. 125) discusses in his book about how good design is a "…strategic, ethical response to a business problem". Burns, et al (2006, p. 9) write about how they believe that good design "…creates products, services, spaces, interactions and experiences that not only satisfy a function or solve a problem, but that are also desirable, aspirational, compelling and delightful".

Criteria used for judging the quality of design products constantly change and evolve. What is good design, a question asked 50 years ago by Modernists, was answered at the time with notions of beauty and functionality (Buchanan, 2000). The design principles of Deiter Rams, an iconic industrial designer of the 80's, typified this perspective (see list on p. 15). More recently Milton Glaser, a famous American graphic designer, revaluated his personal professional ethics at the start of the century by charting project examples where product truths are misrepresented (see steps chart on p. 15). In doing so Glaser also raises questions about the kind of projects designers should agree to be involved in. What is good design was also addressed in a recent issue of the Metropolis Magazine (see list on p. 15). In contrast to Ram's principles in which innovation, visual aesthetics, usefulness and simplicity are forefront priorities a shift in emphasis is evident. Priorities are given by the Metropolis to the economic, ecological and social contributions of a design product (Hall, 2009). Towards the end of the 20th century a resurgence in ethical and moral judgement of design is evident. The '*First Things First 2000*' manifesto provides evidence of this revival, especially as it is a rewritten and republished version of an earlier graphic design ethics conscious manifesto (Barnbrook, et al., 1999; Garland, 1964).

A design product's success has often been judged throughout the 20th century from an external perspective focussing on "…form, function, materials, and manner of production" (Buchanan, 2001a, p. 13). In the early 21st century design practice is rapidly moving out of traditional specialisations into new territories and as such the judgement criteria must evolve. While form, function, materials and manner of production continue to be significant, criteria need to also address design as problem solving practice (Hall, 2009). Buchanan (2001a) identifies in his paper traditional and new criteria for assessing design products. Buchanan's External and Internal Product Judgements diagram illustrates the criterion and their connections to external or internal product assessment (see Figure 2). He sees that designers have begun to move in a direction that enables a modern critique of a product from an internal perspective "…to explore what is useful, usable and desirable in products" taking into account product experience and ethical dimensions (Buchanan, 2000, p.2).

With the shift of design practice into new territories there has also been a change in the strategic position of the designer. A traditional perspective has seen designers regarded as a creators of things, whom through an inherent sense know what good design is (Davey, Wootton, Thomas, Cooper, & Press, 2004). The emerging contemporary perspective, as explored in this thesis, is of the designer attempting to discover the best design through prioritising the needs and desires of the intended audience or user in design solutions.

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Figure 2.

Buchanan's external and internal product judgements.

Adapted from Buchanan, R. (2001a). Design research and the new learning. *Design Issues, 17*(4), 3-23. doi: 10.1162/07479360152681056.

1.2.2   In Search of Design Goodness

In the early stages of this research two key texts were identified that heavily influenced the eventual project direction; Victor Papanek's book *Design for the Real World* (Papanek, 1985) and the *First Things First Manifesto 2000* (Barnbrook, et al., 1999). Both texts unashamedly criticise the persuasive marketing intentions and consumer focused purposes behind many of the projects created by design professionals. The manifesto specifically states how graphic designers are encouraged to use their skills in "manufacturing demand for things that are inessential at best" (Barnbrook, et al., 1999, p. 1). Papanek (1985, p. 1) argues how the job of design has become "persuading people to buy things they don't need, with money they don't have, in order to impress others who don't care".

Certainly throughout history, but even more so in the last few years numerous individuals have raised concerns around design purpose and design ethics (Berman, 2009; Glaser, 2002; Margolin, 2004; Nini, 2004; Roberts, 2006; Thackara, 2005). These include concerns of how the commercial focus does more harm then good, to society, to the environment and to societies' perception of the design industry.

The social project presented in this thesis is, in a sense, a counteractive response to the negative criticism and is an attempt at finding an alternative 'good' place to use graphic design skills. Taking lead from the *Manifesto 2000* design works follow a socially inspired pursuit (Barnbrook, et al., 1999).

1.3   The Expanding Domain of Social Design

1.3.1   Social Graphic Design

The definition of social design discussed in this thesis relates to design products that contribute towards improving human well-being, where the intent is less about economic or consumerist considerations and more about welfare. As discussed by Margolin & Margolin (2002, p. 25) "...the foremost intent of social design is the satisfaction of human needs". Several common and familiar examples of social graphic design work exist. Social awareness campaigns such as the NZ Transport Agency's 'If you drink then drive, you're a bloody idiot' and graphic work for nonprofit organisation such as annuals reports for the Red Cross or SPCA are recent typical examples (see Figure 3 and Figure 4). As observed by Shea (2010) several graphic designers and design firms are currently being drawn towards a social agenda. In recent years a growing number of design firms have been established, who work on an emerging type of social design project (RED at the Design Council - 2004, IDEO - 1991, Live|work - 2001, Think Public - 2004, Participle - 2007) discussed in more detail within section 1.4.

Although many designers have increased the amount of social design work they engage in, they are struggling to generate income from this work (Shulman, 2009). This conflict begs the question asked by Geoff Mulgan... "Are designers' necessarily good social innovators?" (as cited in Vincent, 2009, para. 1). According to Mulgan there are both key strengths and weaknesses that designers bring to social design projects. The key strengths include freshness / clarity by providing new insights into problems and solutions that work as catalysts of change, as well as visualization techniques, tools for systematic thinking and rapid prototyping (Howard, 2010; Vincent, 2009). Key weaknesses include the high costs, a tendency to reinvent the wheel, designers possessing mediocre implementation

skills, lack of economic understanding or organisational perspective and lastly an observation that design service projects tend to be initiated by organisations who are service design advocates (Howard, 2010; Vincent, 2009).

Figure 3.

Print advertising from 'Trapped' the NZ Transport Agency 2009 campaign.

Reprinted from New Zealand Transport Agency. (2009). *Handcuffs* [Print advertisement]. Retrieved from http://www.nzta.govt.nz/about/advertising/docs/handcuffs.pdf. Copyright 2009 by Author.

Reprinted from New Zealand Transport Agency. (2009). *X-ray* [Print advertisement]. Retrieved from http://www.nzta.govt.nz/about/advertising/docs/x-ray.pdf. Copyright 2009 by Author.

Figure 4.

Cover and spreads from the SPCA and Red Cross annual reports.

Reprinted from New Zealand Red Cross Annual Report. (2010). *Red Cross Annual Report 2010* [PDF]. Retrieved from http://www.redcross.org.nz/publications. Copyright 2008 by Author. Reprinted with permission.

Reprinted from Society for the Prevention of Cruelty to Animals Auckland. (2008). *SPCA Auckland Annual Report* [PDF]. Retrieved from http://www.spca.org.nz/board/reports.htm. Copyright 2007 by Author. Reprinted with permission.

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Figure 5.

Eight tenets of socially responsible design.

Adapted from Davey, C., Wootton, A., Thomas, A., Cooper, R., & Press, M. (2005). *Design for the surreal world? A new model of socially responsible design*. Paper presented at the European Academy of Design (EAD) 2005 Conference, Germany: University of the Arts, Bremen.

1.3.2   Searching the Social Project Domain

While selecting and refining a design project for this research an article on 'A New Model of Socially Responsible Design' was discovered. Within this article Davey, Wootton, Thomas, Cooper and Press (2004) use the term 'socially responsible design' to define design projects that address issues arising from social, environmental, economic and political context. In essence the terminologies of social design and socially responsible design are the same with regards to project aims and outcomes. However, this alternative term is included and referred here because of the model developed by Wootton (2004) from the same article (see Figure 5). The socially responsible design model provides an excellent framework for assisting in the identification of suitable social projects. 'Eight tenets' or places for social design, such as education, crime, ecology, health and fair trade, are suggested.

1.4   Service Design as an Approach

1.4.1   The Emergence of Service Design

The last two decades have seen the emergence of a new area of study and practice in the design field, Service Design. Service Design emerged almost simultaneously in several clusters around the world. Different terms have been used to describe the similar variations of the new discipline; 'Service Design' in the USA, 'Transformation Design' in the UK and 'Concept Design' in Europe. The British Design Council define Transformation Design by listing six properties; "1. Defining and redefining the brief, 2. Collaborating between disciplines, 3. Employing participatory design techniques, 4. Building capacity, not dependency, 5. Designing beyond traditional solutions, 6. Creating fundamental change." (Burns, et al., 2006, p. 20). FORA in Denmark described Concept Design as "the discipline of creating concepts that answer

the question 'what'." (as cited in Rosted, Lau, Høgenhaven, & Johansen, 2007, p. 27), placing a stronger emphasis on finding out 'what' product or service to produce than on 'how' the product or service is produced.

Service Design employs a multidisciplinary approach to design, combining several traditional design skills with activities such as ethnographic research and user participation (Moritz, 2005). In addition to working on the improvement of customer experience for commerce the Service Design discipline has also become associated with social improvement in the public sector (Billings, 2007). By using a holistic and participatory approach to problem solving, service designers' focus more on the overall design process and the users' perspective, instead of just the end products. When following a service design approach designers are encouraged to engage directly with end-users to identify what product or service is really needed and then work collaboratively to deliver solutions (Buxton, 2010).

As an academic field of study, this emerging practice was initially mocked (Mager, 2008) and was responsible for creating an uproar within the British Design Industry in 2005, due to being neither a familiar nor an acknowledged form of design (Burns, et al., 2006). Perhaps one of the biggest critiques of the practice is that it allows 'non-designers' to practice design, undermining the sanctity of the designer as artist and demystifying the design process. Critics have suggested this practice should not be labelled as, or confused with, design and that instead it is strategic planning, or project management (Bedell, 2005). However, the growth of Service Design in both academia and business provides evidence that it is a valid and viable design practice. The outcomes of the successful projects show the value this new approach can have in creating positive change. The fact that the British Council awarded a service design practitioner the title 'Designer of the Year' in 2005 provides evidence that at least some members of the design industry are acknowledging the potential of Service Design.

1.4.2   Why a Service Design Approach Suits

The notion behind designing services is an acknowledgement that services have problems that can be addressed using a similar design process to that traditionally used for product design (Moritz, 2005). Service designers are concerned with both the experiences and processes of services from a strongly client focused perspective (Mager, 2008). The aim is to design the overall experience including the strategy and service process, as well as any service interfaces including both tangible artefacts and interactions (Mager, 2008; Moritz, 2005).

In the design practical task of this thesis a service design approach was adopted and used to address a social issue. The premise underlying this approach is the notion that designers are uniquely placed to help solve complex issues (Burns, et al., 2006). If this is the case, then what are the unique skills or methods that designers can bring to these problems? The answer is provided by Burns, a former chief executive of IDEO: "designers do three things: look at the world and respond, make things visible, and prototype" (as cited in Bedell, 2005, para. 9). Designers, as highly visual people look closely at the world. They have a curiosity for seeing things and can take the complex or unstructured information of problems and create illustrative visuals that expose meaning and opportunities.

The value of a service design approach is that it forces a wider understanding of the notion of design. The approach broadens the scope of design to include a holistic approach and an appreciation that the context of the problem can also be regarded as part of the problem. It widens our understanding of how design thinking might be useful in helping solve social problems.

"Intuition can be good, but when the designer has little personal experience in the domain, the intuition cannot be grounded. If the goal is to produce communications that resonate beyond our own experience, then we need methods and tools that will help us understand what is meaningful"

(Everson, 2006, p. 231).

2. Methodology

This chapter outlines the action research methodology and the use of a double narrative. The research objectives are presented and followed by an illustration of the research methods. A description of how the methods were used to gather the data is provided, as well as rationales behind the selection of each approach. The methodology and service design approach used in the design practical task is introduced.

Differing from typical methodologies this chapter is an introductory summary. Research methods are articulated in detail within Chapter 3 - Design Practical Task, alongside the collected data, finding summaries and reflective observations. This structural approach has been used to reduce repetition and facilitate comprehension.

2.1 Methodological Approach

This first section provides methodological details about the action research project.

1. Action Research (2.1.1)
2. Dual Narrative Style (2.1.2)
3. Research Objectives (2.1.3)
4. Research Structure and Methods (2.1.4)
5. Data Collection (2.1.5)
6. Categorising Design Research Approaches (2.1.6)

2.1.1 Action Research

This research is practitioner based and involves self-reflective practice. Action research is in essence the overarching research paradigm. Action research has been successfully used as a form of inquiry into an individual's practice where the intent is to align the practice with certain values (Riel, 2010). An action research inquiry begins with a question such as, "How do I improve my work?" (McNiff, 2002, p. 9). When taking an action research approach in an inquiry the researcher identifies a problem, develops a plan or intention, takes action and critiques or reviews the action upon completion. The teaching profession in particular has embraced the action research paradigm. It is often used as a form of research where teachers wish to improve their own practice in line with their values (Elliott, 1993).

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Action research is not new to the field of art and design. The action research method used in this inquiry follows the action reflection cycle, as depicted to the left, developed by Jean McNiff (2002) an influential action researcher. McNiff's model and theories relate strongly to Schön's (1983) descriptions of reflection-on-action in his book *The Reflective Practitioner*, a text frequently cited in design enquiries. Reflecting-on-action enables a practitioner time to explore why they acted the way they did, what was going on at the time, what the environment or group dynamics were and so on. In doing so a set of questions, ideas or reflections about the activities or practice is developed.

Action research is typically conducted as several reiterative cycles. The design practical task explored in this research forms only one cycle - the first cycle. The action reflection method and design practical task are described in detail, so that future research in this area may follow a similar pathway - in future reiterative cycles.

2.1.2   Dual Narrative Style

A double narrative written account is used throughout the remainder of this exegesis. This approach is used in order to separate the personal reflective journey of the researcher from the procedural description of the design practical task. Double narrative material forms part of the action research data. Critical reflections are presented in the action cycle steps where an increased understanding emerges. Findings included in the double narrative material are summarised in the final discussion. The second narrative style is composed in a personal reflective voice and represented as described in Figure 6. The second narration notes are positioned within the main text column near the content that they relate to.

The second narrative style is represented by grey coloured text with a first line left indent and a type style of Meta Medium 8 pts Italic, as per this example.

Figure 6.
Second narrative style.

Given the personal self-reflective nature of this inquiry I feel that a dual narrative is an excellent approach to use for reporting this research. It allows the reader to have a more direct link to the social project experiences and observations throughout the document, rather then just having a dislocated summary at the end. In using a personal voice the experiences are described in more detail and with a greater level of insight, providing the reader with an understanding of what worked and what didn't, as well as insight into how this approach might be used by others who follow similar footsteps.

2.1.3   Research Objectives

The action research question this study aims to address is:

How can the existing design skills* and methods of a graphic designer be utilised within the context of a social issue to address a social problem?

The following aims elaborate on the question above.

1. To reflect on the ways in which skills were used throughout the design practical task:
   - What skills and methods were utilised and were effective?
   - How and when in the project were those skills used?
2. To modify and refine the researcher's theory of design practice through the research process in order to share new learning with the design community.
3. To add to the body of knowledge in the area of social and service design, in a New Zealand context.

This research project commenced with an underlying assumption behind the research question. Namely, that a traditional design skill and method set *could* be used within the context of a social issue. Evidence attesting to the fact that this assumption was valid is provided in the literature review (refer to 1.3.1). The focus is therefore not about whether application is possible, but instead on 'in which ways' can the design skills and methods be applied.

Two definitions of 'in which ways' have been considered in this inquiry. The first takes a basic information gathering approach - where, when and how can design skills and methods be used in social design projects.

Throughout the design practical task notes were recorded into the reflective journals each time an existing skill or method was used.

'In which ways' is also interpreted through a second definition. The second interpretation relates to the procedural form used to accomplish a task, in other words - can design skills and methods be used through different methodological approaches within social design projects. Design as a practice has many crossover's and boundary ambiguities. As the scope of design has expanded over the last three decades the old disciplinary boundaries have blurred. One exciting aspect of this is the chance to push design practice into new areas and to transfer skills and methods.

*   * The term 'existing design skills' is an issue that is fraught with numerous perspectives that cannot be reconciled. Rather than providing a contentious list, the design skills used within the project are summarised in Chapter 4 (see p. 74) and in Design Work Component F (see Practical Project CD inside the back cover).*

2.1.4   Research Structure and Methods

There is a concentric structure to this research, as introduced in Figure 1 (see p. 10). The design practical task forms the central component that is observed and reported by the researcher within the action research project.

About the action research methods.

Observation and written reflection are used as the action research project's research methods. These methods are appropriate because it is important to have a written record of the design practical task experience from the researcher's viewpoint.

About the design practical task.

In order to explore and answer the action research question, a design practical task is presented that includes a social project. This task and it's research methods are described in detail within chapter three. The design practical task commences with a project selection process. Project selection is complimented by a literature review, which is directly related to the issues that contextualise the selected social topic themes. The design practical task then includes the social project from intial assessment through to design solution development. The design practical task concludes with the development of a final information booklet design work. The social project is governed by the design practical task right from initial research through to the design development phase. In other words, the social project described within this thesis could be replaced by a different topic in future design practical task reiterative cycles.

2.1.5   Action Research Data Collection

Data collected throughout the design practical task for the action research project is in the form of written observations, reflections and notes. Digital photos, typed digital notes, post-it-notes and hand written journal notes are all used as methods of recording. All of the data is organised into two formats: A4 spiral bound reflective journals and into folders of digital files. This range of materials gives the researcher a broad range of data from which findings can be deduced.

The collected data content includes records of and reflections on:

- The role of design throughout the design practical task.
- Communication with those involved in the project
  (eg. meeting notes, phone conversations and emails).
- Unstructured interviews with collaborative researchers and colleagues.
- Each encounter with isolated rural community residents or service providers.
- Participant recruitment experiences.
- How the research methods were received.
- The data gathering and analysis phases.
- The problems that arose and experiences in attempting to overcome them.

Data was collected at distinguishable time points relating to both key events or key milestones. Key events included activities such as community visits, participant interviews or unstructured interviews. Key milestones included activities such as the acquisition of a potential participant list or completion of the data collection for each research method. Data collection points, techniques and examples are detailed in the diagram Table 2. The written observations, reflections or notes were reviewed at the end of the design practical task, categorised into themes and then inserted or referenced within this exegesis. In describing the findings the researcher cites evidence from this data, both throughout chapter three using the second narrative style and in chapter four.

Table 2.

Data collection points.

Collection Point	Type of Data	Example
Immediately after each key event concluded.	Written observations	*Straight after each interview I returned to my car and note down any additional observations about the participants, their environment or their technology access that I had observed during the interview experience.*
A few hours after the key event.	Written observations Written reflections	*The drive home was 1.5 hours and by the time I returned my mind was usually full of more observations, reflections about the research tools or ideas for possible design solutions. I'd note these on return home.*
At the end of project key milestones.	Written reflections	*At the completion of the ethics application process (ie. when approval was granted) I wrote a summary of the experience noting the things I had learnt and reflections of what I would do differently next time to hopefully improve the experience and process.*
Constantly noting during the design practical task.	Written reflections	*When creating the Photo Journal research tool I made notes about what written content I was including and excluding, what approach I was taking with the use of language or imagery and even on design decisions such as the use of colour.*
Whilst otherwise occupied.	Written reflections	*Thoughts about the research or the task would manifest while I was 'off duty'. Many insights came, for example, during the late evening before heading off to sleep or first thing in the morning.*
After discussions.	Unstructured interview notes	*Throughout the project I had many conversations with others about what I was doing. These discussions would often highlight the different thoughts or perspectives of others, or allow me to verbalise aspects I had been unable to do earlier. I made notes within a few hours of these conversations.*

2.1.6 Design Research Approaches and Outcomes

There is more than one way in which to define and categorise design research. Two of the more prominent design research definitions have been considered within this thesis inquiry.

One of the common ways in which design research is categorised is framed through a consideration of how design can be combined with research: research *into* (or about) design, research *for* design or research *through* design (Archer, 1995;

Frayling, 1993/1994; Sevaldson, 2010). Research *into* design typically relates to theoretical inquiries that have a historical or external aesthetic perspective on design. Described by Sevaldson (2010) as research that is subservient to design, research *for* design relates to project based inquiry including material research and development. Research *through* design includes inquiry into new design activities, new products or new methods as well as understanding existing design methodologies. Research *through* design includes research where observations about the practice of design generate knowledge (Sevaldson, 2010).

Buchanan (2001a, pp. 17-18) categorises design research through an alternative three-tiered framework. He suggests that the research done within a design context can be classified as "*clinical*, *applied* or *basic*", depending on the type of problem the research addresses. *Clinical* research is the investigation a designer does directly related to the project or product during their design practice. For example researching information about the topic, research into the organisation that the end product will be used for or examination of the materials that will be used. Knowledge situated in the clinical category primarily contributes directly towards the development of a good end product for a very specific purpose (Rosenbaum, 2010). *Applied* research, one step up from project specific clinical research, is broader knowledge relevant to more than a single specific design problem that may for example be drawn from a variety of case studies. Where as *basic* research is focussed on understanding principles that guide design and explain the design process.

Buchanan's definitions of design research have influenced the decisions round what knowledge-based outcomes (from both the action research and design practical task) to include and focus on in the final discussion. His design research definitions provide insight into the nature of each of the discussed practice-based and knowledge-based design research outcomes. While these two definitions provide structure in broad categories one final article from design research literature has also been referenced. Zimmerman et al. (2004) put forward a useful knowledge opportunity map (see Figure 7) in their conference paper for identifying and extracting knowledge from design projects. The map, although it relates to user-centred interaction design, provides a familiar phase-by-phase design project breakdown easily recognised by designers and outlines the knowledge that might be extracted at each point.

This image has been removed by the author of this thesis for copyright reasons.

Figure 7.

Knowledge opportunities in the design process.

Reprinted from Zimmerman, J., Everson, S., & Forlizzi, J. (2004). *Discovering and exacting knowledge in the design project*. Paper presented at the Futureground Conference 2004, Melbourne, Australia.

2.2 Design Practical Task Methodology

The following section provides a brief introduction to the methodological process and approach of the design practical task, covered in full detail within chapter three.

1. The Design Process Model (2.1.1)
2. A Service Design Approach (2.1.2)

2.2.1   The Design Process Model

The Design Council UK (2005) assert that the basic design process, regardless of specific discipline, can be described using a 'double diamond' design process model. Their double diamond model is represented in Figure 8 and divides into four phases; Discover, Define, Develop and Deliver. The design process used in the design practical task follows this British model. The task begins with a search for a problem, the problem is discovered and researched in more depth. A design opportunity is discovered and an end product solution is developed in response to opportunity.

This image has been removed by the author of this thesis for copyright reasons.

Figure 8.

Double diamond design process model.

Reprinted from Design Council UK. (2005). *The design process.* Retrieved from http://www.designcouncil.org.uk/about-design/How-designers-work/The-design-process/. Copyright 2010 by Author.

2.2.2   A Service Design Approach

The research approach used in the social project comes from the service design discipline. The final design solution was also guided by service design principles. Within each phase service design tools and methods are used to help accomplish the tasks required. These were selected from a comprehensive summary of service design methods compiled by Stefan Moritz in *'Service design: Practical access to an evolving field'* (2005, pp. 185-238). The three research methods used include service blueprinting, directed storytelling and photo journals (introduced collectively in the Narrative Inquiry subsection below).

A traditional graphic design approach has a number of flaws, not least of which is the lack of in-depth, accurate and verifiable audience knowledge making it inappropriate for social project work. In a traditional approach the designer's understanding of the target audience relies heavily on assumption and intuition. Everson (2006) has observed this is often the case within the design industry and she asserts that although intuition has its place, it is unsuitable when a designer is working in an area they have little or no person experience of. Intuition under those circumstances is not grounded on facts. Within a service design approach

there is a much stronger emphasis put on understanding the user and on user centred design, sought through employing ethnographic methods.

Service Blueprinting.

Blueprinting is an analysis tool, which enables a designer to create a graphical depiction of the service workflow based on the customer experience, useful for both innovation and services improvement. Service processes are examined and gathered data is used to depict the steps of a service, the touchpoints (points of interaction with a customer) and the evidence of service (Bitner, Morgan, & Ostrom, 2007). Blueprinting provides a common platform for everyone – designers, service providers and customers – to review existing service process and facilitate innovative developments (Bitner, et al., 2007).

Blueprints are made up of five components (Bitner, et al., 2007, p. 5);

      a) Customer actions
      b) Onstage/visible contact employee actions
      c) Backstage/non-visible contact employee actions
      d) Support processes
      e) Physical evidence (the tangibles that customers are exposed to or collect during their contact with a company)

How this method was used in the social project is describe in section 3.5.3.

Narrative Inquiry.

Narrative inquiry has been successfully used by graphic designers to gain understanding of experiences beyond their initial intuition, increasing the potential of design solutions becoming useful, usable and desirable (Everson, 2006). Directed storytelling, a form of unstructured interview developed by Everson (2006), as an appropriate technique for eliciting the participants' subjective experiences. Reported advantages include how researchers can quickly get to the core of an experience and do so without big financial investments (Everson, 2006).

A photo journal is a self-documentary technique that allows participants to personally portray their experience in response to a series of questions. Photo journals are described as a suitable research technique for documenting experiences, allowing participants to 'narrate' these experiences without researchers being present. This technique is also touted as being useful for gathering residential language; providing in-depth visual information that can portray details that participants may not be able to express in words; assisting where participants may not remember accurately what they experienced and the privacy of this technique makes it less invasive (Tunstall & Melamed, 2007).

The techniques were deemed as being appropriate for helping identify and explore qualitative aspects of the residents' experiences, because narrative inquiries are described as being good for enabling researchers to gain a more thorough understanding of individual's experiences (Mattelmäki, 2005). They were used to identify trends or patterns in participants' behaviours, expectations and motivations. The combination of methods was selected because sometimes what participants say does not match what they do. Techniques were also selected due to their connection to the exegesis inquiry. Each technique was implemented and conducted in a manner that makes use of design skills. Both techniques are described in more detail within section 3.6.3 and 3.6.4.

Albert Einstein stated "The significant problems we have [today] cannot be solved at the same level of thinking with which we created them" (as cited in Calaprice, 2000, p. 317).

3. Design Practical Task

This chapter contains the design practical task, from the design phase of discovery through to development. Details of the social project selection, issues of access and ethics, a review of related literature, the research methods, data collection and analysis are documented. Key findings from the social project are presented and the chapter concludes with the development of a design solution.

Design Works **(practice-based)** are referred to and discussed throughout this chapter.

3.1 About the Design Practical Task

The design practical task commenced in February 2008 and concluded March 2011. This chapter is divided into the following sections relating to the different phases;

1. Selection of a Social Project (3.2)
2. Related Literature Review (3.3)
3. Social Project Methodology (3.4)
4. Evaluation of Existing Availability and Access *(research phase one)*(3.5)
5. Generating a Qualitative Understanding *(research phase two)*(3.6)
6. Development of a Design Solution (3.7)

Figure 9 is an adaptation of the methodology diagram from the introduction. The figure is reprinted here to emphasise the focus of this chapter; the design practical task including the social project. Dual narrative comments throughout this chapter include observations and written reflections, which contribute towards the action research project.

Figure 9.
Methodology diagram emphasising the design practical task.

3.2 Selection of a Social Project

Three stages lead to the selection of a social project;

1. Topic Selection (3.2.1)
2. Topic Scoping (3.2.2)
3. Project Selection (3.2.3)

3.2.1 Topic Selection

The first step taken towards project selection was narrowing down the social project domain through selecting an area from the model "The Eight tenets of Socially Responsible Design" (Davey, et al., 2004, p.7), featured in chapter one (1.3.2). The tenet of 'Health' was selected. The second step was to further refine the topic into two subtopic areas 'healthy eating' and 'children'.

There were a few reasons why I find these topics of most interest. I recently spent time in America and during my travel two things captured my attention.

Firstly the food services. Food retailers, chain restaurants for example, regularly serve incredibly large portion sizes - far more than I personally needed to eat. When I sought the alternative of preparing meals for myself from home I noticed that food suppliers were different from home too. Suppliers, such as supermarkets, seemed to value the qualities of size and appearance in fresh produce, rather then nutrients and taste (I will also never forget my vivid memories of the rows and rows of frozen processed foods stocked in vertical display freezers at supermarkets, a very different experience to the much smaller variety available at home in New Zealand).

Secondly, I was taken aback by the size of some of the children I saw. America is in the midst of an obesity epidemic, which has been well reported in the media. However, seeing at first hand the much larger numbers of obese children than I had previously experienced back home, had a dramatic impact on me.

As the graphic design industry is implicated in the creation of the current western food culture it seemed fitting to jump the fence and try to help the other side of the food debate.

3.2.2 Topic Scoping

Two further strategies were used to identify a social project. The first strategy included identifying key organisations, both within the researchers local community (Palmerston North, Manawatu) and nationally, who had an invested interest in the topics of 'healthy eating' and 'children'. The approached organisations included…

- **Healthy Eating Healthy Action** (HEHA) at the MidCentral District Health Board *(HEHA is the Ministry of Health's strategic approach to improving nutrition)*.
- The local branch of **The Heart Foundation of New Zealand**.
- **The Institute of Food, Nutrition and Human Health** at Massey University.
- **The Obesity Action Coaliltion** (OAC).
- **Te Hotu Manawa Maori** (THMM).
- **Fight the Obesity Epidemic** (FOE) *(a New Zealand based charitable trust)*.
- **The Health Sponsorship Council** regarding "Feeding our Futures" *(social marketing campaign for HEHA during 2008)*.
- **Agencies for Nutrition Action.**
- The local branch of **Child, Youth and Family.**
- **The Royal New Zealand Plunket Society.**

The second strategy involved conducting a literature review for recent New Zealand based newspaper and scholarly articles that featured the same topics as key words (refer to 3.3).

Individuals identified through both of these strategies were contacted, including health employees, university staff and organistion managers. Meetings were arranged with these individuals to discuss potential social project opportunities. The researcher met with these individuals in person to discuss their work, to explain the social project quest and to check if they were aware of any social project opportunities.

The public perception of a graphic designer's role is, to a certain extent, at odds with this research project. Throughout the process of identifying a social project I found myself regularly explaining: 'Yes, I do create business cards, logos and brochures – however, I want to do something different with my skills' (reflective journal, April 2008). In this research project I worked as a designer, not just as a graphic designer. Finding people who could see past the general public perception or helping people who couldn't to understand the design approach became a significant part of project identification.

The first, and only, solution I used to overcome the perception challenge was a designed visual presentation (refer to Design Work Component A), in which the quest was graphically illustrated. This presentation was taken to meetings on a computer and presented to the audience. Having a visual presentation made a big difference, it was a great solution. Both the facial expressions and the questions asked by the audience after showing the visuals demonstrated that they had a much better understanding of the project; 'It was like a light coming on' (reflective journal, May 2008). Subsequently contacts then started to send me either to more appropriate contacts or started to suggest potential project work.

3.2.3   Project Selection

A meeting with the author of an article found during the literature review lead to the selection of the social project. The article was 'School lunches fail nutrition guidelines' featured in *The Dominion Post* online (Broun, 2007). The article discussed the research of the local Massey University lecturer Dr Emma Dresler-Hawke, who had investigated fruit and vegetable content in the lunchboxes of primary school children in the Manawatu.

I met with Dr Dresler-Hawke at the start of May 2008 to inquire whether any of her previous research had the potential to lead onto social project opportunities. Dr Dresler-Hawke saw potential in the research methods and was very interested in my visual presentation. Dr Dresler-Hawke contacted me a few weeks after the original meeting when an opportunity arose in the form of a community research project.

Dr Dresler-Hawke was approached in mid May 2008 by staff from the Health Promotion Unit [HPU] of the Taranaki District Health Board [TDHB]. They contacted her about the research she had done which investigated the urban cost of 5 + A Day (Dresler-Hawke, 2007). Following her discussion with the HPU staff Dr Dresler-Hawke contacted me to discuss the opportunity of developing a collaborative community food security related research project (the term food security is discussed in 3.2.3). This became the social project for this thesis.

The decision to use this opportunity as the social project was based on a few factors; Food security related to both of the subtopics, Dr Dresler-Hawke was enthusiastic and interested in service design, this project provided a good opportunity to work alongside others who had good topic knowledge and there was an opportunity to apply for funding to cover the costs of travel to the community (refer to Design Work Component B).

3.3 Related Literature Review

This section provides both background information and a brief literature review of the key topics relating to the social project;

1. Obesity and Healthy Eating (3.3.1)
2. Food Security (3.3.2)
3. Expense as a Barrier (3.3.3)
4. About the Isolated Rural Community (3.3.4)

3.3.1 Obesity and Healthy Eating

The two principal causes that result in people becoming overweight or obese are sedentary lifestyles and energy-dense diets (Ministry of Health & University of Auckland, 2003). Thousands of deaths annually in New Zealand can be attributed to the effects of these nutrition-related risk factors (Ministry of Health & University of Auckland, 2003). Many would argue that individuals themselves are responsible for their own nutrition and physical well-being, and that they are entitled to have bad habits (Marsh, 2005). However, inequity arises in the fact that communities, both urban and rural, are exposed to imbalanced media advertising, increased access to cheap unhealthy food supplies and decreased access to affordable and nutritious food.

Eating a nutritious diet not only facilitates good health and wellbeing, but also helps combat disease. The recommendation of five servings per day is seen as a minimum requirement for good health (The 5+ A Day Charitable Trust, 2007). The Ministry of Health (2003) recommend that New Zealanders eat at least three servings of vegetables and two of fruit every day. The *New Zealand 1997 National Nutrition Survey* discovered that one-third of the population does not eat three or more servings of vegetables daily and that over half of the adult population do not consume the recommended two or more servings of fruit per day (Russell, et al., 1999). Those living in socioeconomically deprived areas were less likely to meet the recommendations (Russell, et al., 1999).

3.3.2 Food Security

The term 'Food Security' is used to describe the availability of and access to food for individuals, households or communities. Food insecurity may occur when there is not enough appropriate and affordable nutritious food available, which can result in people experiencing hunger or eating a decreased quality diet (Kendall & Kennedy, 1998; New South Wales Centre for Public Health Nutrition, 2003). New Zealand's food supply has been confirmed as being more than adequate to provide enough nutritious and safe food for all New Zealanders (Public Health Commission, 1993). Paradoxically food insecurity has been identified as a social issue that some New Zealanders experience (Obesity Action Coalition & Te Hotu Manawa Maori, 2009).

This fact really inspired my interest in the topic. It continued to both motivate and trouble me throughout the social project. How is it that we grow enough fresh produce to feed everyone well, yet some New Zealanders struggle to access fresh fruit and vegetables? Obviously market forces contribute to the reasons behind New Zealand's produce being exported, but I still don't think it makes any sense that some New Zealanders struggle to access affordable nutritious fresh produce. Shouldn't it be every New Zealanders right to have access to the fresh produce that they need?

The majority of New Zealanders obtain the food supply for their household from supermarkets and/or local shops. Community food security is therefore dependant on the access of readily available, well stocked, and equitably priced food services (New South Wales Centre for Public Health Nutrition, 2003).

3.3.3   Expense as a Barrier

Individuals encounter several barriers to eating healthy. Nationally twenty five to thirty percent of New Zealander's cite cost as the major barrier associated with eating more fruit and vegetables (Sullivan, Oakden, Young, Lau, & Lawson, 2004). McClellan (2006) clearly identified cost as a barrier to eating healthy food in a pilot study based in South Taranaki rural communities. The expense barrier is cited within McClellan's (2006) findings by both community participants and health service providers. Eating fruit and vegetables is perceived to be expensive, especially when purchased fresh (Drewnowski & Barratt-Fornell, 2004). People living in rural areas have been identified as being more likely to be disadvantaged by their geographic location when it comes to expense as a barrier (New South Wales Centre for Public Health Nutrition, 2003), for example due to not having large supermarkets or having higher transportation costs.

At the outset of the social project this disadvantage didn't make any sense to me, there seemed to be a bit of a contradiction in this fact. Surely people living in rural areas would have better access to fresh produce? The growers would be closer to them reducing transport costs and residents of rural communities would live in bigger property sections thus enabling them to have fruit trees and vegetables gardens (reflective journal, June 2008). Upon reflection I realised that if I had not proceeded on to gather research in person these assumptions would have negatively influenced any design solutions that I created (reflective journal, April 2009). This highlights the importance of designers experiencing the coalface.

3.3.4   An Isolated Rural Community

For consistency the social project of this thesis was based in a single isolated rural community located in the same region as McCellan's research. With just less than 900 residents the community is a small town, rural in nature and geographically isolated. It is located roughly 9kms inland on the southern edge of the South Taranaki District along State Highway 3 (Community Development Unit, 2008). This community has a gentle, mild climate with high sunshine hours (Venture Taranaki Trust, n.d.) and appears to be a popular tourist pit-stop with a selection of cafes and coffee shops. In addition to cafes, the community has several local shops along its main street. A high number of community residents come from a low socioeconomic income bracket, 83% of households living off incomes of $30,000 or less (Statistics New Zealand, 2006). In 2008 the TDHB asked 22 residents to complete a survey on fruit and vegetable consumption. Results indicated only half of the respondents were reaching the daily target of at least three servings of vegetables and at least two of fruit daily. This is consistent with national findings (Russell, et al., 1999).

An initial meeting about the social project was held in the community in May 2008 with a HPU staff member. The HPU had received regular feedback from residents who claimed the prices of fresh fruit and vegetables were quite expensive. The HPU were concerned about the limited variety of fresh produce available in the community. These concerns were in specific comparison to the large supermarkets found in towns that have larger buying power (reflective journal, May 2008). The major supermarkets closest to the community was approximately a 45-minute drive away (Health Promotion Unit, 2007).

3.4 Social Project Methodology

Within this section the aims, objectives, ethics, healthy eating benchmark and collaborative details of the social project are presented and explained;

1. Social Project Aim and Objectives (3.4.1)
2. Collaborative Research (3.4.2)
3. 5 + A Day Benchmark (3.4.3)
4. Ethics Application (3.4.4)

3.4.1 Social Project Aim and Objectives

The researcher's objectives in the social project were;

- To generate an understanding of fresh fruit and vegetable availability, services and access within the rural community.
- To generate a qualitative understanding of the barrier from the residents' perspective (understand feelings, attitudes, behaviours and personal experiences related to fresh fruit and vegetable acquisition).
- To develop prototype product or service design solutions.

The research work conducted for the social project spanned 2008 - 2010 and was divided into two research phases;

1. Evaluation of Existing Availability and Access (refer to 3.5)
2. Generating a Qualitative Understanding (refer to 3.6)

3.4.2 5 + A Day Benchmark

From the outset of the social project an ideal quantity of fruit and vegetables for an individual's diet needed definition. The consumption benchmark information is sourced from The Ministry of Health's guidelines about ideal consumption levels. The Ministry of Health recommends that New Zealanders eat five or more servings of fruit and vegetables each day. A serving size is defined as being about a handful (see Figure 10) by the 5+ A Day initiative, which equates to around 80gms.

3.4.3 Collaborative Research

The social project research contributed to an ongoing comprehensive food security research project initiated by the HPU from the TDHB. The researcher worked alongside Dr Emma Dresler-Hawke (Massey University), Amanda Brien and Maree Young (both from the HPU) on various aspects of this larger scale research project. Table 3 lists all of the project'components from 2008 to 2011, as well as providing details of each team members involvement and contribution.

Figure 10.

5+ A Day recommended serving size.

Reprinted from Horticulture New Zealand. (2010). *Hands* [Online image]. Retrieved from http://www.vegetables.co.nz/news/?p=71. Copyright 2011 by Vegetables.co.nz. Reprinted with permission.

Table 3.

Components of the large scale research project.

Project Component	Leader	Researcher/s	Role
Garden Project	TDHB	Amanda (HPU) & Maree (HPU)	• Facilitation • Evaluation
		The Researcher (AUT)	• Conference visuals
Evaluation (pre/post questionnaires)	TDHB	Amanda (HPU) & Maree (HPU)	• Research design • Data collection • Data analysis • Evaluation report
Mapping (commercial landscape)	TDHB	Amanda (HPU) & Maree (HPU)	• Research design • Data collection • GIS mapping (mapping support) • Data analysis
		Dr Dresler-Hawke (Massey)	• Data collection
		The Researcher (AUT)	• Data collection • Conference visuals
Cost Analysis	Dr Emma Dresler-Hawke (Massey)	Dr Dresler-Hawke (Massey)	• Research design • Data collection
		The Researcher (AUT)	• Data collection • Data analysis • Conference visuals
		Amanda (HPU) & Maree (HPU)	• Data collection • Data analysis and report writing
Service Blueprinting	The Researcher (AUT)	The Researcher (AUT)	• Research design • Data collection • Data analysis • Conference visuals
		Amanda (HPU)	• Participant recruitment
		Dr Dresler-Hawke (Massey)	• Data collection
Directed Story-telling Interviews & Photo Journals	The Researcher (AUT)	The Researcher (AUT)	• Research design • Research tool design • Data collection • Data analysis • Conference visuals
		Amanda (HPU)	• Participant recruitment
		Dr Dresler-Hawke (Massey)	• Data collection
Design Solution	The Researcher (AUT)	The Researcher (AUT)	• Concept design • Graphic & information design • Design of pitch presentation
		Maree (HPU)	• Community concept pitch

Note. The first three rows (in lighter colour) indicate the research components initiated by the TDHB in which the researcher was involved. These components were not included in the social project of this thesis.

The researcher's involvement in the first four projects included data collection, data analysis and conference visual creation. These projects occurred between June 2008 and July 2009, during which the researcher sought ethics approval for the design practical task's social project research components. Initial involvement in the earlier work enabled the researcher to build up a rapport with the staff from the HPU. As a result of this trust the HPU staff were happy to introduce the researcher to their community contacts.

As indicated in Table 3 Dr Dresler-Hawke assisted the researcher in data collection for the service blueprinting and the directed storytelling interviews. The involvement of the HPU in the researcher's social project included help with participant recruitment as well as the final presentation of the research results and the design solution back to the community.

There were several reasons behind choosing to collaborate with others in the social project. Primarily, I was not a specialist in the topics of 'healthy eating' or 'children'. Designers too often rely on assumptions and do not have thorough topic knowledge, it was important to work alongside specialists that did have this knowledge to ensure any work was grounded. In addition to this the HPU had good working relationships with key community contacts. Working alongside the HPU meant I was able to use these connections for participant recruitment within my social project.

3.4.4 Ethics Application

AUTEC Ethics Approval

Ethical approval was obtained on 13 August 2009 to conduct this research (Ethics application number: 09/71).

Note: Throughout this exegesis the community in which this research was based is referred to as the 'isolated rural community' or 'community' and participants have not been named. This has been done to protect the confidentiality of all who were involved.

An ethics application was submitted to AUTEC for the social project, because people would be participating in the research. A complete set of the ethics application forms can be referred to in Appendix A from pg. 90. The application covers the reasons for involving participants in the study, the design of the research methods, data collection procedures, the type of information sought and the process for selection of participants.

The ethics application process significantly delayed the intended data gathering start date, having an impact on both the social project's timeline and making me as a researcher feel apprehensive about participant recruitment. The discussion that relates this ethics experience has been included in the discussion chapter (refer to 4.4.1), as it will makes more sense to the reader following the discussion about the social project.

3.5 Evaluation of Existing Availability and Access

The objective of the first research phase was to evaluate the existing availability of and access to fresh fruit and vegetables within the rural community. This section presents the three methods used, gathered data and key findings;

1. An Initial Community Visit (3.5.1)
2. Cost Analysis Method (3.5.2)
3. Service Blueprint Method (3.5.3)
4. Summary of Findings (3.5.4)

3.5.1 An Initial Community Visit

The social project commenced in May 2008 with an unaccompanied field trip to the rural community. The visit involved becoming acquainted with the community and a search for local fresh fruit and vegetable services. Preparation for the visit involved preparing and printing a street map and conducting an Internet search to gain details about any food related services. The rural community township layout is a 5x4 block grid with the State Highway forming the main road along one edge.

Exploration on the day included searching the streets of the rural community for services and travelling up to 10 kilometres along the surrounding roads around the township looking for further service evidence, (any roadside produce stalls, for example). All services were noted on the printed street map. To conclude the exploration a visit was made to the library/information centre to check for details of anything that might have been missed (for example, weekend markets).

Figure 11.
Initial community visit post-it-notes.

Documentation included both drawings on the map and photographs of the streets and surrounding areas. In addition to this a series of post-it-notes were created upon return containing details of the observations, questions and ideas for reflection at a later date (see Figure 11).

Initial community visit findings.

Findings are presented here as the cited notes from a reflective journal (reflective journal, June 2008).

My first impression is of this community being a very relaxed, friendly and quaint town. I noticed that a couple of businesses on the main road closed down for lunch.

The surrounding countryside and urban landscapes are overwhelmingly green showing how capable the land was of producing abundant crops. I noticed a few home vegetable gardens with very impressive healthy looking produce such as potatoes, tomatoes, brassica, corn and beets.

There are three services on the main road who sold fresh fruit and vegetables. Two of these are obviously the main suppliers stocking a reasonable range: a Mini Mart and a butcher. The petrol station has a produce stand on the forecourt with a very limited range (bags of home grown lemons, for example). Stocked produce in all of the three services appears more expensive at first glance.

Most businesses are situated on the main road with one

exception, a dairy located just off the main road and directly opposite the Primary School. There is a small sign on the main road advertising the dairy. However, passing traffic probably struggles to notice the sign due to it's size and location. I suggest the dairy's custom is local residents. The dairy stocks no fresh produce - predominantly junk food and a few essentials. The advertising and surrounding rubbish suggest children use the dairy to access junk food.

Many businesses in town 'double up' with the type of service they provide. The butcher is one of these stocking vegetables in addition to meats. When I asked why he stocked vegetables the response indicated that he was filling a need. He referred to the Mini Mart as being expensive and that locals need an alternative.

Summary of initial community visit findings.

The initial community visit findings confirm that:

- Service gaps exist within the community, one existing business had identified the local community need for access to cheap fresh fruits and vegetables.
- Reports discussed with the HPU about fresh produce pricing appeared true. Based on the researcher's personal price knowledge seasonal produce seemed slightly more expensive within the community, compared to urban prices.
- Based on the researcher's personal price knowledge a few vegetables seemed very expensive.

Prior to the initial visit I was excited about going to see the community. However I was pretty sceptical about whether I would notice anything during my trip that would spur me on into selecting this as the topic for the social project (reflective journal, May 2008). Seeing that the butcher stocked fresh vegetables captivated my interest, it seemed quite odd to me as an outsider that such a specialised business would diversify in this manner (reflective journal, May 2008). I did also notice that vegetables were more expensive at the Mini Mart, but I was surprised that the price increase was not as high as I had imagined following my initial discussion with the HPU (reflective journal, May 2008). I reflected on this price difference later and it did occur to me that although the price increase was slight, the fact of the matter was that those paying for the produce were already on tight incomes, which seemed a little unfair (reflective journal, July 2008). I also noticed the price of red capsicum was way higher then what I personally considered a reasonable price to pay (reflective journal, May 2008). Although very unsure at this point what I could do as a designer to help change the situation, I definitely felt there was enough perplexing and contradicting information in order for me to pursue this topic for the social project.

3.5.2   Cost Analysis Method

In this instance the cost analysis method was used as a basic price check of actual prices. Cost had been previously identified as a the key barriers to accessing fresh fruit and vegetables (McClellan, 2006). It was important to get accurate specific facts on the cost of fresh produce from within the rural community, so that observations about fresh food access made later in the research could be put into perspective.

The data collection method used was consistent with that of Dresler-Hawke's (2007) *'Fresh vs. processed fruit and vegetables'* research. The serving sizes promoted by the World Health Organisation (1990) were used; 80g for fresh, frozen or canned and 30g for dried. The prices and weights for all fresh, frozen, canned, or dried fruit and vegetables were recorded. To establish the serving price two different strategies were applied:

1. The items sold on price per kilogram were converted by dividing the price by 1000 to give price per 1g, and then multiplied by 80 for fresh, frozen or canned products or 30 for dried products.
2. The items sold on weight basis were converted by dividing the actual weight in grams and multiplying by 80 for fresh, frozen or canned products or 30 for dried products.

Breene's (1994) nutritional quality research concluded that processed items are nutritionally comparable to fresh and as such frozen, canned or dried products cost were simultaneously collected. Although the main focus was on fresh produce cost and access, it was appropriate to find out if substitution (ie. frozen, canned or dried products in place of fresh produce) could improve 5 + A Day affordability. The collected data was limited in the sense of time frame, however it was only ever intended to provide a small snapshot into the cost of purchasing fresh fruit and vegetables locally.

Massey Ethics Approval

Dr Dresler-Hawke applied for ethics approval for the Cost Analysis research method through the Human Ethics Committee, Massey University, Palmerston North (Application PN254). The approval notification was received on the July 2, 2009. Appendix b:1 is included with permission from Dr Emma Dresler-Hawke.

Gathering the cost analysis data.

The cost of meeting 5 + A Day fruit and vegetable recommendations, two and three serves daily respectively, was investigated in the sixth week of winter during July 2009. Serving price data was collected from the Mini Mart and butcher within the rural community, and from the nearest Urban Supermarket for a comparison. Service business owner/operators had been consulted two weeks prior to data collection and were happy to take part. Price data was gathered by two researchers, one identified the prices and weights of each item, the second recorded data onto a form (refer to Appendix b:1 on pg. 169). The cost of travel to the Urban Supermarket was calculated by measuring the distance between from the rural community and the cost of petrol on the day.

Cost analysis findings.

Table 4 (see pp. 40 - 41) includes the raw serving price data. Average and minimum costs of 5 + A Day calculated from the raw data are presented in Table 5 (see p. 42). The average cost of purchasing at the local shops was 20% dearer than the nearest supermarket. The minimum cost (calculated using the cheapest two fruit and three vegetables items) was 100% dearer when purchased locally. The minimum cost of 5 + A Day including processed substitutes is presented in Table 6 (see p. 42). This illustrates that by substituting some processed items local residents can meet the 5 + A Day initiative locally for 17% less than with fresh items alone. The two locations were recorded as being 44kms apart. The cost of Unleaded 91 petrol at the time of data collection was $1.69 per litre. Thus, an approximate cost for a return trip to the supermarket in a car averaging 10L per 100km is $14.80.

Table 4.

Cost of fruit and vegetable serves from the cost analysis research.

Fruit or Vegetable	Mini Mart	Butcher	Supermarket
Apple	0.29		0.10
Bananas	0.34		0.20
Grapefruit			0.29
Grapes	0.76		0.64
Kiwifruit	0.11		0.08
Lemon	0.38		
Mandarin	0.42		0.37
Nectarines	0.60		0.48
Orange	0.20		0.16
Pear	0.20		0.24
Pineapples	0.27		0.32
Tamarillos			0.64
Apples	0.39	0.99	0.37
Apricots	0.25	0.39	0.21
Blackberries			0.45
Boysenberries	0.72		0.61
Cherries			0.60
Fruit Salad	0.41	0.39	0.19
Grapefruit			0.57
Mandarin	0.38		0.25
Mangoes	0.63		0.25
Peaches	0.30	0.39	0.21
Pears	0.60	0.39	0.21
Pineapple	0.27	0.48	0.20
Plums	0.48		0.29
Strawberries	0.21		0.18
Apples - Rings			0.17
Apricots	0.42		0.35
Banana - Chips			0.24
Cranberries			0.60
Currents	0.29		0.25
Dates			0.13
Figs			0.69
Mango			0.53
Mix Fruit	0.21		0.29
Nectarines			1.10
Peaches			0.92
Pineapple			0.38
Prunes	0.44		0.30
Raisins	0.21		0.19
Sultanas	0.15		0.13
Blueberries			0.96
Boysenberries			0.69
Mix Berries	1.09		0.87
Raspberries	1.58		1.49
Avocado	1.01		0.69
Beetroot			0.39
Broccoli	0.62		0.61

KEY

Fresh

Canned

Dried

Frozen

Brussel Sprout	0.55		0.48
Cabbage	0.31	0.14	0.14
Capsicum - Green	1.10		
Capsicum - Red	1.61		0.66
Capsicum - Yellow	0.93	0.46	0.72
Carrot	0.13	0.17	0.08
Cauliflower	0.34	0.21	0.13
Celery		0.32	0.37
Corn			0.80
Courgette	0.79		
Cucumber	0.96		1.01
Leek	0.42	0.39	0.27
Lettuce			0.80
Mushroom	0.80		0.56
Onion		0.15	0.20
Parsnip			0.48
Pumpkin	0.10	0.16	0.08
Radish			1.27
Silver Beet			0.18
Spinach	0.36	0.22	1.11
Squash	0.14		
Swede	0.14		0.16
Tomato	0.80	0.52	0.54
Watercress			1.19
Yam	0.84	0.62	0.48
Asparagus	0.41	1.06	0.29
Beans	0.57	0.58	0.25
Beetroot	0.29	0.35	0.18
Cabbage			0.63
Capsicum	1.69		0.73
Corn	0.43	0.39	0.21
Cucumber			0.46
Mushroom	0.48		0.38
Peas	0.30	0.35	0.25
Potato	0.55		
Tomato	0.28	0.42	0.23
Mix Vegetables	1.23		0.99
Peas	1.23		0.99
Asparagus			1.19
Beans	0.27		0.29
Broccoli			0.79
Brussels Sprout	0.87		0.71
Capsicum			0.52
Carrot	0.66		0.48
Cauliflower			0.54
Corn	0.32	0.46	0.24
Courgette			0.39
Mix Vegetables	0.20	0.27	0.16
Mushroom			0.52
Peas	0.26	0.34	0.16
Spinach			0.52
Stir-fry Mix	0.34	0.44	0.28

Table 5.
Location cost comparison of fresh 5+ A Day.

		Mini Mart	Supermarket	Cost % Increase
Average cost of fresh only 5+ A Day	*Daily*	$2.61	$2.18	20%
	Family Weekly (4 ppl)	$73.08	$57.68	
Minimum cost of fresh only 5+ A Day	*Daily*	$1.06	$0.53	100%
	Family Weekly (4 ppl)	$29.68	$14.84	

Table 6.
Minimum local 5+ A Day costs when including processed substitutes.

		Fresh Only	Including Substitutes	Cost % Decrease
Minimum cost of 5+ A Day	*Daily*	$1.06	$0.87	-17%
	Family Weekly (4 ppl)	$29.68	$24.36	

Summary of cost analysis findings.

The cost analysis method generated factual data about produce pricing. Findings confirmed;

- It was at least 20% more expensive to purchase fresh fruit and vegetables within the community.
- Substituting some processed items reduced the minimum local cost by 18%.
- Cost barriers include transport barriers, when travel cost was added in to the equation savings gained by shopping at the Urban Supermarket were quickly eroded.
- There were a number of low cost fresh fruit and vegetables available throughout the year*.

Although I was only involved in one round of data collection the HPU staff continued collecting data. A total of four seasonal rounds were collected from 2009 to 2010. Upon completion the mean serving price of fresh produce in the community for the 12 month period was calculated to be $0.66, with a median value of $0.49 (refer to Appendix B:2 on pg. 170).

The overall results of the cost analysis are not surprising. What the findings do provide is factual evidence of the price difference and of price spikes. Red capsicum, for example, is nearly twice the price, costing $1.61 per serve locally compared to $0.66 per serve at the Urban Supermarket. Again I felt a real sense that the existing service access for residents was not fair and this inspired me to try to find out more (reflective journal, August 2009).

During my involvement in the cost analysis research method a couple of things did grab my attention, namely the nutritional equivalence of some processed fruit and vegetable items and the process used to discover the price of a serving (reflective journal, August 2009). This became inspiration later in the design phase for one of the end products.

3.5.3 Service Blueprinting Method

The service assessment method investigates the access and availability of fresh produce. Service blueprints are typically used to assess single

service flows. The original intention behind using service blueprinting as a research method, envision prior to becoming fully aware of the limited service options, was to record all existing services onto a single blueprint diagram to facilitate service comparison and assessment.

Gathering the service blueprint data.

Service owner/operators were consulted two weeks prior to data collection, verbalised no concerns and were very willing to help in any way they could. Two services, the Mini Mart and butcher, were visited on September 2009. Two researchers collected the data, one performed the role of a customer, the second shadowed the actor throughout the service experience. Observed information was recorded through note taking, photography (see Figure 12) and recording written reflections upon completion. A quick rough draft of the experience was sketched onto a form (refer to Appendix A:3 on p. 123) and used as a prompt for discussions about the service flow with the service owner/operator.

Service blueprinting findings.

A single service type was observed during data gathering and as such the resulting blueprint was different in form to what the researcher had originally intended. The service blueprinting method did provide an excellent platform for frank discussions with participants and for gaining behind the scenes access to the fresh produce service and supply processes.

Findings are presented in the blueprint (Figure 13, p.44) the cited notes from interviews and notes made into a reflective journal.

Figure 12.
Photos from service data gathering.

Physical evidence

| store entrance | basket / trolley | display, posters & labels | | quick sale label | roll of plastic bags | counter | pricelist, register, scales | old / damaged | receipt | store exit |

Customer options

| | mixed packs eg. xmas, soup, lunch | items on specials | prepacked | expired / damaged goods | select your own loose items | | | ask about damaged produce | | |

Customer actions

| enter service | locate fruit & vegetables | scan shelves for range & prices | select | | bag items into small plastic bag | approach counter | unpack basket / trolley | | pay for items | exit service |

Interaction

Staff actions

| welcome customer | | assistance if asked | | | | greet customer | checkout, weigh, bag | ★ discount up to 50% | charge, receipt & change | farewell customer |

Visibility

Backstage activities

| | stock shelves | prepare posters & signs | | repack for quick sale | ★ dump expired 1x a week | | prepare pricelist | | |

| ordering | unpack, repack & label | place extras into vege chiller | ★ price markup 10-50% |

Support processes

| produce wholesalers ★ |

During the data collection it was noted that the small rural stores appeared very responsive to their customers' needs, for instance the butcher was happy to break open a bag of potatoes and repack a few of these into a smaller bag. A discussion with the Mini Mart owner following service mapping exercise exposed more tailored service options, such as seasonal 'Soup Mix' bags and 'Christmas Mix' hampers (reflective journal, September 2009).

Owners were aware of the prices of produce in Urban Supermarkets being lower, however they felt they catered specifically for their local customers. Owners said that their produce was

fresher and that rather than having to buy bulk, customers could buy as much as they needed and reducing cost by limiting waste from spoiling (Mini Mart owner, personal communication, September 2009). Their customers later disputed this freshness claim (refer to 'Quality' in Table 7, p. 50).

On the day of data collection in the Mini Mart the owner was otherwise occupied, so instead the researcher worked with a senior staff member. This provided the opportunity to frankly discuss business practices and profit margins; the staff member was very forthright and offered personal opinions about the owner "raking it in" (Mini Mart staff, personal communication, September 10, 2009).

The final service blueprint graphic is presented in Figure 13. This depicts the relatively standard produce retail experience observed within the community. Through the act of developing a service blueprint several insights were noted down, worthy of consideration on completion of the social project research (marked as stars on Figure 13).

Summary of service blueprinting findings.

Service blueprinting was used in this inquiry to gain a deeper understanding of the availability, services and access of fresh fruit and vegetables within the rural community.

Findings blueprint findings confirmed;

- Residential access to regular fresh produce supply was limited to two service providers.
- There was only one type of retail service available in the community.
- There were opportunities for service improvement or innovation.

The most surprising observation, which began to surface during the data collection for this research method, was the internal community politics (reflective journal, September 2009). While discussing the research data with the Mini Mart staff member it became quite apparent how frustrated they were with the internal mark-up policies of the store owner and how they felt their pricing wasn't fair for community residents (Mini Mart staff, personal communication, September 10, 2009).

3.5.4   Summary of Research Phase One Findings

Preliminary research within the community ascertained the feasibility and viability of a social project. Findings confirmed;

- Existing services did provide residents with local access to a variety of fresh produce, however this came at a high price.
- There were service gaps - residents do not have a local fresh produce store, nor are there service options such as farmers markets.

It was pretty evident by this point that a cost difference did exist, but the question still remained as to whether this was a cost barrier and what was the nature of that barrier (reflective journal, September 2009). My gut feeling at this stage was that the fruit and vegetable service options and cost didn't quite seem fair. I needed to find out more. I was keen to uncover a bit more comparative information about the cost of fruit and vegetables through different types of services (not just the Mini Mart or supermarket's), for example I regularly buy fresh produce from a weekly urban growers market at very reasonable prices. I was also ready to hear the other side of the story from the perspective of the residents.

The HPU presented these research findings, alongside additional findings, in poster format at two health related conferences (Brien, Dresler-Hawke, Parker, Simpson, & Young, 2009; Brien, Dresler-Hawke, Parker, & Young, 2009), refer to Appendix B:5 on p.157 and Appendix B:6 on p.158. The researcher was allocated the task of developing poster visuals by the research team (refer to Design Work Component D).

At the time when tasked to prepare the posters I felt very begrudged and disappointed (reflective journal, August 2009). Although I felt I had thoroughly explained to the team my interest in exploring alternative applications for graphic design skills and methods, here I was preparing the very type of project work I had been trying to avoid. It was of course obvious and appropriate that I should be in charge of prepare the posters because of my skills set. However, I felt as though the team's preconceived notions of designers had surfaced... I was a graphic designer and posters is the type of work graphic designers do (reflective journal, August 2009).

I reflected on this experience and realised my reaction had been a little naive. Although not the type of project work I had envisioned producing during this research the posters were a valuable contribution. Conference posters were part of the academic outcome of the research and did inform appropriate audiences about the food security issues experienced in the rural community (reflective journal, October 2010).

3.6 Generating a Qualitative Understanding

The objective of the second research phase is to generate a qualitative understanding of the barrier from the residents' perspective.
This section presents the participant recruitment process, the research methods used, gathered data and key findings;

1. Participant Recruitment (3.6.1)
2. Directed Storytelling Method (3.6.2)
3. Photo Journal Method (3.6.3)
4. Additional Social Project Findings (3.6.4)
5. Summary of Findings (3.6.5)

3.6.1   Participant Recruitment

Participants were recruited for this phase with help from the HPU staff. The researcher was introduced to the HPU's key contacts at the Community Health Centre and the local Primary School. These establishments were approached because it was likely that staff would be aware of and be able to provide access to potential participants. The researcher met with staff contacts to discuss the research, both were happy to help. The social project was explained, the participant recruitment discussed and Information Sheets supplied (refer to Appendix A:4 on p. 133). The following participant criteria statement was provided to them, for reference when identifying potential participants...
'Expense is sometimes a barrier to eating fruit and vegetables for our family'.

Community Health Centre.

The key contact discussed the social project with potential participants. Those willing to take part gave permission for contact details to be passed to the researcher. Participants were phoned by the researcher, asked if they had any questions and a meeting time was arranged. Interviews with these participants were held at the Community Health Centre, so that the key contact could introduce the participant to the researcher. Three participants were recruited in this manner.

Local Primary School.

The principal initially selected a passive recruitment method. The school publishes a fortnightly newsletter, described as being 'well read' by families. A small write up about the social project was included in Newsletter 27, distributed September 2009. Passive recruitment proved unsuccessful yielding no participants, but helped raise residential awareness of the research. Permission sought to progress onto active recruitment methods at a second meeting. The principal agreed and prepared list of potential participants for the researcher to cold call. The first list was collected in March 2010 and a second in July 2010. Potential participants were phoned and a script was used to introduce the research. Interviews with these participants were held in their homes. Four participants were recruited in this manner.

Sample size.

The final small convenience sample of seven participants was a direct result of time and cost constraints. The researcher acknowledges that the data collected from participants can only be viewed as exploratory in nature and may not be representative of the wider population. The

small sample is deemed usable because it enables insights into the experiences and because the social project is only used as a pro forma that explores how design methods could be used within social issues.

3.6.2   Directed Storytelling Method

The storytelling interview method used was consistent with the protocol described by Everson (2006) with one exception. Everson's protocol suggests that two researchers take part in the interview, a leader to guide the story and a recorder to take notes. In this social project stories told by interviewees are guided by the researcher (performing the role of a leader) and recorded onto an Olympus Digital Voice Recorder. Recordings were later analysed by the same researcher (performing the role of a documenter).

Gathering the directed storytelling data.

Following recruitment the researcher met with participants to conduct the storytelling interviews. An opportunity was given for participants to ask questions about the research after which they signed consent forms. Participants recounted experiences in a focused interview. They were asked to tell a story about a recent experience when either they or their family had not been able to eat fresh fruit and vegetables because of the price. All interviews were loosely structured with similar questions in mind, however the interviews were lead by the interviewee and covered the topics that they wished to explore. This flexibility achieved a high level of insight into the participants' experiences, discussions went into areas that the researcher could not have anticipated as being important when writing the questions. They were probed further by asking questions about the experience, such as when this had occurred, who had been involved and what it had been like emotionally. Finally participants were asked about their knowledge of local and nearby services and for their perspectives on expense. The conversations were digitally recorded and notes were taken throughout. Seven participants took part in the storytelling method.

Data documentation.

The data documentation technique used for the directed storytelling also followed Everson's (2006) protocol. It involved listening to the digital recordings of each of the interviews and noting down key phrases, words, ideas or themes onto post-it-notes. Each note came from an element of the story and was identified because it was emphasised by the participant or stuck out to the researcher. For example, notes were created for each instance when the participants discussed things relating to the concepts of cost, such as expense, price, budget and so on. Other key concepts that particular attention was paid to included barriers, shopping experiences or rural isolation. Notes were adhered to a whiteboard, ordered into key themes and transcribed into a Microsoft Word document.

The thought of having to transcribe interviews or trawl through text documents does not hold high appeal to me as a visual person. That type of analysis seems tiresome, monotonous and not entirely cost effective. This data documentation approach was quite motivating. It was a quick and enjoyable way to work through the raw data (reflective journal, October 2010). It may seem a little unusual that the addition of colour, paper and the activity of sticking made data documentation/analysis more approachable and enjoyable. However I'd argue that in order to encourage more designers to use ethnographic research techniques approaches must be cost effective, easy, fun and fruitful.

Directed storytelling interview findings.

Table 7 (see pp. 50 - 52) presents the raw interview data. Comments from the interviews have been grouped in 11 different themes.

- Actual Prices
- About Prices
- Mark-up
- Season
- Quality

- Budget
- Fruit in Schools
- "Staples"
- Client Type
- About Services

- Service Solutions
- Shopping Process
- Strategies

Comments directly relevant to cost are grouped into actual prices, about prices, mark-up or budget. Season and quality comments indirectly relate to cost, as they reference either price fluctuations or waste. Fruit in School's, discussed in section 3.6.6, are comments that relate to the quantity of fruit purchased. Staples appeared as a common theme where interviewees talked about having regular basics. The services are referenced in client type, about services and service solutions. Shopping process and strategies also appeared as common themes presenting what residents do to cope.

Summary of directed storytelling findings.

The directed storytelling method allowed participants to describe their experiences of expense as a barrier to eating fresh fruit and vegetables. Findings confirm that participants;

- Tend to shop out of town while away for other reasons (sports, employment, etc).
- Tend to shop out of town because of the expensive local prices.
- Remember a weekly Sunday Market that use to happen in the community at which cheap vegetables were sold.
- Only use the local stores to top up between shopping trips.
- Are acutely aware of unit prices and can vividly recall price spikes.
- Describe prices of fresh fruit and vegetables as being very expensive, both locally and in general.
- Are conscious of 'mark-ups' and aware of percentage increases.
- Struggle to purchase certain items in the off season.
- Are very savvy about the items they buy and tend to want access to simple 'staples'.
- Rely heavily on the 'Fruit in Schools' initiative. Participants mentioned that the excess fruit is often sent home with the children at the end of the week.
- Believe that average families are not able to afford to shop locally.
- Budget for grocery items and find that price increases puts the pressure on those already tight budgets.
- Have strong preferences about the stores that they shop at, ranked in order of price.
- Had a different opinion to the store owners about the quality of the fresh produce.
- Tend to have strong negative opinions about the Mini Mart owner, many commenting on the owner having a monopoly.
- Feel there is demand for a local cheaper priced fresh fruit and vegetables service, however they don't believe the situation can change.

Meeting the participants, talking with them about their experiences and been shown a little about the way they lived their lives was a truly interesting and humbling experience

Table 7.

Directed storytelling interview data.

Actual Prices			
Broccoli $3-$4 $4 $3-$4 $3.50 (small – 15cm in size) $4 (size of a baseball) +$2 more locally	Cauliflower $6 $5 $5 locally, $3 in [nearby urban town] $6 $6	Lettuce $4, but I can get it for $1.70-$2 in [nearby urban town] and it's grown locally! $4	Apples $4 for 4 $4 locally for 1kg ($1 in [nearby urban towns])
Potatoes $16 for a 10kg bag (normally $10) $24 for a 10kg bag	Cabbage $6	Mandarins $6 per kg	
About Prices			
It's expensive everywhere, but seemed way more expensive here [locally].	No way I'd shop here weekly, costs twice as much [locally].	Prices scare me, especially if I have to chuck unused.	Didn't want to pay that much, it's frustrating.
Leave me feeling ripped off and angry [locally].	Fruit and vegetables cost an arm and a leg.	So high I won't get it (broccoli).	Prices are really high [locally].
Fruit costs quite a bit now.	So expensive here [locally].	Prices are too dear.	Phenomenal [locally] (2x).
Sky rocketing.	Horrendous.	Ridiculous.	Shocking.
$1 per piece of fruit is shocking.	If it's $5 per kg I won't touch it.		
Mark-up			
Difference in price can be $2 - $3 more on apples, pears, on everything.	Gets in a crate of cauliflower for $12, doubles the price and then doubles again. $5:50 for one cauliflower.	Apples are really expensive. 150% or more. 80c per Kg in Supermarket [urban town] and $1.60 per Kg locally.	The fruit and vegetables mark-up in 50 – 100%.
Mark-up is huge on everything.	Apples have gone up 60%.		
Season			
Produce that is off-season or last of the season has gone old and is not worth buying.	Different things are expensive in different seasons, actually everything is expensive.	Reduce the amount of fruit and vegetables in Winter, because it is so expensive.	Seasonal restraints on what we can buy, when the garden is not happening.
Can only afford fruit when it is in season, otherwise we can't afford them.	You notice a price jump when things go out of season.	The weather dictates what they [kids] like to eat.	Seasons dictate what the kids like to eat.
We always struggle in the off-season.			
Quality			
There are quality issues; produce is sitting a long time and not getting discounted.	We don't buy if it is not good quality, and more often then not it is not good locally.	Because the potatoes were so bad we went to the Takeaways instead and got chips.	The zucchinis were horrible. Blemished. Wouldn't leave them likethat in my garden, let alone stocking them at a store.
Quality of the vegetables are ten times better at the butcher [local store].	Bought some potatoes, but they were rubbish – only able to use ¼ of them.	We buy fresh, but can't use if they are floury (apples).	The quality of fresh in [locally] is not good. The fruit gets old, is dull and not affordable.

Budget			
We don't buy frozen. The fridge is turned off because electricity is too expensive.	Vegetables are important, but actually I can't eat because my lack of money.	Cut back on the amount of vegetables, because I can't get enough money.	Try to work our budget around prices, but they change overnight [locally].
Problem is you can't afford the veges, and that becomes the problem.	Happens just about every day, an every day occurrence [situations when they couldn't afford fruit or vegetables].	Travelling to [urban town supermarket] would add $30, but we have a purpose for going (school, sports, etc.).	There is nothing in my price range and it is worse locally.
Limits the amount [of fruit and vegetables] you can buy.	Good week $250, Bad week $100 (2x adults & 4x kids).	Average families are not able to afford to shop locally.	Hard, because you are limited to what you can have.
The way prices are going we can't afford to cut back.	Been there, done that, it is hard living on a budget.	We have to look closely at the prices of everything.	Don't always get things because we can't afford it.
Living on a tight budget, cost comes into it huge.	If I could afford it I'd buy fresh.	Broccoli at $3-$4 wouldn't feed my family	[Grocery budget] $70 for everything (1x adult & 4x kids)
Been struggling financially lately.	[Grocery budget] $170-200 (2x adults & 4x kids).	[Grocery budget] $200 (2x adults & 2x kids).	It's about money.

Fruit in Schools			
Don't but a lot of fruit because of Fruit in Schools.	Kids only get fruit because of Fruit in Schools.	No fruit at home because of Fruit in Schools.	Lucky they [kids] get fruit at school.
Kids would miss out without it.	Don't put fruit in lunch boxes.	Lucky to have it.	

"Staples"			
Better to have peas, carrots and corn then nothing at all [frozen mix vege]. However, everything starts to look the same – mince with peas, carrots and corn, steak with peas, carrots and corn…	Couldn't eat carrots from Monday to Sunday, didn't get enough money to buy. Just leave them.	The staples are always there [in home cooked meals]. There are always peas and carrots.	In our garden we grow pumpkin, zucchinis, tomato and lettuce, they are the staples.
Sometimes want to have something different in the fruit bowl [mandarins].	Your typical standard day is mince, potato, carrots and peas.	Dinner is meat and three veg, potatoes, beans and cauliflower.	Stay away from those sorts of luxuries [hydroponic lettuce].
Staples- potatoes, carrots, apples, oranges, bananas.	Staples- meat, potatoes and then the others.	We have things that are easy and simple.	Want to have a variety of staple fruits.
Always have meat and three veg.	Meat and three veg.		

Client Type			
Farmers can afford it [local prices] they have accounts.	If you aren't a 'cowcocky' [farmer] they don't want to know you.	If you aren't a farmer, they [local stores] don't care.	

About Services			
[About local store owner] He is out to make a buck, he is not worried about affordability.	Fruit and vegetables sometimes run out locally, [the local store] sells like hot cakes.	[About local store owner] He has a monopoly, so he can charge what he wants.	I have to go without rather than spending a fortune down there [local stores].
The fruit [locally] is dull, old or we can't afford it because of the price.	The bad thing locally is the cost, the good thing is the convenience.	[About local store owner] Don't think he cares, but I get pissed off.	[About local store owner]. He has the monopoly around here.
There is nothing close to supply us, we need a grower closer.	Excessive cost [in rural community] due to smaller cliental.	I would like to replace the local store with a different shop.	It costs more, has limited availability and a smaller range.

[About local store] Damn greedy, everything is $1 dearer.	Prices stop us from including more fruit and vegetables.	Don't know if the prices are due to supply and demand?	[Local stores] cannot offer value for a family of our size.
We go to [the local store], but can easily walk away.	[Local services] need to be more cost efficient.	Services are not catering to the community.	Occasionally use it [local store], if I have to.
It's more expensive [locally].	It's too expensive.		

Service Solutions

We need to get grants to get a garden/orchard and staff. Also need some grounds – the high school is not used anymore – a wasted facility.	There use to be fruit and vegetables sold through the Fish 'n' Chips and the Garage.	Get a new owner for [the local store] who isn't so worried about money.	[Suggestion for local store] Don't get any more in, it would be a waste.
We have nothing [growers] close to us, we need someone closer.	When the farmers have an excess harvest they sell it on the street.	[New service?] No, things start, then fizzle. Just too busy.	We use to have a monthly market that was quite good.
The markets were good, but need to be more regular.	Can't really change because [community] is so small.	Need to put in more fruit trees in [local town].	They need to be more cost effective.

Shopping Process

Go to [Urban Supermarket] to go shopping. We would never do a 'big' shop locally.	Buy lunch from [the local store] daily, lunch, snacks, and biscuits. Works out cheaper.	Went to [the Urban Supermarket] to get fruit, I can't justify it (spending that much).	We don't buy fruit or vegetables that are on special, because they go off.
Prices can change overnight making it [budget] hard to work around.	Do a big shop once a month from [the Urban Supermarket].	A lot of locals go to the Saturday [urban town] markets.	We stick to things we like, so that there is no waste.
We get our potatoes from [the Urban Supermarket].	[Urban Supermarket] has more variety.	Go to town [locally] when we run out.	We buy fruit on a daily basis.

Strategies

Want to give the kids what you can.	We don't buy in bulk, because they go off.	Hard to substitute frozen because of the cost.	Homemade soups are economical to make.
Me and the wife go without, just to get the kids feed.	Look closely at the prices of everything.	Too tough, too hard, never mind, move on.	Try to spend less, but we can't.
Prefer fresh to frozen (except Stirfry Mix).	I stick to the things I like so that there is no waste.	We quit smoking to afford food.	Fresh in bulk is not good, it will go to waste.
I don't buy fruit and vegetables in bulk because I don't know how to blanch and freeze them.	Financially it is better to buy 3x frozen vege mix than $10 for a broccoli and a cauliflower.	Stay inside the safe area. Price can get in the way of you try new things and the kids won't eat it.	We get veges from the Supermarket [urban town], because you can see what you are getting.
Because the potatoes were so bad we went to the Takeaways instead and got chips.	Need to have something in the fruit bowl [wanted mandarins].	We've eaten the same way for so long, it's a habit adapted to it.	Kids don't have packet stuff, because their school has eco policies.
No we don't substitute canned vegetables, we just go without.	Go to [Urban Supermarket] to go shopping. We would never do a 'big' shop locally.	If it is too expensive we don't get it. That is hard though if it is what the kids want to eat.	Try to get the real stuff not 'cardboard', but normally that is all you can afford.
Would not by fruit and vegetables on special, because they go off.	A lot of locals go to the Saturday [urban town] markets.	If it is too expensive we just don't have it.	It's all about knowing where to go.
Majority of locals don't shop here.	Just not viable to buy it.	You eat what you can, I say.	Can't do anything different.

(reflective journal, July 2009). Participants were very generous with their hospitality, stories and insights.

Before meeting the participants I had no prior experience of hardship, especially around affording basic food. If I'm to be honest my previous perceptions about people who claimed to struggle to afford fresh fruit and vegetables included thinking that their statements were crazy, everyone should be able to afford fruit and vegetables – they must be spending their money unwisely – and as these families live in the country why weren't they growing their own? (reflective journal, May 2008) Those preconceived notions were shattered.

For example I met a man who had a total grocery budget of $70 per week for a family of four. He had no car and therefore used the weekly bus service to travel to the nearby Urban Supermarket to shop. He did own a fridge, but could not afford the electricity to run it and as such had restrictions around what items he could use. Frozen or chilled items could only be used on that same day of purchase.

I also met a single mother of three whom on top of caring for her children works 45 minutes out of the community earning a minimum wage. She described herself as shattered by the time her day finishes and although she is trained in horticulture and loves gardening her seedlings seldom make it into the vegetable patch.

This added to my previous observations about the unfairness of their situation and inspired me to continue to work towards finding solutions that might help.

3.6.3   Photo Journal Method

The photo journal method was designed to help participants document and describe their experiences of expense as a barrier to eating fresh fruit and vegetables. The method was used in addition to the directed storytelling method in an attempt to gain more in-depth information about the participants' perception of their situation.

Photo journals are made up of seven sections (refer to Design Work Component C).

- a) Section 1: About you and your family
- b) Section 2: About access to fresh fruit and vegetables
- c) Section 3: About expense as a barrier to healthy eating
- d) Section 4: About risks
- e) Section 5: About knowledge
- f) Section 6: Ideal situation
- g) Section 6: Wrapping it up

It made perfect sense at this point of the inquiry to utilise my graphic design skills to create the Photo Journal booklets. This task involved organising the written content that was provided to the ethics committee in a Word document into a multi-page InDesign document using typography and page layout skills. The resulting Photo Journals had a clean, clear easy to use layout throughout. The Rotis typeface was used including serif, semi sans and san serif fonts. Rotis has great legibility, a professional/technical quality to it as well as a friendly edge making it an excellent choice. Pages were laid out with plenty of room for participants to use and visual guides to indicate the required tasks. Spending the time to design this research tool was worth while because as a result of the graphic design work the final booklet came across as genuine and professional, but also down to earth and user friendly.

Gathering the photo journal data.

At the end of each interviews participants were offered the opportunity to participate in the photo journal research. Five of the participants agreed to take part. The researcher first checked that those participants knew how to use a disposable camera and talked briefly through the journal process with them.

Table 8.

Data documented from the photo journals.

Section	Findings	
1: About you and your family	All families lived in three bedroom homes.	The neighbourhood was described as quiet, friendly and that neighbours were nice and caring.
	One family described their home as a 'healthy home'.	The rural community was also described as being a great place to bring up kids.
2: About access to fresh fruit and vegetables	Four locations were marked on the included maps as places to go and get fruit and vegetables. The school was mentioned, not for the community garden, but as providing left over fruit from the Fruit in Schools programme. The butcher and the service station were identified, as was one neighbour. Home gardens were also listed.	One participant was aware of the community garden at the primary school. Another participant was unaware that the garden at the school was a community garden, but was were very interested in getting a community garden started and went into elaborate detail about where and how this could be created.
	A vegetable grower from a nearby urban town was listed as a supplier and recommended highly by one participant. They were described as sellers of cheap vegetables 'You can get three times the amount', 'much cheaper than buying it here in [community]'.	One participant said that the Mini Mart was a 'local supermarket that I use to top up'. All of the participants mentioned how costly the community store was and one participant noted about how they only use the Mini Mart as 'an absolute last resort'.
	All participants had gardens in which they grew some fruit and vegetables for their family. All participants also mentioned swapping produce with neighbours.	The level of satisfaction with the rural stores was low. One participant wrote that they were satisfied, 'but only because it's close'.
	One participant complained about how 'I can get locally grown produce (lettuce) cheaper in [nearby urban town].	The butcher was described as stocking 'great vege, very fresh'.
3: About expense as a barrier to healthy eating	Value for money was described as 'the best' and 'something that gets eaten as well as something we enjoy'.	Factors that contribute to the expense barrier were listed as travel (2x), seasonal price (1x), availability in the community (1x) and the community location (1x).
	A barrier was described as something that gets in the way.	Prices were mentioned as being important due to living on a budget.
4: About risks	Buying in bulk was considered a risk, because 'it goes off before you use it all'.	Having a community garden was listed as a solution to reduce or eliminate the risks.
	Food going off was also listed as a risk 'it gets yuck'.	
5: About knowledge	Budgeting skills were noted, families try to keep to budgets, however one participant noted that 'we try to keep to a budget, but prices keep going up and down'.	Fresh produce was noted as being important under the taste in food question, 'we will not use produce that is not fresh'.
6: Ideal situation	Food items listed on the 'typical' and 'ideal' daily food charts were simple, wholesome and did not vary much in either quantity or types of food.	One participant reinforced their interest in a community garden under the ideal fresh fruit and vegetable service question.
	Another participant noted the ideal situation would be 'to have the services provided in the [urban town] here in [community] or for the [local store] prices to be the same as in [urban town]'.	The kids indicated an interest in high amounts of junk food on their 'ideal day'.
7: Wrapping it up	'We need a community garden' was the summary from one participant.	Another participant noted 'Things are more expensive to purchase here in [community] compared to [nearby urban town]. The produce isn't always as fresh, therefore not as appealing. Local produce is almost twice the price to purchase in its own community'.

Participants were provided with a disposable camera and a printed journal. Journals included a series of questions and spaces in which participants were able to record written descriptions of their experiences. They were asked to photograph aspects of their individual experiences and annotate these images within a provided journal. Journals were left with the participants for a couple of weeks. Participants were then followed up with phone calls and a time was arranged for collection of the completed photo journals. The journals and cameras supplied to the participants were collected in person.

Data documentation.

Both the hand written content and the photographic imagery returned in the journals was examined for key concepts. Due to the limited number of responses key ideas, words, sentences or notes were typed directly into a table in Word as opposed to using the post-it-note analysis approach from the previous method.

Photo journal findings.

The findings from the photo journals are presented Table 8. Summaries of answers relevant to the social project topic are been reported. Data is documented in rows that represent each of the different sections in the photo journals.

Summary of photo journal findings.

Findings different from the data already presented in the interview section are;

- Participants lead very busy lives.
- Participants are unaware that there are three community gardens located within the community.
- Some participants are aware of a vegetable grower from a nearby urban town that sells cheap quality produce.
- Participants feel the expense barrier is created by travel costs (x2), seasonal price (x1) availability in the community (x1) and the community location (x1).

Using photo journals should have enabled a better understand the participants' experiences, however this was not the case. The photo journals were often returned incomplete and tended to lack new or insightful data. Photo journals may be a poor choice of method given that the participants mentioned that they simply didn't have enough time to allocate towards journal completion (reflective journal, June 2009). This does however highlight a time efficiency criteria for any end product solutions.

3.6.4   Summary of Research Phase Two Findings

There was a very small, but positive response to the interviews and photo journals. Participants were noticeably anxious at the start, but very generous with their time and forthright with their responses. The participants provided several very valuable pieces of information and insights into the barrier from the residential perspective. Findings confirmed;

- Use of the local services tends to be for emergency purchases.
- Alternative low cost services are available, but only some of the participants are aware of, or able to use, those services.

- Awareness about the existence of or access to
  the three community gardens is low.
- Participants feel as though they are not catered for by the existing services.
- Participants feel like they experience cost access barriers
  to fresh fruit and vegetables regardless of where they
  shop, locally or at the nearby urban towns.
- Any attempts to manage the cost access barrier are on an individual level.
- Participants held strongly negative feelings about the Mini Mart based,
  heavily on their experiences of price spikes and general mark-ups.

The data collected from the participants reconfirmed cost was a barrier to accessing fresh fruit and vegetables. The statement that really summed up participants feelings and attitudes for me is this simple response to the question 'What would your ideal situation be?'... 'To have the services provided in the [urban town] here in [the community] or for the [local store] prices to be the same as in [urban supermarket]'. I think that this is not too much to ask for. Participants do have limited finances, they want to buy more fruit and vegetables, they have strategies in place to try and do this, but their efforts fall short of their ideal situation.

As with all research involving participants there was a possibility that some or all of those involved responded to the questions by giving the answers that they felt I wanted to hear and that as a result behavioural change in response any designed solutions might not happen. However, it certainly felt as though the responses were genuine and that if residents could be empowered in some way to create change or if alternative solutions could be provided residents would take up those opportunities.

Switching to a *pro forma* approach

A challenge arose at this point of the design practical task. As the social project contributes in part towards a masters degree there are corresponding time and financial constraints. Despite all effort (put in for 10 months) I had only been able to recruit seven participants for the qualitative research phase. That led to a real concern. The perspectives, feelings, attitudes and experiences shared by the seven residents may not adequately represent all community residents that meet the participant criteria. I am also concerned that perhaps not every important detail is addressed within the seven responses. With this in mind, the collected data can only be viewed as exploratory in nature.

Initially the plan for the social project included compiling findings and presenting these back to the service and community representatives. I also intended to run a Co-Design workshop to begin to generate solutions collaboratively. Due to the small response this was no longer an option, because of the limitation of the responses and due to over extending my financial resources in the research phase. It was therefore at this point that I made a decision, under the guidance of my supervisor, to proceed on with the design practical task but to treat the task as a 'pro forma'.

What 'pro forma' means in this instance is that I've continued on into designing end products, but I have had to abandon certain aspirations of my original plan. The Co-Design workshop did not go ahead and at time of thesis submission the final end product is still in development, rather than complete and implemented (as discussed in 3.7). Although far from ideal, I feel this approach is acceptable for this research inquiry because after all the intent is to explore how design skills and methods can be used within social issues.

3.6.5 Additional Social Project Findings

Throughout the research phase of the social project additional information surfaced relevant to the inquiry. This information includes details about:

   a) 'Fruit in Schools'
   b) The Bus Service Discount
   c) Local Vegetable Grower
   d) A Vegebox Scheme
   e) Urban Vegetable Grower / Farm Shop

'Fruit in Schools'.

The Ministry of Health programme 'Fruit in Schools' was initially launched in late 2005. The basic aims of the initiative are to encourage children to eat more fruit and to adopt healthier lifestyles. Eligible primary schools (selected from areas of high health need as defined by the New Zealand deprivation index) receive fresh fruit delivered directly to the school, 1 piece of fruit per child per day. The local Primary School in the community is one of these schools. The initiative is provided at no cost to the school, the programme is government funded. Initially the scheme was set up to provide each school funding for three years, with the intent that schools would work towards sourcing or funding their own fruit by the end of the programme, this funding was extended in 2009.

The bus service discount.

A few participants mentioned a bus travel discount available on a weekly service from the community to the nearby town. This is available on return trips normally valued at $12. Surprisingly, the discount is not provided by the bus service provider or any community health initiatives. The Urban Supermarket offers the refund to passengers who shop in their store. The refund is $3 if the spend is over $50, or $6 if the spend is over $100.

Local vegetable grower.

A visit was paid to the local specialised vegetable grower during the service blueprinting on the off chance that they did supply local residents. The researcher was lucky enough to talk briefly with the grower, informally and frankly. The grower discussed the following points (Local grower, personal communication, September 10, 2009)...

   • In his opinion it is not cost effective for small producers to supply directly to small isolated rural communities. His business model is bulk supply and taking time out to 'sell at the gate' results in an unworkable lose of income.
   • There are low profit margins for growers (their clients include a market from a neighbouring town and large national distributors)
   • Other growers used to exist in the community years ago, but these had gradually closed down one after the other. In his opinion in order to survive growers had to specialise and grow in bulk. The grower observed that the expansion of much larger industrialised farms had priced small farms out of the market.
   • Farming mixed produce was not cost effective in his opinion.
   • That the soil in [the community] and in fact the South Taranaki District was great for growing fruit and vegetables.

A 'Vegebox' scheme.

While working on the social project the researcher became aware of a North Island based company who home deliver fresh organic fruit and vegetables nationwide. The researcher ordered a vegebox purely out of interest to compare the serving prices to the previously gathered cost analysis data.

A 'Baby Fruit and Vegetable' box was ordered, priced at $42.55 for Rural North Island (price from August 2010). The vegebox received contained a good variety of fruit and vegetables in excellent condition, Figure 14 shows the vegetable content (refer to Appendix B:3 on p. 155 & Appendix B:4 on p.156).

The weight of the enclosed produce in this box was 14.58kg. Using the 80gsm measurement for fresh serving sizes this equated to the box containing 182.25 servings (42.25 more then the weekly requirement for a family of four).

The average cost per serving worked out at $0.23. Comparing this to the earlier average and minimum cost data provides interesting insights. The results in Table 9 show that the vegebox is a better cost options when purchasing a wide variety of fresh produce (average costs).

Figure 14.
Vegetable contents of the vegebox.

Table 9.
Cost comparison of the vegebox.

		Mini Mart	Supermarket	Vegebox
Average cost of fresh 5+ A Day	*Daily*	$2.61	$2.18	$1.17
	Family Weekly (4 ppl)	$73.08	$57.68	$32.69
Minimum cost of fresh only 5+ A Day	*Daily*	$1.06	$0.53	$1.17
	Family Weekly (4 ppl)	$29.68	$14.84	$32.69

Although not a competitive option compared to the Urban Supermarket minimum, this vegebox service is only 10% more expensive then the Mini Mart minimum cost. To add context to this, the vegebox produce is organic (often costing more), the produce was delivered directly to the customers door (including courier costs) and professionally packaged (including packaging costs).

Urban vegetable grower / farm shop.

Within the qualitative understanding research phase several participants mentioned reasonably priced, good quality fresh vegetables sold by a nearby urban vegetable grower. A visit was paid to this grower in order to investigate their service, vegetable range and fresh produce prices.

Located a 30 minute drive from the community this family owned and operated business has been running for 30 years and grows a wide variety of fresh vegetables. They supply local supermarkets and restaurants as

well as opening a farm shop three days a week to the public; Thursday, Fridays and Saturdays. Despite visiting on a day when the shop was closed, the researcher was lucky enough to talk briefly with one of the owners, again informally and frankly. The grower discussed the following points (Urban grower, personal communication, September 10, 2009)...

- The farm shop is their main income stream. They are motivated to open for the large numbers of local who come from quite a large catchment area.
- Having three shop days is sensible, the customers know when to come, they can work on the land the other days and the produce is always cut fresh.
- 500% mark-ups reported recently in the news were ridiculous, only happens now and then.
- They use to sell all of their unsold produce on Saturday afternoon, at a big discount, to a guy who would then on sell it at the isolated rural community weekly Sunday Market. This worked well for them because it cleared out any remaining stock, enabling them to 'cut fresh' on Monday
- When the communities Community Hall changed ownership the Sunday Market stopped (they understood that the Hall is now owned by the Mini Mart owner).

Summary of additional social project findings.

Expanding on both the information gathered for the first and second phases the additional social project findings provided several new pieces of information and some valuable insights. Findings confirmed;

- Community children are eating at least 5 pieces of fruit per week through the Fruit in School programme and sometimes took extra home.
- The Fruit in School programme is in some ways having a negative effect, some parents now bought less fruit because 'the kids get it at school'.
- The Urban Supermarket is aware of the opportunity to cater for community residents on lower incomes.
- Other service options can be delivered directly to the community at competitive prices.

These additional findings rounded out the research. I now knew a bit more about the local politics, a little bit more about what was reasonable as far as fresh produce pricing and what might be possible in an alternative service, I knew a bit more about what worked and what didn't with regards to growing a selling vegetables and again I had seen evidence of other businesses seeing gaps in the community services and attempting to respond to community residential fresh produce service needs. It was time to take the things I had learnt and start designing.

3.7 Development of a Design Solution

The objective of the design phase is to develop a design solution in response to the social project research data. This section presents the final design solution and it's development process;

1. The 5+ Best Buys System (3.7.1)
2. Design Approaches (3.7.2)
3. Conclusion of the Design Practical Task (3.7.3)

Co-Design Session

As previously discussed the Co-Design Session was not suitable nor possible and as such the design practical task transformed into a pro-forma approach. However, throughout the design development process it became evident that co-designing would have been a more optimal approach and would have had the highest chance of resulting in the best solution/s.

Relating to this observation a shift in focus should be noted. During the design development decisions around 'what' product to design were influenced by final delivery options. It seemed far more appropriate for the researcher to focus on creating a solution that could help spark innovation or change when passed on to those with influence, than to independently create solutions which went no further.

3.7.1 The 5+ Best Buys System

The 5+ Best Buys System is a design solution developed to the point of concept prototype in response to the social project research. This design work is the main practise-based outcome of this thesis.

Introducing the 5+ Best Buys System.

The 5+ Best Buys System is a comprehensive kit which is designed to inform community residents about how to shop in a way that avoids high prices. The system does this by increasing knowledge around what fresh items are most cost effective and raising awareness about the nutritional equivalence of processed items. Emphasis is given to how processed substitutes can be cost effective substitute strategy. There are two aims behind this design solution;

- The aim from a residential perspective is to help equip residents with tools and a strategy that they can use to help reduce the amount of money that the 5+ A Day dietary recommendations require.
- The secondary aim is to increase the Mini Mart owner's awareness of their minimum price produce range and to encourage increased understanding of the businesses cliental. A significant segment of the Mini Mart's potential custom is clients who want access to cheap, consistently priced fruit and vegetable items.

Components of the 5+ Best Buys Kit.

- 4x Seasonal Posters
- 4x Seasonal Shelf Markers (20 of each)

- 4x 'Better Deal' Labels and Shelf Markers (10 of each)
- 4x Seasonal Serving Price Guides
- 4x Seasonal Recipe Idea Pamphlets (as templates)
- A User Guide

5+ Best Buys System is a collection of printed items. The items for the Mini Mart include a series of four Seasonal Posters, Shelf Markers, 'Better Deal' labels with corresponding Shelf Markers and a User Guide. The items for residents include seasonal Serving Price Guides and Recipe Idea Pamphlets.

Seasonal Posters (see Figure 15) highlight the 10 cheapest fruit and vegetable items in store and work in tandem with the Shelf Markers, which identify items on shelf (see Figure 16 & 17). The set of blank 'Better Deal' labels (see Figure 19) can be adhered directly on top of fruit or vegetable poster items. 'Better Deal' labels can be customised and used when prices of the cheapest items fluctuate or spike (see Figure 18). Price Guides (see Figure 20) list all seasonally available fruit and vegetable items and are categorised into price brackets. Recipe Idea Pamphlets provide residents with recipe ideas for using the cheapest items. The User Guide document outlines how to use the system for the Mini Mart's owner and explains why it is needed (refer to Design Work Component E).

From the residential perspective the system works through residents viewing the Posters or Shelf Markers in store and becoming aware of the most cost effective seasonal fruits or vegetables, especially processed items. Residents can take away the Price Guides and/or Recipe Idea Pamphlets from a brochure holder located near the Poster. This provides residents with a strategy to use regardless of shopping location. Both items contain information aimed to raise an awareness about the nutritional equivalence of processed items.

The system works within the Mini Mart through making the owner and staff more aware of the minimum price product range of fruit and vegetable items. It provides staff with knowledge of the comparative serving prices between fresh, frozen, canned and dried items, enabling and empowering staff to guide and cater for clients who struggle financially.

5+ Best Buys delivery progress

Prototype visuals were presented in digital format to the HPU during February 2011. The HPU staff 'really liked the concept' (Knowles, S., personal communication, March 3, 2011). A HPU staff member presented the concept to a Community Action Group in the community during April 2011 (a group established by the HPU who aim to gain better access to fruit and vegetables for residents within the community). At time of thesis submission the researcher was still waiting to hear the outcome of this presentation and as such the 5+ Best Buys System was still at concept prototype stage, rather than completed and implemented. The researcher's intended next step, following HPU approval, is that the concept is presented to Mini Mart staff. Ideally the 5+ Best Buys System will be adopted by the Mini Mart, funded by the HPU and appear in store for residents in Winter 2011.

Lenghty progress and communication delays while working with HPU staff became a regular occurrence and challenge towards the end of the social project. This was a little frustrating because in contrast staff had been highly motivated and proactive at the beginning of the project. The change happened in early 2009, following the 2008 General Election, when the HPU experienced funding cuts to community health projects and a changeover in staff.

In your [IRC] Local Store
5+ Best Buys : Winter

5+ a DAY fresh fruit & vegetables **for less than $1 per day**

During the winter months these 10 items are the cheapest fruit and vegetable items you can buy in our store.

Choose 3 servings of these vegetables...

| Carrots | Pumpkin | Squash | Swede | Frozen Beans |
| Frozen Vegetables | Frozen Peas | Canned Beetroot | Canned Peas | Canned Tomato |

Choose 2 servings of these fruits...

| Kiwifruit | Orange | Pear | Pineapple | Canned Apricots |
| Canned Pineapple | Canned Strawberry | Dried Mixed Fruit | Raisins | Sultana |

Frozen, canned and dried fruit and vegetables are as good for you as fresh, but cost less saving you money.

Look out for the 5+ Best Buy labels around the [IRC] Local Store to find these cheap items.

Fresh = Frozen Canned Dried

5+ Best Buys

Look out for next seasons best buys...

Winter   Spring   Summer   Autumn   TARANAKI DISTRICT HEALTH BOARD   IRC Mini Mart Logo

Figure 15.
The 5+ Best Buy seasonal posters.

Figure 16.
Best Buy Shelf Markers.

Figure 17.
A winter Best Buy Shelf Marker in situ.
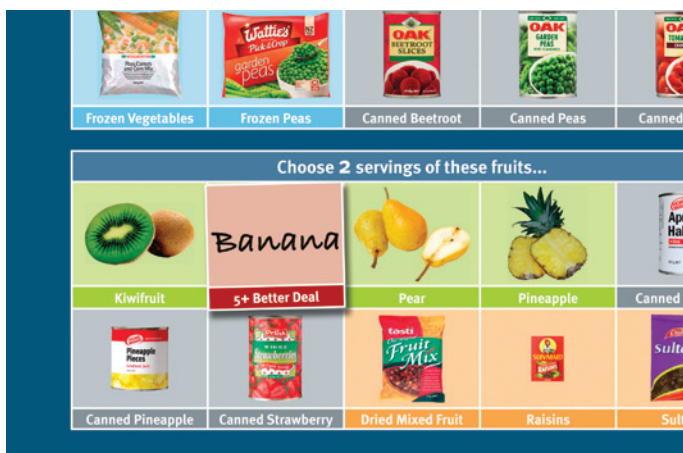
Figure 18.
'Better Deal' Labels in situ.

Figure 19.
'Better Deal' Labels and Shelf Markers.

Winter Vegetable Price per Serve				
10c - 25c	25c - 35c	35c - 50c	50c - 80c	80c - $1.50 +
Cabbage	Celery	Beetroot	Broccoli	Avocado
Carrot	Leek	Brussel Sprouts	Capsicum - Yellow	Capsicum - Green
Cauliflower	Beans	Parsnip	Courgette	Capsicum - Red
Onion	Corn	Capsicum	Mushroom	Corn
Pumpkin	Stir-fry	Courgette	Spinach	Cucumber
Silver Beet	Beetroot	Mushroom	Tomato	Lettuce
Squash	Corn	Spinach	Yam	Radish
Swede	Peas	Beans	Broccoli	Watercress
Mixed Vegetables	Tomato	Cucumber	Carrot	Asparagus
Peas		Mushroom	Cauliflower	Brussels Sprouts
			Asparagus	Capsicum
			Cabbage	Mixed Vegetables
			Potatoes	Peas

Figure 20.
Cover and inside spread of the Best Buys Winter Price Guide.

About the target audience, solution needs and design criteria.

The target audience understanding comes directly from the research findings and observations made while being directly involved in the data gathering research process. 5+ Best Buys targets two audiences, one directly, one indirectly. The system is directly targeted at isolated rural residents who are not able to access enough fruit or vegetables because of the cost. The second audience is the Mini Mart owner.

Research findings show that the residential target audience would like to have access to regular basic good quality 'staples' at consistent cheap prices (see findings of the Directed Story Telling, p. 54). They are both unable and unwilling to purchase items with high markup, due to their budget restrictions (see About Prices, Mark-up and Budget in Table 7, 51-53). As shoppers they are acutely aware of unit prices and can vividly recall price spikes (see Summary of Direct Story Telling Findings, p. 54). These residents feel 'ripped off', angry and frustrated by local prices and consequently have negative opinions of the Mini Mart owner (see About Prices and About Service in Table 7, p. 51). As observed throughout data collection (see Summary of Photo Journal Findings, p. 55), but especially during the interview in May 2010 (see last para. on p. 54) members of this target audience lead very busy lives.

Target audience information about the Mini Mart owner was gathered during the Service Blueprint and Cost Analysis methods. The owner is aware that several community residents sit within a low socio-economic income bracket (Mini Mart owner, personal communication, August 2009). The owner acknowledges that the produce is more expensive, but feels as though they specifically cater for those on tight budgets (Mini Mart owner, personal communication, August 2009). The store does this by stocking fresher produce and letting customers buy as much as they need avoiding additional costs associated with spoilage of bulk purchases (see Service Blueprint Findings, p. 42). The owner is willing to take on new initiatives and do more to help the residential target group (Mini Mart owner, personal communication, August 2009).

A quantitative analysis of the qualitative data is presented in Table 10. Each instance of data that related to a repetitive theme is tallied in this table. Column titles summarise repetitive themes. Colour tints, X's and numeric tallies highlight the important issues observed in each research method. A quantitative perspective to the qualitative results provides clarity. It also confirms the 5+ Best Buys solution responds to several of the key needs, as illustrated in the last row of the table. The content in Table 10 presents key issues and highlights what the most important issues are.

As succinctly summed up by an interviewee the ideal situation is having the services that exist in urban towns provided locally (see Summary of Research Phase Two Finding, p. 55). It is not possible to change things in an instantaneous fashion, in order for the situation changes to be successful, changes need to happen in small 'shifts' (Wir Hier, 2005).

Table 10.

Research themes and how the 5+ Best Buy System responds.

Key

- Top issue
- Secondary issues
- Additional issues
- Not observed
- X — Observed
- \# — Number of mentions
- Directly responds
- Indirectly responds
- Not addressed

Research Methods	Cost: Too expensive	Too expensive locally	More expensive locally	Mark-up locally	Price spikes	Had to go without because of cost	Service: Gaps in the services	Want a variety of affordable fresh	Need easy cheap simple solutions	Markets (need or currently use)	Mini Mart dissent (business and owner)	Not catering to entire community	Fairness (or lack of)	Garden: Personal garden use	Community garden need	Fruit trees need	Issues: Waste at home when buying bulk fresh	Waste at home from buying 'dislikes'	Quality of fresh	Off season issues	Spoiling on shelves locally	Running out of produce	Range is too limited locally	Other: Processed substitutes	Travel cost barrier	Use of 'Staples'	Fruit in Schools
Community Visit			X		X		X						X	X													
Cost Analysis			X		X																			X	X		
Service Assessment			X	X			X				X		X							X							
Directed Storytelling	27	42	7	12	6	7	17	10	7	6	11	4	3	2	2	1	9	3	10	7	5	1	1	2	1	10	8
Photo Journals		6	2		1			1	1					3	4		1	1	1				1			2	1
5+ Best Buys	Indirectly	Directly	Directly	Indirectly	Directly		Indirectly		Directly		Directly	Indirectly					Directly			Directly				Directly		Directly	

The following major issues form solution criteria;

1. **Cost**
   - Address the cost of fresh fruit and vegetables being 'more' or 'too' expensive locally as well as 'too' expensive in general.
   - Address the negative affects of mark-ups and price spikes.
2. **Services**
   - Address the gaps in the services provided within the community.
   - Address feelings of dissent felt by residents towards the Mini Mart business and owner.

The following points consider the target audience, solution need and delivery considerations forming the design criteria;

1. **Visual Language**
   - Needed to be as simple, clean and clear as possible
2. **Written Language and Content**
   - Focus on basic information, not overwhelm users with content
   - Highlight cost and affordability up front
   - Present the concepts of nutritional equivalence and serving size
3. **Format**
   - Concept is more important than aesthetics
   - Easily updated and added to
   - Easy to read, easy to use and quick to find information
   - Cost effective
4. **Concept**
   - Promote community ownership, a small shift towards the ideal

These criteria were continually considered throughout the design process.

3.7.2 Design Approaches

The researcher's original intent had been to approach the development of the design solution using a linear traditional design process. In reality the route taken was much more lateral. The following two sections describe the design approaches used to progress forwards from data gathering on into practical design work.

a) A traditional approach.
b) An intuitive approach.

Throughout this section the labels of 'traditional' and 'intuitive' are simply used to concisely summarise the design approaches explored.

A traditional approach.

In initially following a traditional approach the researcher was outcome focussed. Emphasis was placed on the end product, traditionally appropriate as a concern and focus for designers.

Throughout the design practical task the researcher had created a list of potential design solution ideas. More ideas list were added to this list from a brainstorming session. The researcher attempted to identify a solution direction within the ideas by seeking evidence in the data to justify the ideas as solutions. The first column in Table 11 shows a condensed version of the list of ideas, the second column presented quotes from the research data, which link to each idea.

Although each of the ideas listed in Table 11 present as good concepts there were obstacles, problems or reasons why no further progress was made. For example, idea 1. Service Advertising progressed no further due to the HPU's focus. When discussing this concept with HPU staff they emphasised their interest in improving/aligning current services with residential need, rather than encouraging residents to seek cheaper produce elsewhere (Knowles, S.,

Table 11.

Solution ideas, data quotes and obstacles.

Solution ideas		Quotes
1. Service advertising *(information design and advertising)*	Information brochure for residents that present the existing range of fruit and vegetables services options available, especially those services that they may not be aware of.	"It's about knowing where to go"
2. Ideal situation advocacy *(information and graphic design)*	A document that portrays residential experiences of the cost barrier, targeted towards policy makers. Includes persona/user scenarios highlighting observations, key comments and factual data on the price differences.	"My ideal situation would be to have the services provided in urban communities available here in my local community, or for the prices to be the same"
3. Connections *(information and graphic design)*	A strategic document with suggested solutions for strengthening and building on the existing neighbourhood and community garden network.	"We need a community garden"
4. New service *(service design)*	Prototype designs of new service solutions that supply residents with 'the staples'.	"Always have meat and three veg"
5. Service improvement *(service design)*	A report on the current service and feedback on the expense barrier from residents. A document for the existing service owner operators.	"The services are not catering to the community, if you are not a farmer they don't care"

personal communication, March 2011). Without Health Board endorsement an information brochure would have lacked credibility and funding.

At the time following a traditional approach gave the impression of being a logical way to progress forward and seemed to confirm that some of the design solution ideas noted in the reflective journal had strong links to the gathered data. However, in hindsight it is obvious that the researcher was picking individual items of evidence, rather than seeking general trends/themes.

I struggled to get started or to move forward on any of these project ideas - something wasn't right. In hindsight I had been stifled by...
- *The amount and complexity of data*
- *The nature of qualitative data (that took me off in too many different tangents)*
- *The newness of my endeavour*
- *The social nature of the project*
- *The fact that I couldn't get feedback from locals or the TDHB about the ideas*
- *Internal and external pressure to 'make' or 'design' something*
- *Couldn't see the general trends, problem solver by training and personality*

An intuitive approach.

When using an intuitive approach process becomes of prime significance. The process in this approach began with a decision to review the research methods' data set individually and develop corresponding end products. The cost analysis method data was the first data set reviewed. Two salient observations stood out from the cost analysis key findings; the nutritional equivalence of processed fruit and vegetable items and the new knowledge the researcher had gained about serving prices.

Dr Dresler-Hawke (2007) verified nutritional equivalence of processed items when developing the method for previous research. On the day of data collection the researcher spoke at length with an HPU staff member about the cost benefits associated to nutritionally equivalent processed items (Brien, A., personal communication, July 2009). This staff member had a background in Human Nutrition & Biochemistry and was an Associate Member of the New Zealand Dietetic Association. In addition to this, while engaging in data collection, the researcher noticed the different perspective that a serving price cost analysis method provides on produce value. Rather than assessing items by visually checking the size and price ticket, this calculated approach provided far more accurate information around what was value for money (reflective journal, August 2009). The 5+ Best Buys concept came from an idea about how to communicate this knowledge to others.

At the time, following this intuitive direction, felt wrong to the researcher. However in hindsight all of the ideas and decisions made during the product development can easily be traced back to the researchers understanding of the issue, the target audience and the solution needs presented in section 3.7.1. The 5+ Best Buy end product was created very rapidly, especially when compared to the progress made during the traditional approach. The design process had followed a heuristic approach and intuition in this instance was grounded. 5+ Best Buys is a classic example of solutions arising from data and from the designer being directly involved in the research.

The decision made to try a new approach came when I was feeling overwhelmed by the task at hand and frustrated by how my progress seemed restricted. I had followed

the traditional approach for a couple of weeks without gaining momentum or reaching
conclusions. In contrast taking a more intuitive approach bore fruits within days. I had
held back from this type of approach initially because of the negative personal views I held
around the use of intuition by designers. I had failed to realise the different role intuition
plays at this point in the project (reflective journal, January 2011). This difference was that I
had now personally experienced the domain in which I was designing.

3.7.3 The 5+ Best Buys Design Process

This section details the design process, covering concept development through
to end product prototype. Four distinct phases identifiable within the design
process are documented here. As similarly observed by Moritz (2005) of service
design projects the phases of design overlapped and inter-linked with each other.

a) Generating concepts.
b) Benchmarking.
c) Creating the prototype.

Generating concepts.

The creation of the 5+ Best Buys involved
working within the criteria, brainstorming,
visualising and prototyping a solution.

Figure 21.
A page of brainstorming
from a reflective journal.

Free writing about the observations provided a
clearer understanding of what the opportunity
was, what key findings from the cost analysis data
were useful and what future possible outcomes might be expected. Several
questions were raised in this phase about what to include and what to exclude,
what format a solution might take based on what formats would hold the highest
chance of success. Brainstorming was then used to develop a range of intelligent
and appropriate approaches. Problems or obstacles related to each concept
were considered. The concept selected for further development was selected
as it addressed the target audiences, solution needs and design criteria.

Ideas, observations, writings and thumbnails for 5+ Best Buys were noted
directly into the reflective journal (see Figure 21). Concept development
covered several aspects such as who might be involved, what would the
process be, what graphic design requirements were there, what could
the system be called and what other ideas might feed in or inter-link.

Over the years while working in the design industry I've had many discussions about
how 'good' designers don't necessarily respond directly to a client's project brief. An example
could be where a client comes to a designer asking for an A3 poster. The client intends for
their poster to be stuck up on display on the wall inside a busy corner store. Given the busy
nature of the final environment in reality a better solution to advertise their product could be a
point-of-sale feature. A 'good' designer is therefore one who would point this observation out
to the client, rather than just making the poster as briefed.

The importance of possessing these types of questioning skills was important during
this phase of the design process. The project began without material constraints, so I found
myself constantly making decisions about final form by taking into account several factors,
such as final environment, primary and secondary project objectives and the way the
attention of the target audience could be gained.

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This image has been removed by the author of this thesis for copyright reasons.
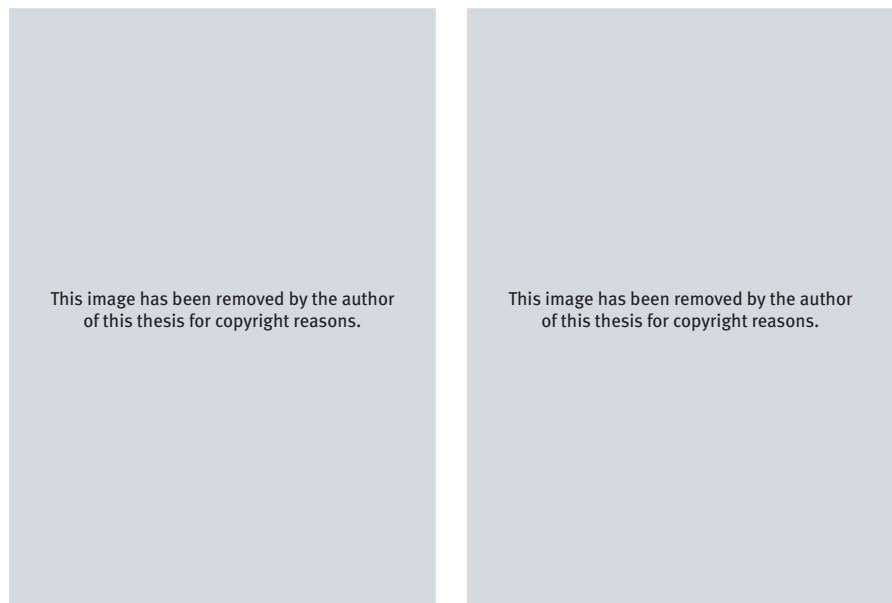
Figure 22.

Seasonal vegetable availability posters.

Reprinted from Healthy Food Guide Magazine. (2006). *What's in season?* [Poster]. Retrieved from http://www.healthyfood.co.nz/tools/downloads/whats-in-season. Copyright 2006 by Healthy Life Media Limited.

Reprinted from Horticulture New Zealand (2005). *Vegetable availability* [Poster]. Retrieved from http://vegetables.co.nz/resources/1files/pdf/poster_vegavailabilitychart.pdf.. Copyright 2005 by Horticulture New Zealand.

Benchmarking.

Benchmarking was continuously considered throughout the social project's research phase. The researcher regularly dropped by the services, library and health centre checking for displays or provided healthy eating resources. The only items available found throughout the social project were two Plunket endorsed Wattie's® brochures on feeding 12+ Months babies, located in a brochure stand in the Community Health Centre [Personal Observation] (2010, July 30). This lack of resources was also confirmed by research participants during the interviews and within the photo journals.

A benchmark analysis of similar solutions was performed at the start of the 5+ Best Buys design process. Analysis involved collection and review of several existing resources. The search for resources including tracking down information relating to the key terms 'fruit & vegetables', 'buying', 'guide', 'budget' from organisations such as Consumer, the Salvation Army, New Zealand Federation of Family Budgeting Services and Horticulture New Zealand. The results of this search produced items such as seasonal availability charts and 'shopping on a budget' guides (see Figure 22). At the end of this analysis, and to the best of the researchers knowledge, nothing existed that clearly showed what was the best fruit and vegetable seasonal options and at the same time as presenting the best value per serve.

Benchmarking analysis not only provided insights into what types of resources were already available, but also helped provide some sense of what solutions might work or not work and confirmed there was an opportunity or a gap. The content and form of the gathered existing resources was critiqued for usefulness and usability, especially how resources related to the important issues of cost,

service or community. For example during the critique of the seasonal vegetable guide resources, pictured in Figure 22, the researcher recognised accessibility and usability issues. Posters were tracked down online by the researcher, therefore for residents to access this solution they would have had to want to find the information and been able to successfully search online for it. Both posters present seasonal availability. However the cost analysis data showed seasonal availability does not equate to cheap serving prices (refer to Appendix B:2 on p.146).

Creating the prototype.

The final prototype was developed as finished printed design visuals. This phase involved a number of process concept steps. Screen captures taken during three of the important concept steps are presented in Figures 23, 24 and 25 (for the full size Figure graphics refer to Appendix B:7 on p. 159).

Serving price data was originally entered by the researcher directly into a Microsoft Excel chart (see Figure 23). Colours were applied to labelled cells of each individual produce item. Colours corresponded to produce types; green for fresh, grey for canned, orange for dried and blue for frozen. This was done by the researcher in order to improve the usability of the excel document for research team members. As illustrated in the first two coloured columns of Figure 24 items have been sorted by type. In contrast the second two coloured columns are sorted by price only. Although pre-design, the influence of this colour application can be seen most vividly in the Price Guide (see Figure 20).

In the early Adobe InDesign poster visuals the researcher tested layout concepts which included the complete winter serving prices data (illustrated in Figure 24). Presenting data in this format would have been problematic. Even at A2 poster size the small font size have caused readability issues and was neither quick nor easy to use at first glance, and unsuitable for the busy target audience. This process lead to the conceptual choice to focus on just the top ten items in the poster in order to maximise the use of space. The value in the complete winter serving price data graphic was recognised as another tool to help the target audience. As such it was transferred into a new digital file, that eventually became the Price Guide.

A series of icons, developed in Adobe Illustrator, were designed to visually depict produce types (see Figure 25). The concept behind the icons

Figure 23.
Raw data lists in Microsoft Excel.

Figure 24.
Assessing what Best Buy content to include and exclude from the posters.

Figure 25.
Fresh and processed icon development.

was to provide a visual key that quickly and easily explained the colour coding of produce types on the Posters and could be easily recognised by the target audience throughout the 5+ Best Buys components.

Copy was created directly within the digital documents. The photographic imagery used was gathered from appropriate sources, modified in Adobe PhotoShop and placed into the Adobe InDesign documents. In addition to the digital artwork, plain paper prototypes were made in order to explore the best format and sizes, they also helped identify imposition limitations.

A social graphic design booklet.

The research aims (refer to 2.1.3) include; adding to the body of knowledge in the

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The design practical task conclusion.

It is at this point of the exegesis that the journey of both the design practical task and the social project concludes. The social project work that investigates 'in what ways cost as a barrier prevented or limited isolated rural residents from accessing enough fresh fruit and vegetables' is partial, limited and incomplete. Further work will continue outside the confines of this thesis project. Although unfinished the social project served its purpose within the design practical task by providing the researcher with insights and answers to the action research question.

At this point I felt a considerable degree of satisfaction, due in part to personal achievements, but also due to how social projects have the potential to give back to society, to produce work that differed greatly from my previous graphic design work and to be able to personally explore new opportunities. This design practical task provides insights into what works and what doesn't and adds to the international documentation of social graphic design project work.

area of social and service design as well as share new learning with the design community. Throughout the design practical task the researcher had several conversations with other design professionals (corporate and academic) which highlighted a lack of understanding or knowledge of the design possibilities within social contexts. The researcher recognised this as an opportunity and made one final design work. The opportunity was to make other designers more aware of those possibilities through creating an information booklet, so that they might be persuaded to contribute to social problems or to further this research (reflective journal, December 2010). The final practise-based outcome of this thesis is an information booklet titled '*Design for goodness sake: Addressing social issues with design skills*' (refer to Design Work Component F).

"A young field suffers many misunderstandings on the way to intellectual and practical strength. One of these misunderstanding in the design community is a tendency to think that research means a single kind of activity. There are, in fact, many kinds of research, some of which are very familiar to every designer and others of which are rare and unfamiliar"

(Buchanan, 2001a, p. 17).

4. Discussion

This final chapter provides a summary of the knowledge gained throughout the study, a reflection on the achievements and concluding statements. The limitations of the study are identified and suggestions made for future research. A summary of additional topic specific knowledge gained throughout the social project is provided, which will be useful for future food security or social research.

4.1 Overview of the Research Outcomes

Design works were produced within the design practical task as practice-based outcomes of this research. In addition to these a range of knowledge-based outcomes were generated. Table 12 provides an overview of the different knowledge-based research outputs discussed in this chapter. This table is constructed using Buchanan's (2001a) design research outcome categories identified in the methodology (refer to p. 25).

The form of design inquiry presented in this thesis is best categorised as research *through* design (Sevaldson, 2010). As outlined in the methodology (refer to 25) this includes inquiries into new design activities, new methods as well as understanding existing design methodologies. In researching, refining and developing a design solution within a social project the researcher gained knowledge about emerging complimentary design disciplines and about working in the context of social issues. The use of design skills and methods was reflected on throughout the social project in order to gain insights that could is useful in future social design projects. More importantly for design research, additional knowledge was gained about what the task of designing final solutions involves, details about the target audience, some of the service and information needs of isolated rural communities as well as characteristics of successful design approaches, research methods and design methods.

Table 12.

An overview of the research outputs.

Categories of design research	Clinical Individual cases	Applied Knowledge about classes of problems	Basic More general reflection regarding principles
In which ways skills/ methods can be used		**X** Chapter 3 & Section 4.2	
Social project specific findings *- Data collected through the research methods*	**X** Chapter 3		
Social project specific knowledge *- Knowledge about the participants* *- Reflection about the cost barrier*	**X** Chapter 4.3		
About design methods and solutions	**X** Chapter 4.4		
About research methodology		**X** Chapter 4.4	

4.2 Action Research Project Discussion

The action research question this study aims to address is:

How can the existing design skills and methods of a graphic designer be utilised within the context of a social issue to address a social problem?

Evidence is presented throughout this thesis attesting to the fact that design skills and methods most definitely can be used within social issue contexts. Recorded observations 'in which ways' skills and methods can be used are recorded and discussed throughout the previous chapter. In brief a range of five skill/method uses were observed in the design practical task;

    a) **Creating visuals for clarity,** for example the Project Opportunity Visual (refer to Design Work Component A, as discussed on p. 31).

    b) **Developing research methods & tools,** for example the Photo Journal (refer to Design Work Component C, as discussed on p. 53).

    c) **Being involved in gathering research data,** discussed throughout sections 3.5 and 3.6.

    d) **Illuminating & illustrating problems,** for example the Conference Materials (refer to Design Work Component D, as discussed on p. 46 & p. 77).

    e) **Creative ideas / ideation & developing end products,** as seen in Design Work Component E and discussed in pp. 60-65.

Each of these five areas is explained within the final design work (refer to Design Work Component F). In addition to these two further findings have been selected for discussion here. These two findings emerged as themes from the collected action research data and contain useful insights for future research.

    1. Working in Research Teams (4.2.1)
    2. Hunting for Problems (4.2.2)

4.2.1 Working in Research Teams

After working alongside the researcher for 3 years, both in the design practical task's social project and on a variety of additional research projects, Dr Dresler-Hawke stated in conversation "I will always have a designer on my project team from now on" (Dresler-Hawke, E., personal communication, December 8, 2010). A joint research paper, presented at the ANZMAC Conference 2010, attested Dr Dresler-Hawke's enthusiasm and acknowledgement of the value of graphic design skills used within research. From the summary section she states, "Hence, innovative visual evaluation techniques can make a distinctive contribution to overcoming a number of convergent constraints in designing a research project" (Dresler-Hawke & Parker, 2010). Dr Dresler-Hawke's statement also eludes to an additional exciting finding discovered during this inquiry. Opportunities exist for designers to make socially conscious contributions by working as research team members in projects where discipline boundaries overlap. For example research projects that are design, marketing and social community based. This finding was reinforced by the audience when the researcher presented the paper at the conference. The researcher received several compliments about the visuals from audience members, "the best visuals I've seen at this conference to date" (Conference attendee, personal communication, December 1, 2010). However, more importantly following the conference session a conference presentation attendees sought out the researcher to discuss the role of designers in market research.

A copy of the conference paper '*Accessing fruit and vegetable consumption behaviours in children: Visual evaluation techniques*' (Dresler-Hawke & Parker, 2010) and the digital conference visuals created by the researcher are included in Design Work Component D.

4.2.2   Hunting for Problems

Narrowing down a social domain focus and then identifying a social issue project to address formed a challenge for the researcher. On reflection this challenge may have been caused in part by traditional disciplinary baggage, where graphic designers are encouraged to hunt for problems from a visual perspective, rather than a communication problem perspective. An example of this, observed by the researcher, was in a tertiary student graphic design logo/branding assignment. Students were instructed within the assignment brief to find an existing companies logo that was 'ugly' and 'rebrand' the company [Personal Observation] (2009, June 3).
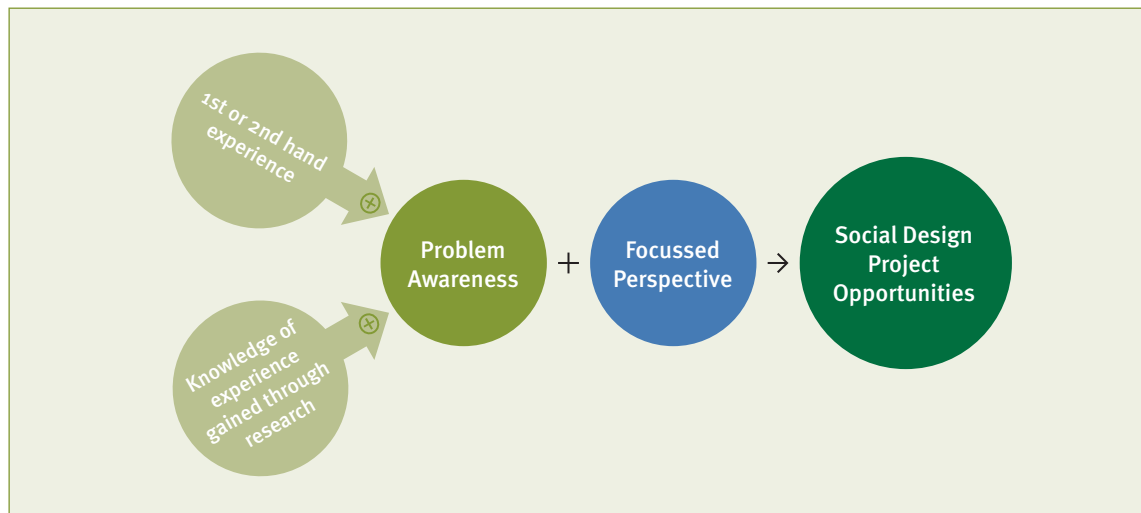
Figure 26.
Factors involved in design problem identification.

In addition to being driven by a social conscience the researcher identified two important factors that affect problem identification; problem awareness and a focussed perspective. The relationship between these factors is depicted in Figure 26. Problem awareness may be gained by exposure to a problem, through hearing of experiences through others or when hunting for experiences through research. The researcher experienced a more focussed perspective by gaining a better understanding the communication process theories.

The time involved in hunting for a problem, as experienced in the design practical task, also indicates that there is potential for a design community database record of communication / information / service problems. This would provide a valuable resource for designers.

4.3   Social Project Specific Discussion

This thesis, although situated within a design research context, also represents work done in a community health area. Hopefully the design and research work

in the social project contributes to both of these domains in a meaningful way. Key findings derived from the social project's raw data are very specific in topic, societal group and relate directly to the actual community studied. These findings may be useful in further research into related areas such as food security.

Social project research findings were presented at the ANZMAC Conference 2010, '*Cost as a barrier to eating fruit and vegetables: A service design approach*' (Dresler-Hawke & Parker, 2010). A copy of the conference paper and digital conference visuals are included in Design Work Component D. The paper summarises the service design methods and key findings already discussed in section 3.5 and 3.6. Additional descriptions about the salient interview stories and statistics of the participants reported 5+ a Day consumption quantities are included, such as "only one participant regularly ate five portions daily, for remaining participants the average consumption was two and a half portions per day" (Dresler-Hawke & Parker, 2010).

The social project specific knowledge presented in the next two sections is additional material, reported here as it is not documented elsewhere and contain useful insights for future research.

1. Knowledge About the Participants (4.3.1)
2. Reflection About the Cost Barrier (4.3.2)

4.3.1   Knowledge About the Participants

- Some participants owned various forms of communication technology, such as cell phones and internet capable computers.
- The only means of telecommunication of several prospective recruit participants was cell phones (ie. families did not have landline numbers).

This observation may impact participant recruitment for similar social projects and should be investigated further if looking more deeply into socioeconomic aspects of access barriers. It is also useful knowledge that can be considered when designing solutions for this target audience.

The participants use of communication technology grabbed my attention. I had made an assumption that if a family struggled to afford fruit and vegetables it was unlikely they would be able to afford to own or pay for the service plans of IT products. Delving further, at the time of interview, into how participants afforded ownership or access to communication technology and in what ways that impacted on family budgets was not an option as that line of questioning was not adequately covered within the ethics application for this research.

4.3.2   Reflection About the Cost Barrier

- Throughout the social project the researcher felt the cost barrier experienced by isolated rural residents was inequitable, or in other words that the addition expenses that rural residents incur when paying for fruit and vegetables was unfair.

The concept of an isolated rural 5+ A Day cost barrier is a complex and multifaceted issue in which many different factors, views and perspectives are evident. The cost analysis research focuses on only one component of this, the basic cost of purchasing food and additional costs relating to purchase, e.g. vehicle travel. The research did not investigate other financial factors that would be required to determine the full cost barrier equation such as cost of rent, working for families

tax subsidies, shared travel costs or supply chain transport costs incurred by local services. However, if the isolated rural cost barrier is investigated further in the future, then the following facts are the contribution that this research can make.

Note: In the next two facts 'minimum cost' relates to buying the cheapest items available in order to meet 5+ A Day recommendations, where as 'average cost' includes buying a wide range of items. While minimum cost achieves the quantity aspect of 5+ A Day recommendations, it may not include the variety of fruit and vegetables required to gain full nutritional balance that average cost affords.

Fact 1. When purchasing 'minimum cost' items it costs residents exactly the same to pay for transport and to buy a weekly family supply of fresh fruit and vegetable at the urban supermarket, as it does to buy the same quantity of 'minimum cost' produce within the isolated rural community. This equates to a $15 rural service fee per household, which when the quantity of potential residential custom is considered potentially adds up to a significant inequitable markup compared to the urban prices.

This was surprising, although the researcher had anticipated items would be more expensive in the rural setting due to additional expenses occurred by the proprietor to source stock, the magnitude of the cost difference was not anticipated.

Fact 2. A vegebox company can deliver weekly supplies of fresh organic produce, professionally packed and couriered directly to isolated rural residents for only 10% ($3.31) more than the same quantity of 'minimum cost' items purchased within the isolated rural community. When compared to 'average cost' there is potential to save 76% ($40.39) by purchasing a vegebox.

The most surprising aspect of this second fact is the difference in cost, which can be directly attributed to cutting out supply chain expenses. Again, although the researcher had anticipated that a vegebox scheme might be less expensive, the cost savings of 76% when comparing average 5+ A Day costs was not anticipated.

4.4 Research Methodology Discussion

A few methodological challenges arose throughout the journey of the design practical task. The following section identifies those challenges, presents how they were addressed and/or identifies possible solutions that might be useful for future research.

4.4.1 Academic Ethics Application Process

The ethics application process influenced two challenges that the researcher faced, a time delay and participant recruitment apprehension.

The social project's ethics application process took 14 weeks from initial submission through to approval. Although university staff describe this time frame as quite normal, it was experienced as a lengthy wait by the researcher and caused a significant project delayed. The application was deferred twice for approval and required several revisions before resubmission. The researcher acknowledges that it may need to be accepted that ethics approval just takes this long.

However to help others involved in similar endeavour in the future the researcher identified a few possible reasons that may

have contributed to the lengthy time frame include;

- The researcher being unfamiliar and having no prior experience of the application process.
- The length of time between committee reviews.
- The application containing disciplinary knowledge or concepts foreign to the committee members.
- The research methodology was complex containing four different methods.

One possible solution that could be useful in future for similar social project work requiring ethics approval is to break ethics applications into several smaller applications. The researcher has witnessed the success of this approach in more recent research projects [Personal Observation] (2010, March 25). By applying for ethics approval one research method at a time parts of the research could potentially get started sooner.

Following the ethics application process the researcher felt extremely apprehensive about whether or not any service providers would be happy to participate. AUTEC had expressed concern that 'some aspects of the way in which the research was being presented may provide an expectation that providers will reduce their prices'. This research looked not only into the publicly available information of product pricing, but also into what could be considered the quite confidential business information of background service work flows. The concerns of the committee were therefore valid, however on reflection the resulting apprehension experienced was counter productive.

A good working relationship had already been established with the two service participants prior to the commencement of the service assessment (refer to 3.5.3). Both had taken part in a cost analysis research method (refer to 3.5.2). The service data collection day was 5 months after initial introductions and 2 months after the cost analysis data collection. Showing up regularly in the community, working with the services on other projects, being honest about the research being conducted and taking information back to the services once analysed was instrumental in building up a level of trust between the participants and the researcher. Familiarity with the researcher and prior experience of other projects contributed to the ease with which the owner/operators were willing to take part.

4.4.2 Directed Storytelling Interview Method Challenges

A challenge arose when using the directed storytelling interview technique. Some participants could not think of a story to tell. It is possible that this style of interview was an inappropriate technique to select for these participants. The factors that may have contributed to this challenge include;

- Participant needing more time to remember a story or feeling pressure through being put on the spot.
- A lack of prompts or limited examples.
- Needing to spend more time with participants, in order to build up trust and thereby enabling them to share.
- Not being able to pilot the interview due to limited participant access.

The solution used during the interviews was to switch from the unstructured technique to a more structured approach. As the interviews progressed and

while using an unstructured approach the researcher identified a line of questioning more appropriate to the inquiry during the data-gathering phase.

4.4.3 Photo Journal Method Challenges

Participants struggled to get started and/or find time to complete their journals. The possible factors that may have contributed to this challenge include;

- Participants being unfamiliar with the research tool and not knowing how to get started.
- Photo numbers needed to be recorded in journal, but taking journal out could have a) attracted attention and b) been considered too bulky.
- Not providing participants with a definitive time frame and using a soft approach to follow-ups.
- The design of the journal may have been too formal and dense, it probably should have included more handwriting and provided wider lines for writing.
- Not providing koha.

One possible solution to this challenge would be to include an introduction section at the start of the journal, in which a researcher could take a photo quickly with the participant. In doing so the researcher can emphasise a casual, quick approach to the photography and encourage participants to prioritise recording the information, as opposed to worrying about what the photos would be like. Another solution idea was including a pocket sized guide which listed the photos to take, so the journal didn't need to be taken out with the camera.

4.5 Conclusion

Working with communities as well as working outside the confinement of an organisation were important factors in this thesis. Several limitations that arose from the research pertain to these two factors. For example the small convenience sample in the social project led to inconclusive research, restricting the final design solution and preventing the community based co-design session. The design practical task involved only one cycle, when there are typically several reiterative cycles in action research. The amount of time invested into the social project meant that only one social project could be addressed within the design practical task, limiting the scope of observations.

A considerable amount of effort, attention and care has been put into this investigation. At thesis conclusion the research and social project are partial, limited and incomplete, as the work has exposed several further avenues to explore. The research skills and project experience have certainly strengthened the researchers practice and bought it in line with moral values. More importantly the research has explored an emerging disciplinary field, investigated the social graphic design domain and delivered a detailed description of a social graphic design project, from selection to design solution development. The rise in interest internationally around both the topics of social graphic design and service design endeavours is much higher now than when this thesis commenced, so the content is timely and makes a unique valuable contribution.

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Appendices

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Auckland University of Technology Ethics Committee (AUTEC)

EA1

APPLICATION FOR ETHICS APPROVAL FOR RESEARCH PROJECTS
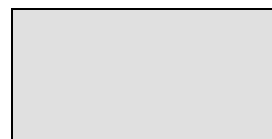
Please read the notes at the end of the form before submitting this application.

A. General Information

A.1.   Project Title

If you will be using a different title in documents to that being used as your working title, please provide both, clearly indicating which title will be used for what purpose.

Implementing socially responsible graphic design: In what ways is expense a barrier to eating fresh fruit and vegetables in the rural community of [IRC].

A.2.   Applicant Name and Qualifications

When the researcher is a student (including staff who are AUT students), the applicant is the principal supervisor. When the researcher is an AUT staff member undertaking research as part of employment or a staff member undertaking research as part of an external qualification, the applicant is the researcher. Staff should refer to Section 11.4 of Applying for Ethics Approval: Guidelines and Procedures *to check requirements for ethics approval where they are studying at another institution.*

Dr. Alan Young

A.3.   Applicant's School/Department/Academic Group/Centre

Dept of Postgraduate Studies
School of Art & Design
AUT University

A.4.   Applicant's Faculty

Design & Creative Technologies

A.5.   Student Details

Please complete this section only if the research is being undertaken by a student as part of an AUT qualification.

A.5.1.   Student Name(s):

Leigh Parker

A.5.2.   Student ID Number(s):

0789139

A.5.3.   Completed Qualification(s):

Bachelor of Design (Visual Communication)

Diploma in Visual Communication Design

Certificate in Adult Teaching (Advanced)

A.5.4.   E-mail address:

leigh_parker@orcon.net.nz

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A.5.5.   School/Department/Academic Group/Centre

Dept of Postgraduate Studies
School of Art & Design
AUT University

A.5.6.   Faculty

Design & Creative Technologies

A.5.7.   Name of the qualification for which this research is being undertaken:

Master of Art & Design

A.5.8.   Research Output

Please state whether your research will result in a thesis or dissertation or a research paper or is part of coursework requirements.

The research will consist of an exegesis totalling 50% of output and practice-based work consisting of the remainder 50%.

A.6.   Details of Other Researchers or Investigators

Please complete this section only if other researchers, investigators or organisations are involved in this project. Please also specify the role any other researcher(s), investigator(s) or organisation(s) will have in the research.

A.6.1.   Individual Researcher(s) or Investigator(s)

Please provide the name of each researcher or investigator and the institution in which they research.

Dr Emma Dresler-Hawke
Lecturer
Marketing in the Department of Communication, Journalism and Marketing
Massey University

Amanda Brien and Maree Young
Health Promotion Unit
Taranaki District Health Board

The three research methods described in this application (Service Blueprinting, Interviews & Photo Journals and a Co-Design Session) will contribute to a more comprehensive research project initiated by the Health Promotion Unit [HPU] from the Taranaki District Health Board [TDHB]. Leigh Parker and Dr Emma Dresler-Hawke have worked alongside Amanda Brien and Maree Young to develop the large scale [IRC] Food Security research plan.

Previous TDHB & HPU [IRC] based research has been used as background material. The research project has been designed around HPU's requests to enable effective collaboration. The HPU members fully support this project, please see the attached copy of the Memorandum of Understanding (Appendix 1).

The following chart provides details of the research components for the entire [IRC] Food Security project, including the institutions involved and individual researcher roles.

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Research Method	Initiated by	Researcher	Role
Garden Project	TDHB	Amanda (HPU) & Maree (HPU)	• Facilitation • Evaluation
Evaluation *(pre/post questionnaires)*	TDHB	Amanda (HPU) & Maree (HPU)	• Research design • Data collection • Data analysis • Evaluation report
Mapping *(commercial landscape)*	TDHB	Amanda (HPU) & Maree (HPU)	• Research design • Data collection • GIS mapping (mapping support) • Data analysis
		Emma (Massey)	• Data collection
		Leigh (AUT)	• Data collection • Visualisations
Interviews & Photo Journals	Leigh Parker	Amanda (HPU)	• Participant recruitment
		Leigh (AUT)	• Research design • Photo journals • Interviewing • Data analysis • Visualisation
		Emma (Massey)	• Interviewing • Data analysis
Service Blueprinting	Leigh Parker	Amanda (HPU)	• Participant consultation
		Leigh (AUT)	• Research design • Data collection • Data analysis • Visualisation
		Emma (Massey)	• Data collection • Data analysis
Co-Design Session	Leigh Parker	Leigh (AUT)	• Session design • Session facilitation • Data collection • Data analysis
Cost Analysis	Dr Emma Dresler-Hawke	Leigh (AUT)	• Data collection
		Emma (Massey)	• Data collection • Research design • Data
Mc Broom Community Grant Funding Application	Dr Emma Dresler-Hawke	Leigh (AUT) & Emma (Massey)	• Applicants

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A.6.2. Research or Investigator Organisations

Please provide the name of each organisation and the city in which the organisation is located.

Massey University
Palmerston North

Health Promotion Unit
Taranaki District Health Board
New Plymouth

A.7. Are you applying concurrently to another ethics committee?

If your answer is yes, please provide full details, including the meeting date, and attach copies of the full application and approval letter if it has been approved.

No

The project has three distinct parts. Leigh Parker has designed one part, that includes the Service Blueprinting, Interviews & Photo Journals and a Co-Design Session. She only seeks approval for this part.

Dr Emma Dresler-Hawke is applying to the Massey Ethics Board for approval for the Cost Analysis research part. Leigh Parker will be identified as a research partner on that Massey application.

A.8. Declaration

The information supplied is, to the best of my knowledge and belief, accurate. I have read the current Guidelines, published by the Auckland University of Technology Ethics Committee, and clearly understand my obligations and the rights of the participant, particularly with regard to informed consent.

_____   _____
Signature of Applicant   Date

(In the case of student applications the signature must be that of the Supervisor)

_____   22nd May 2009
Signature of Student   Date

(If the research is a student project, both the signature of the Supervisor, as the applicant, and the student are required)

A.9. Authorising Signature

_____   _____   _____
Signature of Head   Name of Faculty/Programme/School/Centre   Date

This version was last edited on 21 April 2008

B. General Project Information

B.1.   Project Duration

B.1.1.   Approximate Start Date of Primary Data Collection

June 2009.

B.1.2.   Approximate Finish Date of Complete Project

November 2009.

B.2.   Are funds being obtained specifically for this project?

If your answer is yes, then you must complete section G of this Application Form.

Yes.

B.3.   Types of persons participating as participants

Please indicate clearly every one of the following categories that applies to those participating in your research.

B.3.1.   Researcher's students

No.

B.3.2.   Adults (20 years and above)

Yes.

B.3.3.   Legal minors (16 to 20 years old)

Yes.

B.3.4.   Legal minors (under 16 years old)

Yes.

B.3.5.   Members of vulnerable groups

e.g. persons with impairments, limited understanding, etc. If your answer is yes, please provide a full description.

No.

B.3.6.   Hospital patients

No.

B.3.7.   Prisoners

No.

B.4.   Does this research involve use of human remains, tissue or body fluids which does not require submission to a Regional Ethics Committee?

e.g. finger pricks, urine samples, etc. (please refer to section 13 of the AUTEC Guidelines). If your answer is yes, please provide full details of all arrangements, including details of agreements for treatment, etc.

No.

B.5.   Does this research involve potentially hazardous substances?

e.g. radioactive materials (please refer to section 15 of the AUTEC Guidelines). If your answer is yes, please provide full details.

No.

This version was last edited on 21 April 2008

B.6. Research Instruments

B.6.1. Does the research include the use of a written or electronic questionnaire or survey?

If your answer is yes, please attach to this application form a copy of the finalised questionnaire or survey in the format that it will be presented to participants.

Yes, Photo Journals.

Photo Journal is a self documentary research technique that allows participants to explain and document their experience in response to a series of questions. Participants are given disposable cameras and asked to capture aspects of an experience on film and annotate each photo in a logbook.

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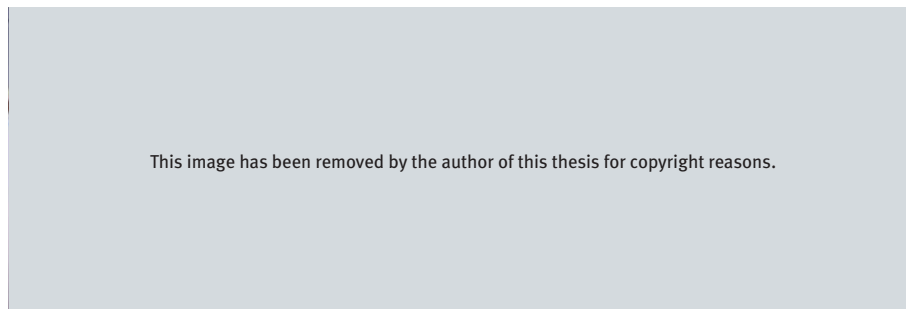
Figure 1. Photo Journal (Melamed S & Tunstell, E. 2007)

B.6.2. Does the research involve the use of focus groups or interviews?

If the answer is yes, please indicate how the data will be recorded (e.g. audiotape, videotape, note-taking). When interviews or focus groups are being recorded, you will need to make sure there is provision for explicit consent on the Consent Form and attach to this Application Form examples of indicative questions or the full interview or focus group schedule.

Yes, Interviews and a Co-Design Session.

Data will be recorded using an Olympus Digital Voice Recorder (model # WS-100). Recordings will be kept in MP3 format digital files.

See Consent Forms (Appendices 2, 3, 4 & 5).

B.6.3. Does the research involve the use of observation?

If the answer is 'Yes', please attach to this application a copy of the observation protocol that will be used.

Yes.

See Protocols (Appendices 12 & 13).

B.6.4. Does the research involve the use of other research instruments such as performance tests?

If the answer is yes, please attach to this application a copy of the protocols for the instruments and the instruments that will be used to record results.

No.

B.6.5. Who will be transcribing or recording the data?

If someone other than the researcher will be transcribing the interview or focus group records or taking the notes, you need to provide a confidentiality agreement with this Application Form.

The researcher.

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B.7.   How does the design and practice of this research implement each of the three principles of the Treaty of Waitangi (Partnership, Participation and Protection) in the relationships between the researcher and other participants?

Please refer to Section 2.5 of AUTEC's Applying for Ethics Approval: Guidelines and Procedures (accessible in the Ethics Knowledge Base online via http://www.aut.ac.nz/about/ethics) and to the relevant Frequently Asked Questions section in the Ethics Knowledge Base.

Although this project does not specifically target Māori, care will be taken to ensure cultural needs of all participants are addressed. Care will be taken to not discriminate in the selection of participants, but to encourage a broad sample frame. Furthermore, the principles of the Treaty of Waitangi will be upheld in respecting the decision of any ethnic population to not participate in the research or to discontinue at any time.

The researcher will maintain that appropriate cultural protocols are followed, and that the research will have mutual benefits for not only the researcher, but also the participants and the wider community.

Some Māori participants may potentially be recruited and become involved in this research project that relates to a key health issue of importance to Māori. This research has the potential to contribute to Māori health.

Maree Young and Amanda Brien from the HPU already have long established relationships with key Māori community stakeholders through previous collaborative research initiatives and community projects. Maree was involved in the Māori Nutrition and Physical Activity Scoping Project (July 2006), which has been used to inform the [IRC] Food Security Project. Currently Amanda works closely with Te Oranganui Iwi Health worker on the Fruit in Schools programme. [IRC] Iwi were engaged to discuss the Garden Project, launched in July 2008. As a result one of the three gardens is located at the Te Hunga Ririki Te Kōhanga Reo in [IRC].

This foundation of consultation has and will continue to be used to further develop co-operative and collaborative working relationships between all researchers and Māori organisations and groups, ensuring that research practices are appropriate and acceptable throughout the research projects duration.

B.8.   Does this research target Maori participants?

No.

B.8.1.   If 'Yes", what consultation has been undertaken when designing the research?

Please identify the group(s) with whom consultation has occurred and provide evidence of their support and any impact this consultation had on the design of the research. Researchers are advised to read the Health Research Council's Guidelines for researchers on health research involving Maori, available via the Ethics Knowledge Base.

B.9.   Does this research target participants of particular cultures or social groups?

Please refer to Section 2.5 of AUTEC's Applying for Ethics Approval: Guidelines and Procedures (accessible in the Ethics Knowledge Base online via http://www.aut.ac.nz/about/ethics) and to the relevant Frequently Asked Questions section in the Ethics Knowledge Base.

No.

B.9.1.   If 'Yes" please identify which cultures or social groups are being targeted and how their cultures or social groups are being considered in the research design.

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B.9.2.   If your answer to B.9 was 'Yes", what consultation has occurred with these cultures or social groups in the design of the research?

Please identify the group(s) with whom consultation has occurred and provide evidence of their support and any impact this consultation had on the design of the research.

B.10.   Is there a need for translation or interpreting?

If your answer is 'Yes', please provide copies of any translations with this application and any Confidentiality Agreement required for translators or interpreters.

No.

C. Project Details

Please describe the project details in language which is, as far as possible, free from jargon and comprehensible to lay people.

C.1.   Aim of project:

Please explain the broad scope and purpose of the project and state concisely how the type of information being sought will achieve the project's aims. Please give the specific hypothesis(es), if any, to be tested.

Aim:

The focus of this project is to investigate in what ways is expense a barrier to eating fresh fruit & vegetables [ff&v's] within the rural South Taranaki Community of [IRC] in order to design solutions for the residents that overcome expense barriers.

Initial research has indicated that there is a disconnect between service providers and customers. The research will help to highlight the issues by portraying this information.

Objectives:

1. *To generate a qualitative understanding of the barrier from the resident's perspective (understand feelings, attitudes, behaviors and personal experiences related to ff&v acquisition).*

2. *To generate an understanding of ff&v availability, services and access within the [IRC] community.*

3. *To evaluate the current design solutions used within the [IRC] community relating to improving access and availability of ff&v's.*

4. *To evaluate the prototype product/service design solutions*

C.2.   Why are you proposing this research?

(ie what are its potential benefits to participants, researcher, wider community, etc?)

This research project has the potential to improve the health and diets of [IRC] residents, through addressing the perceived or actual barrier of expense in relationship to purchasing ff&v. This issue of expense as a barrier is being used as an engine to explore the potential of a service design methodology to address social issues.

The product or service solutions designed within this project could come from three possible directions, depending on whether the barrier turns out to be perceived or actual, surmountable or inequitable…

1. *Perceived barrier*

   If expense turns out to be a perceived barrier an opportunity will exist for improving current information design solutions. Potential projects may include cooking brochures, health food promotion, budgeting information kits, etc.

2. *Actual barrier*

   a. In the instance when expense is a surmountable barrier there will be opportunities to improve or develop service solutions. Potential projects may

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include food exchange program, box schemes, community gardens, community lead supplier service design, etc.

b. If expense is an inequitable rural barrier this will provide an opportunity for developing design solutions that seek advocacy for the community. Potential projects may include digital stories, campaigns, letters to government, etc.

It may also be used to inform further research into Food Security issues in relation to rural communities nationally. It will form a substantial part of my Masters thesis for AUT.

C.3.   Background:

Please provide sufficient information, including relevant references, to place the project in perspective and to allow the project's significance to be assessed. Where appropriate, provide one or two references to the applicant's (or supervisor's) own published work in the relevant field.

The Ministry of Health [MoH] recommend that New Zealanders eat at least three servings of vegetables and at least two servings of fruit every day (Ministry of Health 2003). In a recent survey conducted by the TDHB in [IRC] only half of the respondent's were reaching this daily target. This is consistent with national findings (Russell et al, 1999).

Twenty five to thirty percent of New Zealander's cite cost as the major barrier associated with eating more fruit and vegetables (Russell at al., 1999; Sullivan et al., 2004). Eating fruit and vegetables is perceived to be expensive, especially when purchased fresh (Drewnowski & Barratt-Fornell, 2004; Ricciuto & Tarasuk 2007; Kamphuis et al. 2007). Two local shops stock fresh fruit and vegetables in [IRC]. Prices are perceived to be expensive and the variety of fresh produce is limited, especially in comparison to large supermarkets found in bigger towns. The nearest major supermarket is approximately a 45-minute drive away in Wanganui (Health Promotion Unit, 2007).

People living in rural areas have been identified as being more likely to be disadvantaged by their geographic location when it comes to expense as a barrier (NSW Centre for Public Health Nutrition, 2002). With just less than 900 residents [IRC] is a small town, rural in nature and geographically isolated. A high number of [IRC]'s residents are in a low socio-economic income bracket, 83% of households living off incomes of $30,000 or less (Statistics New Zealand, 2006).

Service Design research methods will be used to enable critical and holistic analysis of the 'expense as a barrier to eating ff&v's' social issue. The qualitative research will inform a Collaborative Design process which will aim to modify or develop services that are useful, usable, and desirable from the communities point of view and effective, efficient, and distinctive from the service providers point of view. (Buchanan, 2000, Mager 2008).

C.4.   Procedure:

C.4.1. Explain the philosophical and/or methodological approach taken to obtaining information and/or testing the hypothesis(es).

The focus of this design project is to create product or service solutions that better meet community need. This will be achieved by directly applying service design methods of analysis to understand a social issue and to inform the design process. Service design uses ethnographic research methods to understand service from the service providers and the customers perspectives allowing insights into service experiences.

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This research project will investigate the barrier of expense in relationship to ff&v within rural community of [IRC]. The study will include a thorough evaluation of the barrier, development of personas, experience diagrams, design criteria and development of design product solutions that aim to address the barrier.

The researcher will work alongside the HPU conducting ethnographic research within the [IRC] Community to gain insight into expense as a barrier. Qualitative research methods including Service Blueprinting, Interviews and Photo Journals, will be used to generate a holistic scenario overview. This empirical data will be used to inform the development of design solutions. Prototype design solutions will be developed within a community based Co-Design Session.

C.4.2.   State in practical terms what research procedures or methods will be used.

Methodology:

The following diagram shows when and how the research methods are positioned within the overall design methodology for this design project.
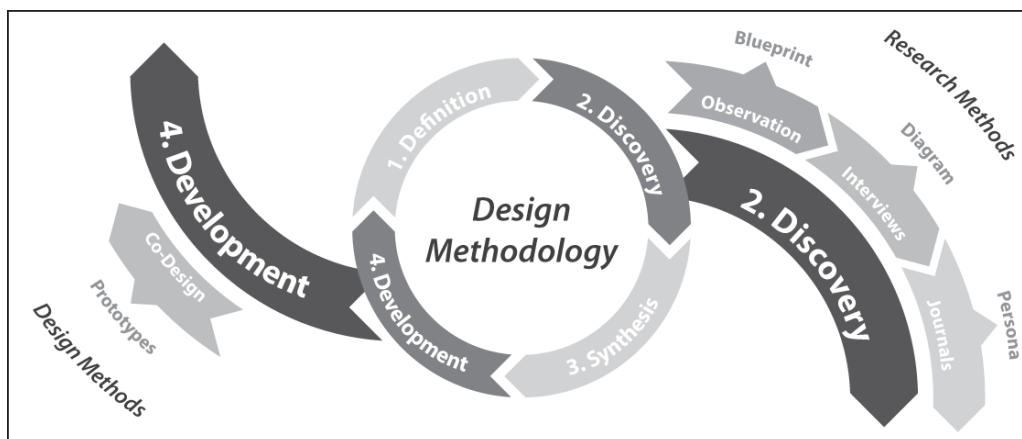
1. **Definition**
   a. Understand the scope and significance of the issue, define the design problem

2. **Discovery**
   a. Documentation of users environments and daily journeys, using methods such as interviewing, direct observation and probes [photo journals] (Mattelmäki, 2005)
   b. Creating user typologies, process maps and diagrams to isolate where things go wrong in order to identify design opportunities
   c. Describe a desirable end state to set the stage for development

3. **Synthesis**
   a. Prototype design solutions

4. **Development & Refinement**
   a. Perform a small scale test of the prototypes within the environment
   b. Develop and refine solutions
   c. Present final solution and finding

Methods:

Once ethical approval has been confirmed, three research methods will be used to generate a deeper understanding of the issue, the environment, the contexts and the people. Towards the final stages of the project a co-design method will be used to develop prototype design solutions.

1. *Service Blueprinting*

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Blueprinting is an analysis analysis tool which enables a designer to creates a graphical depiction of the service workflow based on the customer experience. It can be used for both innovation and services improvement. Service processes are examined and gathered data is use to depict the steps of a service, the touchpoints (points of interaction with a customer) and the evidence of service (Zeithaml, Bitner et al. 2006).

Blueprints are made up of five components (Bitner et al. 2008); 1. Customer actions, 2. Onstage/visible contact employee actions, 3. Backstage/non-visible contact employee actions, 4. Support processes and 5. Physical evidence (the tangibles that customers are exposed or collect to during their contact with a company).

Blueprinting provides a common platform for everyone – designers, service providers and customers – to review existing service process and facilitate innovative developments (Bitner et al., 2008).

Service blueprinting will be used to gain insight into the current availability, services and access of ff&v within the [IRC] Community. Observations of suppliers and service structures will be made, whilst keeping a customer focus in mind. Blueprinting will also be useful in determining the needs and relationships of the [IRC] residents and service providers.

2. *Interviews & Photo Journals*

Interviews and Photo Journals will be used to identify trends or patterns in participants' behaviours, expectations and motivations. The techniques have been selected and deemed as being appropriate for helping identify and explore qualitative experiences of expense as a barrier. Techniques have also been selected due to their connection to the thesis enquiry. Each technique will be implemented and conducted in highly visual manner utilising traditional graphic design skills.

Gathered research data will be analysed to inform the development of Personas and Experience Diagrams, which are tools that will inform the practical design process during the Synthesis phase of the Design Methodology. The goal is to connect deeply with the issues that matter to participants and then document what is learned and observed.

Narrative inquiry has been successfully used by graphic designers to gain understanding of experiences beyond their initial intuition, increasing the potential of design solutions becoming useful, usable, and desirable (Everson, 2006). Interviews have been selected as an appropriate technique for eliciting the participant's subjective experiences of facing expense as a barrier to eating ff&v's (Burns, 2000; Anderson, 1990).

A Photo Journal is a self-documentary technique that allows participants to personally portray their experience in response to a series of questions. Participants will be given disposable cameras and asked to capture aspects of their individual experiences on film and annotate photos within a provided journal. A Photo Journal is a great research technique for documenting experiences, allowing participants to 'narrate' these experiences without researchers being present. It is also useful for gathering residential language and the privacy of this technique makes it less invasive (Mattlemäki, 2005).

Photo Journals will be used in addition to Interviews in order to better understand the participants' perception of their situation. They can provide a more in-depth analysis as the visual aspect can help where participants may not be able to express in words what it is that they experience. Photo Journals can

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also assist where participants may not remember accurately what they experienced or may incorrectly verbalise their experiences.

3. *Co-Design Session*

A Co-Design Session will be run in [IRC] with community members to develop design prototypes. Creating design solutions collaboratively with a variety of stakeholders will help enable the [IRC] community to discover their own ideas an how to tackle the barrier. By approaching the design process in this way participants will feel a much greater level of ownership over the concepts (Fullerton 2009).

Within the Co-Design Session the researcher will aim to gathered representatives of all of the stakeholders. Research findings will be presented to the group and themes to be explored suggested to the participants. The researchers will then moderated breakout sessions for generating service concepts.

C.4.3.   State how information will be gathered and processed.

1. *Service Blueprinting*

Five data components need to be gathered in order to prepare the Service Blueprint. The process of gathering data will follow the same steps for each consenting service provider. These steps are outlined in the following chart.

Data component	Information gathering process
i. Customer actions	A member of the research team will become an actor and perform the role of a customer. This team member will be shadowed by the researcher as they experience a service. All the steps that the actor takes to experience the service will be recorded through note taking and photography.
ii. Onstage/visible contact employee actions	The interaction between the service and the acting customer will be recorded within the shadowing experience described above. This includes any interaction between actor and frontline employees that occur face-to-face. In addition to any observations service employees will be asked if there are any addition onstage interactions that should be included in the blueprint.
iii. Backstage/non-visible contact employee actions	These are behind the scenes interactions with customers, such as phone calls or online orders. This information can be gathered through discussion with the service owner/operator.
iv. Support processes	Information of activities such as ordering, delivery and shelf stocking will be gathered through discussion with the service owner/operator.
v. Physical evidence	Any tangibles that customers come in to contact with will be either collected or photographed as appropriate. This will be gathered during the shadowing experience and through observations of advertising and marketing materials.

Information will be recorded by using note taking, photography and recording converstations with the owner/operators. Information will be recorded into a

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visual diary and saved as computer files. The information will be processed into a Service Blueprint similar to the following example.

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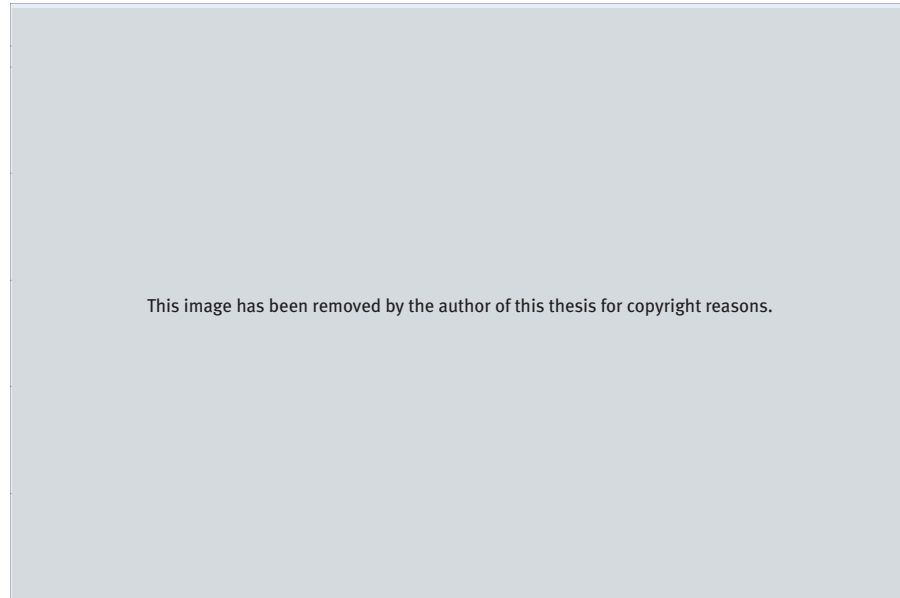
Figure 2. Blueprint for Overnight Hotel Stay Service (Bitner et al. 2006)

2. *Interviews & Photo Journals*

The interviews conversations will be digitally recorded and notes will be taken throughout. Audio recordings will be transferred onto the researchers Apple Mac computer as a digital MP3 file and backed up onto an external hard drive.

Photo Journals will be provided to participants. These will include a series of questions and spaces in which participants can record written descriptions of their experiences. The journals and camera's supplied to the participants will be collected in person. Camera's will be delivered to Palmerston North photographic processer for developing. Developed photos will be stuck into the Photo Journals in the spaces provided by the researcher. Journals will be scanned, converted into digital PDF files and backed up.

3. *Co-Design Session*

Photography and notetaking will be used by the researcher to capture the ideas and issues raised within the workshop. Participants will also be provided with materials for the workshops such as pens, notepads, discussion and design templates. These will also be collected at the end of the session.

All information from the Co-Design Session will be digitised, converted to PDF files and backed up.

C.4.4.   State how your data will be analysed.

1. *Service Blueprinting*

Observed data will be transformed into Blueprint visuals. Creation of the visuals will form the analysis of the customer's consumption process, customers interactions with the service provider and expose the underlying support systems of the ff&v service (Bitner et al., 2008). Analysis of the Blueprint visuals

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will result in identification of any frustrations or issues that exist in the current system that could lead to innovation.

2. *Interviews & Photo Journals*

   Interview and Photo Journal analysis will focus on identifying key words and concepts. It will explore connections and patterns based on the data participants provide of their experiences. Everson's directed storytelling protocol has been used to develop the Interview Schedule and will be used to interpret and analyse the data (Everson, 2006). Rather then transcriping the Interviews important words, themes or issues will be written onto post-it notes and adhered to a whiteboard for eventual reordering into key concepts. A similar approach will be taken to explore and anayse the Photo Journals. This information will be transformed into Experience Diagrams and Persona Visuals. The key words and concepts will be used to develop design criteria.

3. *Co-Design Session*

   The ideas collected throughout the Co-Design Session will be critically analysed in order to identify the key opportunities and ideas of the discussion. These ideas will be critically analysed to ensure they are useful, usable, and desirable from the communities point of view (as defined within the Interviews & Photo Journal research) and effective, efficient, and distinctive (as defined by the Service Blurprint research) from a service providers point of view.

C.4.5.   Provide the statistical or methodological justification for this.

This research project uses qualitative research methods and aims at including a smaller sample size than quantitative research. The results will not be aiming for statistical validity, but verification of insights and assumptions based on observations.

C.5.   References

Please include the references for your responses to this section in the standard format used in your discipline.

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Drewnowski A, Barratt-Fornell A. *Do healthier diets cost more?* Nutrition Today. 2004(39), 161-8.

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Ricciuto LE, Tarasuk VS. (2007). *An examination of income related disparities in the nutritional quality of food selections among Canadian households from 1986 2001.* Soc Sci Med. 2007(64), 186-98.

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Zeithaml, V. A., M. J. Bitner, et al. (2006). *Services marketing : integrating customer focus across the firm.* Boston, McGraw-Hill/Irwin.

D. Participants

D.1.   Who are the participants?

1. Service Blueprinting

[IRC] ff&v service providers. Examples include the Butcher, the Four Square and any Farmers Market Stall operators. Recruited participants will be the owner/operators of the services.

2. Interviews & Photo Journals

Participants will be families who live in [IRC], with children aged 9 years or older, who use ff&v services and can identify with the following statement…

> 'Expense is sometimes a barrier to eating
> fresh fruit and vegetables for our family'

3. Co-Design Session

Participants who have been involved in the Service Blueprinting, Interviews or the Photo Journals will be approached to also be involved in the Co-Design Session. Research team members will be invited to attend as will local representatives from [IRC]'s health watch committee.

D.1.1.   What criteria are to be used in recruiting the participants?

1. Service Blueprinting

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Participants will be identified as appropriate for recruitment if they are involved in supplying ff&v's to [IRC] residents.

2. Interviews & Photo Journals

Participants will be identified as appropriate for recruitment if they are families who live in [IRC], with children aged 9 years or older, who use ff&v services and can identify with the following statement…

'Expense is a barrier to eating fresh fruit and vegetables for our family'

3. Co-Design Session

Participants will be identified as appropriate for recruitment if they have been involved in the project or if they are stakeholders from the community who are willing to take part.

D.1.2.   What criteria are to be used for selecting participants from those recruited?

All participants who are successfully recruited will become participants.

D.1.3.   Are there any potential participants who will be excluded?

If your answer is yes, please detail the criteria for exclusion.

No. There will be no exclusion. Voluntary exclusion for whatever reason will be available at any stage, prior to exegesis publication, for any participant.

D.2.   Are there any potential conflicts of interest or possible coercive influences in the professional, social, or cultural relationships between the researcher and the participants (e.g. dependent relationships such as teacher/student; parent/child; employer/employee; pastor/congregation etc.)?

No.

D.2.1. If your answer was 'Yes', please identify the nature of the relationships concerned and provide full information about the processes being incorporated into the research design to mitigate any adverse affects that may arise from them.

D.3.   How many participants will be selected?

1. Service Blueprinting

Two [IRC] ff&v services have already been identified; the Butcher and the Four Square. There may potentially be more services who supply ff&v's that have not yet been identified. All additional services will be asked to participate in the research.

2. Interviews & Photo Journals

The number of participating families will be up to 10, depending on availability.

3. Co-Design Session

The number of participants will be 4-12, depending on availability.

D.3.1. What is the reason for selecting this number?

1. Service Blueprinting

In order to gain insight into the entire system of availability, services and access of ff&v within the [IRC] Community ideally observation of all suppliers and service structures is required.

2. Interviews & Photo Journals

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As there are roughly 900 residents the total number of residents that match the criteria in [IRC] is expected to be quite small. These research methods use a qualitative approach. Even though the sample size is small it will enable insights into the experiences and issue themes.

3. *Co-Design Session*

This number range has been selected as a group size to encourage the desired free flow conversation. If attendance is high the larger group will be broken down small groups of attendees to brainstorm.

D.3.1. Provide a statistical justification where applicable, if you have not already provided one in C.4 5. above.

D.3.2. Is there a control group?

If your answer is yes, please describe and state how many are in the control group.

No.

D.4. Describe in detail the recruitment methods to be used.

If you will be recruiting by advertisement or email, please attach a copy to this Application Form

1. *Service Blueprinting*

Initial contact with potential participants has already been made in person by the researcher accompanied by an HPU member. Potential participants were given an opportunity to discuss the research methods and process, as well as going over the risks and benefits. Consultation was very successful. Service owner/operators verbalised no concerns with the research design and seemed very willing to be involved and help in any way they can.

Following ethics approval from AUTEC the researcher will revisit the service premises, meet with the owner/operator and provide copies of the Information Sheet and Consent Form (Appendices 8, 3 & 4). Participants will become involved in the research by signing the Consent Form.

2. *Interviews & Photo Journals*

HPU have developed good working relationships with key community contacts through facilitation of a school based gardening project. The researcher will respectfully use these connections to recruit potential participants.

Four gardens were created within the school garden project at the following sites; Te Hunga Ririki Te Kōhanga Reo, [IRC] Primary School, [IRC] Playcentre and Waitotara Primary School. [IRC] Primary School is the most likely to be able to provide access to potential participants who match the criteria.

[IRC] Primary School is a co-educational contributing primary (years 1-6) school with a roll of 134. Shaun Campbell is the current principal. Shaun is very supportive of all the work done by the HPU so far.

The researcher will set up a meeting with the principal and a member of HPU to discuss recruitment. As recruitment will be on a voluntary basis, both passive and active recruitment techniques may be required. A number of recruitment methods will be discussed with the principal and only those that show good potential that receive permission from the principal will be used.

Passive recruitment

[IRC] Primary School publish a fortnightly newsletter providing a good platform for passive recruitment. Two options include advertising for

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recruitment, or advertising an information session about the project with the potential to sign up participants from session. An outline of the content that may be used for these advertisements is attached within Appendix 14.

Active recruitment

If passive recruitment is unsuccessful, or yelds a low number of participants, permission will be sought from the principal to progress onto more active recruitment methods and for obtaining potential participant information. Options for active recruitment include; direct mail, phone calls, emails or advertising taken home in school bags of potential participants. An outline of the content that may be used for these communications is attached within Appendix 14.

Participants who are interested in participating will be introduced to the researcher in person. The researcher will visit the participants at a location of their choice to discuss the project, the purpose, the risks and benefits. Participants will become involved in the research by signing the Consent Form.

3. *Co-Design Session*

All participants who have been involved in any aspect of the [IRC] Food Security project will be invited to take part in the Co-Design Session, including researchers, consultees and participants.

D.5.   How will information about the project be given to participants?

(e.g. in writing, verbally). A copy of information to be given to prospective participants is to be attached to this Application Form. If written information is to be provided to participants, you are advised to use the Information Sheet exemplar.

Information about this research project will be provided to prospective participants in both verbal and written forms. Verbal consultation will happen as described above. Participants will be recruited by written invitation, through reading the relevant Information Sheet and by signing the relevant Consent/Assent Forms.

See Information Sheets and Consent Forms (Appendix 2, 3, 4, 5, 7, 8 & 9).

D.6.   Will the participants have difficulty giving informed consent on their own behalf?

Consider physical or mental condition, age, language, legal status, or other barriers. If the answer is yes, please provide full details.

Yes, children under 16 years old may be members of recruited families.

D.6.1.   If participants are not competent to give fully informed consent, who will consent on their behalf?

Children participants will complete an Assent Form. Parents/caregivers will provide a Consent Form.

D.6.2.   Will these participants be asked to provide assent to participation?

If the answer is yes, please attach a copy of the assent form which will be used. Please note that assent is not the same as consent (please refer to the Glossary in Appendix A of the AUTEC Guidelines and Procedures.

Yes.

D.7.   Will consent of participants be gained in writing?

If the answer is yes, please attach a copy of the Consent Form which will be used. If the answer is No, please provide the reasons for this.

Yes.

See Consent Forms (Appendix 2, 3, 4 & 5).

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D.8.   Will the participants remain anonymous to the researcher?

Please note that anonymity and confidentiality are different. If the answer is yes, please state how, otherwise, if the answer is no, please describe how participant privacy issues and confidentiality of information will be preserved.

No.

Participants will be treated confidentially throughout the research and design project. The participant's privacy will be protected by keeping all personal information, photographic material and responses confidential and by not referencing any specific details, such as specific language use or place names, within any published material. Data will be stored in a secure area.

Due to the size of [IRC] there is a possibility that the ff&v services participants could be indirectly identified. The majority of the information gathered already exists the public domain. Service mapping simply creates visual representation of this publicly available data. The researcher will consult regularly with the participants about any research outputs. All developed material will be shown to the participants for their approval. Any information they feel should remain confidential will be removed before publication.

D.9.   In the final report will there be any possibility that individuals or groups could be identified?

If the answer is yes, please explain how and why this will happen.

No.

D.10.   Will feedback or findings be disseminated to participants (individuals or groups)?

If the answer is yes, please explain how this will occur and ensure that this information is included in the Information Sheet.

Yes. Participants, if interested, will be provided with a research report which will include a written summary and the appropriate design visuals. This will be hand delivered to participants.

HPU plan to present the research findings from the [IRC] Food Security project back to the community. The intent is to develop a Digital Story about the garden project and include visual data from the other research methods. This will be developed as a DVD digital file and will be screened in [IRC] only.

D.11.   Will the findings of this study be of particular interest to specific cultures or social groups?

If your answer is 'Yes', please identify how the findings will be made available to them.

No.

E. Other Project Details

E.1. Where will the project be conducted?

Please provide the name/s of the Institution/s, town/s, city or cities, region or country that best answers this question.

[IRC], South Taranaki, New Zealand.

E.2. Who is in charge of data collection?

The researcher.

E.3. Who will interact with the participants?

The researcher and the collaborative research partners.

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E.4. What ethical risks are involved for participants in the proposed research?

Please consider the possibility of moral, physical, psychological or emotional risks to participants, including issues of confidentiality and privacy. Researchers are urged to consider this issue from the perspective of the participants, and not only from the perspective of someone familiar with the subject matter and research practices involved.

Yes.

1. *Service Blueprinting*

   Time risk. Being involved in the research will take up time. This time may potentially be during business operation hours inconveniently taking the service owner/operators away from their business.

   Confidentiality & privacy risk. [IRC] is a small town and there is a risk that members of the local community may be able to identify a particular service provider within the Blueprint.

   Functional risks. Analysis of the service may expose how the service or products are not performing as needed by the community.

   Business risks. Documentation of the services may expose competitive comparisons between the different suppliers.

2. *Interviews & Photo Journals*

   Emotional risk. Participants may be exposed to emotional risks during the interviews, as this could be concidered by some people to be a sensitive topic.

   Physical risk. There is also a risk that participants may lose the disposable cameras or journals.

3. *Co-design Session*

   Emotional risk. Being around other participants that have been involved in the research may compromise confidentiality.

E.4.1. Are the participants likely to experience any discomfort, embarrassment (physical, psychological, social) or incapacity as a result of the research's procedures?

1. *Service Blueprinting*

   Participants are not likely to experience any of the side effects listed above.

2. *Interviews & Photo Journals*

   Embarrassment & Discomfort. Participants may experience embarrassment and/or discomfort when being asked questions about what they eat or about their food budgets. Participants may feel slightly uncomfortable having strangers visiting their homes. Participants may feel concerned about losing the disposable cameras or journals.

3. Co-design Session

   Embarrassment & Discomfort. Participants may not feel comfortable voicing their opinions in a group environment. Fricition may occur by putting stakeholders from different perspectives alongside each other during the session.

E.4.2. If there are risks, please identify their probability and describe how they will be mitigated.

Please describe how these will be minimised or mitigated (e.g. participants do not need to answer a question that they find embarrassing or they may terminate an interview or there may be a qualified counsellor present in the interview or the findings will be reported in a way that ensures that participants cannot be individually identified, etc.) Possible risks and their mitigation should be fully described in the Information Sheets for participants.

Participants will be comprehensively briefed, well in advance of any participation, about the nature and content of the research. The direct benefits to participants will

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also be made quite clear. Participants will remain confidential, minimalising the concerns they may have around others finding out about confidential business information or personal experiences.

All research data and analysis will be available to participants on request. The researcher will consult regularly with the participants about any research outputs. All developed material will be shown to the participants for their approval. Any information they feel should remain confidential will be removed before publication.

See Information Sheets (Appendix 7, 8 & 9)

1. *Service Blueprinting*

   Time risk. Probability = medium. Impact = low. Mitigation = The researcher will consult with the participants to ensure research is conducted during times that have the least impact on business operation.

   Confidentiality & privacy risk. Probability = medium. Impact = low. Mitigation = Services will not be named. If identified the information displayed will not be harmful to their business and to a certain extent is already in the public domain.

   Functional risks. Probability = low. Impact = low. Mitigation = All service owner/operators will be given information from the research and given the chance to attend the Co-Design Session.

   Business risks. Probability = medium. Impact = low. Mitigation = Services will not be named.

2. *Interviews & Photo Journals*

   Emotional risk. The interview protocol is open-ended in nature, enabling participants to minimise the embaressment through controlling the stories they choose to tell. Participants will not be required to answer any questions they do not want to and they may terminate the interview at any stage and withdraw or change any previous answers.

   Physical risk (camera loss). Probability - Low. Mitigation - If research materials such as the dispoable cameras or photo journals are lost by participants, replacements will be supplied to the participants. All costs incurred by the lost will be covered by AUT insurance.

3. *Co-design Session*

   Emotional risk. The session will be run in a non-confrontational manner. The researcher will emphasis the importance of taking al points of view into account.

E.4.3. If the participants are likely to experience any discomfort, embarrassment, or incapacity, what provision for counselling has been made, either with AUT Counselling (who also provide an online service) or with other counselling professionals (this is to be at no charge to the participants)?

Please refer to section 2.3 of AUTEC's Applying for Ethics Approval: Guidelines and Procedures in the Ethics Knowledge Base. If the answer is No, please explain the arrangements which have been made to have qualified personnel available to deal with unexpected adverse physical or psychological consequences?

Yes, participants will be supplied with the following numbers.

Life Line: 0800 111 77

Youthline: 0800 376 733

AUT Counselling Services: TBC

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E.5. What risks are involved for the researcher(s) in the proposed project (such as physical, social, psychological, or safety risks)?

If this project will involve interviewing participants in private homes, undertaking research overseas, or going into similarly vulnerable situations, then a Researcher Safety protocol should be designed and appended to this application.

The researcher may potentially visit Interview participants private homes. There are safety risks for the researcher as a result of this.

See Safety Protocol (Appendix 6).

E.6. Will there be any other physical hazards introduced to AUT staff and/or students through the duration of this project?

If the answer is yes, please provide details of management controls which will be in place to either eliminate or minimise harm from these hazards (e.g. a hazardous substance management plan).

No.

E.7. Is deception of participants involved at any stage of the research?

If the answer is yes, please provide full details of and rationale for the deception. Please refer to Section 2.4 of AUTEC's Applying for Ethics Approval: Guidelines and Procedures when considering this question.

No.

E.8. How much time will participants have to give to the project?

1. Service Blueprinting

Initial consultation prior to recruitment will take between 10-30 minutes.

The majority of the data for this method can be collected by the researcher independantly of the participant. Participants will be required for discussions about some aspects of their service. It is anticipated this could take between 1-2 hours of their time. Every effort will be made to ensure participants are not interrupted during peak service times.

Consultation following the Service Blueprinting initiated by the researcher will take up to 30 minutes. Consultation initiated by the participant may also occur.

2. Interviews

Initial consultation will take between 10-30 minutes. The interview will take 1-2 hours. Consultation following the interview initiated by the researcher will take up to 30 miniutes. Consultation initiated by the participant may also occur.

3. Photo Journals

Participants will be given the Photo Journals and given a 1-2 week timeline to work on them. Participants will be in control of how long they spend filling them in, this is likely to take between 2-6 hours.

4. Co-design Session

The session will take 2-3 hours.

E.9. Will any information on the participants be obtained from third parties?

If the answer is yes, please provide full details. This includes use of third parties, such as employers, in recruitment.

Yes.

The principal of [IRC] Primary School Shaun Campbell will be involved in recruitment.

E.10.   Will any identifiable information on the participants be given to third parties?

If the answer is Yes, please provide full details.

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No.

E.11.   Provide details of any payment, gift or koha and, where applicable, level of payment to be made to participants.

Please refer to Section 2.1 of the AUTEC's Applying for Ethics Approval: Guidelines and Procedures and Appendix A of that document for AUTEC's policy on Payment and Koha, especially in relation to recruitment.

Participants will not receive payment.

F. Data and Consent Forms

F.1. Who will have access to the data?

The researcher, HPU staff and Dr Emma Dresler-Hawke.

F.2. Are there plans for future use of the data beyond those already described?

The applicant's attention is drawn to the requirements of the Privacy Act 1993 (see Appendix I). If there are future plans for the use of the data, then this needs to be explained in the Information Sheets for participants.

No.

F.3. Where will the data be stored once the analysis is complete?

Please provide the exact storage location. AUTEC normally requires that the data be stored securely on AUT premises in a location separate from the consent forms. If you are proposing an alternative arrangement, please explain why.

As the researcher is an off-campus student, the data will be kept at the student's home in a locked filing cabinet until the data has been analysed. Following the analysis the data will be promptly relocated to AUT. Data will be stored on AUT premises in locked filing cabinets belonging to the supervisor in WM building. The storage facility will be provided and maintained by the Art & Design School.

F.4. For how long will the data be stored after completion of analysis?

AUTEC normally requires that the data be stored securely for six years. If you are proposing an alternative arrangement, please explain why.

Six years.

F.5. Will the data be destroyed?

If the answer is yes, please describe how the destruction will be effected. If the answer is no, please provide the reason for this.

Yes. Data will be put through a paper shreader.

F.6. Who will have access to the Consent Forms?

While the forms are off campus only the researchers will have access to the Consent Forms. Following relocation of the forms only relevant AUT staff members in the Art & Design School will have access.

F.7. Where will the completed Consent Forms be stored?

Please provide the exact storage location. AUTEC normally requires that the Consent Forms be stored securely on AUT premises in a location separate from the data. If you are proposing an alternative arrangement, please explain why.

Consent forms will be stored separately from the data on AUT premises in locked filing cabinets belonging to the supervisor in WM building. The storage facility will be provided and maintained by the Art & Design School. As the researcher is an off-campus student, the data will be kept at the student work premises in a locked filing cabinet until the data has been analysed. Following the analysis the data will be promptly relocated to AUT.

F.8. For how long will the completed Consent Forms be stored?

AUTEC normally requires that the Consent Forms be stored securely for six years. If you are proposing an alternative arrangement, please explain why.

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Six years.

F.9. Will the Consent Forms be destroyed?

If the answer is yes, please describe how the destruction will be effected. If the answer is no, please provide the reason for this.

Yes. Consent forms will be put through a paper shreader.

G. Material Resources

G.1. Has an application for financial support for this project been (or will be) made to a source external to AUT or is a source external to AUT providing (or will provide) financial support for this project?

Yes.

G.1.1. If the answer to G.1 was 'yes', please provide the name of the source, the amount of financial support involved, and clearly explain how the funder/s are involved in the design and management of the research.

1. *Massey Funding*

   Dr Dresler Hawke has applied internaly at Massey for $2,500 project funding. Dr Dresler-Hawke is involved as a researcher in the Waverely Food Security project. Dr Dresler-Hawke is a Lecturer in Marketing in the Department of Communication, Journalism and Marketing at Massey University in Palmerston North. Details of Dr Dresler-Hawkes involvement in design and management of the research project have been provided in a chart in section A. 6. 1.

2. *McBroom Estate*

   An application to the McBroom Estate will be made in May. The McBroom Estate funding, co-ordinated by the TDHB, is set up to provide grants for health service or practical health projects in [IRC] or Patea. The [IRC] Food Security projects application will include a request a budget of $5,000. The TDHB board who manage the McBroom Estate funding come from a different department from HPU. They oversee the application process and select the successful applicant/s. As funders they will not be involved in the design or management of this research.

G.2. Has the application been (or will it be) submitted to an AUT Faculty Research Grants Committee or other AUT funding entity?

If the answer is yes, please provide details.

3. *AUT Materials Grant*

   Yes. An application will be submitted to the AUT Art & Design Postgraduate Studies, thesis year research grants for materials & consumables.

   Research grants of up to $750 for full-time candidates (or $375 for part-time candidates) are available to Year Two Masters of Art and Design candidates by application. Funding is for research-related expenses which may include:

   • Materials

   • Travel expenses

   • Transcription costs

   • Equipment hire

   • Presentation, display & publication expenses

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G.2.1. If the answer to G.2 was 'yes', please provide the name of the source, the amount of financial support involved, and clearly explain how the funder/s are involved in the design and management of the research.

AUT Art & Design Postgraduate Studies, $375. The funder/s are not involved in the design and management of the research.

G.3.   Is funding already available, or is it awaiting decision?

Please provide full details.

1. *Massey Funding*

   $2,500 Approved.

2. *McBroom Estate*

   Application deadline May 30, 2009. Awaiting decision.

3. *AUT Materials Grant*

   Application deadline March 27, 2009. Awaiting decision.

G.4.   Please provide full details about the financial interest, if any, in the outcome of the project of the researchers, investigators or research organisations mentioned in Part A of this application.

The outcomes of this research will not generate opportunities for financial gain.

H. Other Information

H.1.   Have you ever made any other related applications?

If the answer is yes, please provide the AUTEC application / approval number(s)

This application relates to the second and final stage of this research project.

Approval for Stage One was granted on the 5th of October 2007: Ethics Application Number 07/145 Implementing socially responsible graphic design.

This application includes specific details of the practical project. Approval is sought for Stage Two.

I. Checklist

Please ensure all applicable sections of this form have been completed and all appropriate documentation is attached as incomplete applications will not be considered by AUTEC.

Section A	General Information Completed	☐
	Signatures/Declaration Completed	☐
Section B	Project General Information Completed	☐
Section C	Project Details Completed	☐
Section D	Participant Details Completed	☐
Section E	Other Project Details Completed	☐
Section F	Data & Consent Forms Details Completed	☐
Section G	Material Resources Completed	☐
Section H	Other Information Completed	☐

Spelling and Grammar Check (please note that a high standard of spelling and grammar is required in documents that are issued with AUTEC approval) ☐

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Attached Documents (where applicable)

Participant Information Sheet(s)	☐
Consent Form(s)	☐
Questionnaire(s)	☐
Indicative Questions for Interviews or Focus Groups	☐
Observation Protocols	☐
Recording Protocols for Tests	☐
Advertisement(s)	☐
Hazardous Substance Management Plan	☐
Any Confidentiality Agreement(s)	☐
Other Documentation	☐

Before submitting this application, please note the following:

- ❖ *If you think that your research may be of low ethical risk, use the EA8RA self assessment form to make sure that this is the correct form for your application;*
- ❖ *Incomplete or incorrectly formatted applications will not be considered by AUTEC;*
- ❖ *Please check online for the most recent version of this form before submitting your application;*
- ❖ *Please do not alter the formatting of this form or delete any sections. If a particular question is not applicable to your research, please state that as your response to that question;*

This form needs to be submitted, along with all associated documents as follows:

- ❖ *In printed form;*
- ❖ *With the required signatures in sections A.8 and A.9;*
- ❖ *Single sided;*
- ❖ *Using clips rather than staples;*
- ❖ *By 4 pm on the agenda closing date at:*

The AUTEC Secretariat
Room WO201, WO Building
56 Wakefield Street, City Campus.

- ❖ *The Internal Mail Code is D-89. If sending applications by Internal Mail, please ensure that they are posted at least two days earlier to allow for any delay that may occur.*

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Memorandum of Understanding

AUT
UNIVERSITY
TE WĀNANGA ARONUI O TAMAKI MAKAU RAU

Project Title: ***Implementing socially responsible graphic design: In what ways is expense a barrier to eating fresh fruit and vegetables in the rural community of [IRC].***

Project Supervisor: **Dr. Alan Young**

Researcher: **Leigh Parker**

The Health Promotion Unit from the Taranaki District Health Board, Dr Emma Dresler-Hawke from Massey University and Leigh Parker from AUT will be involved in the [IRC] Research Project. This project includes a variety of research methods, different types of data collection, analysis and outputs.

All parties agree to share all collected data, ie share ownership.

HPU & Dr Dresler-Emma acknowledge that some components of the [IRC] Research Project will contribute towards Leigh Parker's Masters.

Although each party plans on producing different research outputs we all agree to include credit of both other involved parties on every output (on papers, presentations, thesis acknowledgements, etc.)

Components initiated by Leigh Parker involving human participants will have ethics approval from AUTEC prior to commencement. Components initiated by Dr Dresler-Hawke involving human participants will have ethics approval from Massey prior to commencement.

Agreement between:

AUT	Massey	Taranaki District Health Board
Leigh Parker *Lecturer* School of Art & Design, UCOL, Palmerston North. Wk: (06) 952 7219 Em: l.parker@ucol.ac.nz	Dr. Emma Dresler-Hawke *Lecturer* Department of Communication, Journalism and Marketing, Massey University, Palmerston North. Wk: 06 350 5799 ext 7141 Em: E.K.Dresler-Hawke@massey.ac.nz	Maree Young *Research Evaluator* Public Health Unit, Taranaki District Health Board, Taranaki. Wk: (06) 753 7799 Em: maree.young@tdhb.org.nz

Service Provider Consent Form

AUT UNIVERSITY
TE WĀNANGA ARONUI O TĀMAKI MAKAU RAU

Project Title:	***Implementing socially responsible graphic design: In what ways is expense a barrier to eating fresh fruit and vegetables in the rural community of [IRC].***
Project Supervisor:	**Dr. Alan Young**
Researcher:	**Leigh Parker**

○ I have read and understood the information provided about this research project in the Information Sheet dated 13th August 2009.

○ I have had an opportunity to ask questions and to have them answered.

○ I understand that identity of my business and the information I provide is confidential and will be treated in a way to ensure both remain anonymous.

○ I understand that notes will be taken during the interviews and that discussions will be taped.

○ I permit the artist to use the photographs that are part of this project and/or any drawings from them and any other reproductions or adaptations from them, either complete or in part, alone or in conjunction with any wording and/or drawings solely and exclusively for (a) the artist's portfolio; and (b) educational exhibition and examination purposes and related design works.

○ I understand that the photographs will be used for academic purposes only and not be published in any form outside of this project without my written permission.

○ I understand that any copyright material created by the photographic sessions is deemed to be owned by the researcher and that I do not own copyright of any of the photographs.

○ I understand that I may access and change any responses I have given if I am concerned.

○ I understand that I may withdraw my business or any information that has been provided for this project at any time prior to completion of data collection, without being disadvantaged in any way. If we withdraw, I understand that all relevant information including interview answers, booklet and photographs, or parts thereof, will be destroyed.

○ **I agree to take part in this research.**

• I wish to receive copy of any written projects generated by this research
(please tick one):

  Yes ○   No ○

Participants signature: ……………………………………………………………………

Participants name: ……………………………………………………………………

Participants contact details: ………………………………………………………………….

                    ……………………………………………………………………

                    ……………………………………………………………………

Date: ……………………………………………………………………

Approved by the Auckland University of Technology Ethics Committee on 13th August 2009, AUTEC Reference number 09/71.

Note: The Participant should retain a copy of this form.

Service Customer Consent Form

AUT
U N I V E R S I T Y
TE WĀNANGA ARONUI O TAMAKI MAKAU RAU

Project Title: ***Implementing socially responsible graphic design: In what ways is expense a barrier to eating fresh fruit and vegetables in the rural community of [IRC].***

Project Supervisor: **Dr. Alan Young**

Researcher: **Leigh Parker**

○   I have been provided with a verbal explanation of this research project.

○   I have had an opportunity to ask questions and to have them answered.

○   I understand that my identity and the information I provide is confidential and will be treated in a way to ensure anonymity.

○   I understand that notes will be taken during the interviews.

○   I permit the artist to use the photographs that are part of this project and/or any drawings from them and any other reproductions or adaptations from them, either complete or in part, alone or in conjunction with any wording and/or drawings solely and exclusively for (a) the artist's portfolio; and (b) educational exhibition and examination purposes and related design works.

○   I understand that the photographs will be used for academic purposes only and not be published in any form outside of this project without my written permission.

○   I understand that any copyright material created by the photographic sessions is deemed to be owned by the researcher and that I do not own copyright of any of the photographs.

○   I understand that I may access and change any responses I have given if I am concerned.

○   I understand that I may withdraw myself or any information that has been provided for this project at any time prior to completion of data collection, without being disadvantaged in any way. If I withdraw, I understand that all relevant information including interview answers, booklet and photographs, or parts thereof, will be destroyed.

○   **I agree to take part in this research.**

•   I wish to receive copy of any written projects generated by this research
(please tick one):

     Yes ○   No ○

Participants signature: ……………………………………………………………………

Participants name: ……………………………………………………………………

Participants contact details: ……………………………………………………………………

                 ……………………………………………………………………

                 ……………………………………………………………………

Date: ……………………………………………………………………

Approved by the Auckland University of Technology Ethics Committee on type the date on which the final approval was granted AUTEC Reference number XX/XXX.

Service Information Sheet

AUT
UNIVERSITY
TE WĀNANGA ARONUI O TAMAKI MAKAU RAU

Date Information Sheet Produced:

13ᵗʰ August 2009

Project Title

Implementing socially responsible graphic design: In what ways is expense a barrier to eating fresh fruit and vegetables in the rural community of [IRC].

An Invitation

Hi, my name is Leigh Parker. I am a Graphic Design Lecturer who works at UCOL in Palmerston North and I am currently studying for a Master's degree in Art and Design at the Auckland University of Technology.

My Master's project includes designing product or service solutions to address expense as a barrier to healthy eating. This component of the research aims to understand health food supply barriers from the perspective of those who provide them. It is specifically targeted at rural services who provide fresh fruit and vegetables to the residents of [IRC].

I would like to invite you to participate in my research. Participation is completely voluntary. You will be under no obligation to make any changes to your service, but may gain a lot from the research that might help you provide an even better service to your customers.

This is a very important part of my research. Your opinions and involvement are very important contributions for the success of my study. I would be delighted of you are able to assist me by simply participating in this research process.

What is the purpose of this research?

The focus of this project is to investigate in what ways is expense a barrier to eating fresh fruit & vegetables within the rural South Taranaki Community of [IRC].

The product or service solutions designed within this project could come from three possible directions, depending on whether the barrier turns out to be perceived or actual, surmountable or inequitable…

1. *Perceived barrier*

   If expense turns out to be a perceived barrier an opportunity will exist for improving current information design solutions. Potential projects may include cooking brochures, health food promotion, budgeting information kits, etc.

2. *Actual barrier*

   a. In the instance when expense is a surmountable barrier there will be opportunities to improve or develop service solutions. Potential projects may include food exchange program, box schemes, new community gardens, community lead supplier service design, etc.

   b. If expense is an inequitable rural barrier this will provide an opportunity for developing design solutions that seek advocacy for the community. Potential projects may include digital stories, campaigns, letters to government, etc.

How was I chosen for this invitation?

You have been chosen as a participant because you supply fresh fruit and vegetables to [IRC] residents.

What will happen in this research?

1. I will arrange a meeting with you in your premises to explain my research. If there are any staff members I should meet, it would be great to meet them at this stage.

2. You can have as much access to the information I gather about your service as you wish.

3. I will spend time in your business, observing the fresh fruit and vegetable service you provide to your customers. I will record information about the customer experience and the service. The information gather

about your service is purely to help the community. Your business will not be named and will remain anonymous.

4. Rather than involving and inconveniencing your customers, a member of the research team will become an actor and perform the role of a customer. This team member will be shadowed by a researcher as they experience a service. All the steps that the actor takes to experience the service will be recorded through note taking and photography.

5. This information will contribute to a Service Blueprint of [IRC]'s fresh fruit and vegetable services. The service your supplies will contribute to part of this diagram. I will bring this back to you to ensure you are happy with all included aspects that represent your business.

6. You will have access to the research findings and design projects.

What are the benefits?

This research project has the potential to improve the health and diets for some [IRC] residents, through counteracting the barrier of expense in relationship to purchasing fresh fruit and vegetables. It may also be used to inform further research into Food Security issues in relation to rural communities nation wide.

The project also has benefits for your business as a service provider. The research findings may allow you to better service their customers, build stronger relationships with your communities and benefit your business.

What are the risks and how are these being mitigated?

Time risks. Being involved in the research will take up some of your time. This time may potentially be during business operation hours. I will consult with you to ensure research is conducted during times that have the least impact on your business operation.

Confidentiality & privacy risk. [IRC] is a small town and there is a risk that members of the local community may be able to identify a particular service provider within the Blueprint. Services will not be named in any research presentation. If identification does occur the information displayed will not be harmful to your business.

Functional risks. Analysis of the service may expose how a service or product is not performing as needed by the community. You will be given information from the research and given the chance to attend a Co-Design Session. This research will offer you information about your customers and is not about giving you advice, but giving you an opportunity to help [IRC] work out better solutions.

Business risks. Documentation of the services may expose competitive comparisons between the different suppliers. Services will not be named, so this is only an issue if a member of the community can identify you as a service provider. Again, this information will be available to you and may provide you with an opportunity.

Who else is involved in this research?

The Service Blurprint research contributes to a more comprehensive research [IRC] Research Project. Amanda Brien and Maree Young from the Taranaki District Health Board initiated the project. I will also be working with Dr Emma Dresler-Hawke from Massey University who has an interest in community based food cost analysis. The project is collaborative, which means the research team will be working together to gather information and to analyse the findings.

How will my privacy be protected?

Confidentiality will be observed. All of the information you provide, whether at an Interview or within a Photo Journal, will be viewed only by members of the research team.

I will personally store all the research data at my home in a locked filing cabinet until the data has been analysed. Following the analysis the data will be promptly relocated to AUT in Auckland. Data will be stored on AUT premises in locked filing cabinets belonging to my supervisor in WM building. The storage facility will be provided and maintained by the Art & Design School. The research data will be kept for six years. At the end of the six years the Interview and Photo Journal information will be shredded.

Whilst on your premises I would like to record some information using my digital camera. These photos will not be viewed by anyone other than the researcher. I might like to use some of these photos in my research documents. I will seek your permission first and if you are unhappy photos will not be used.

What are the costs of participating in this research?

There is no monetary cost involved in participation in this research.

Initial consultation prior to you agreeing to become a participant will take between 10-30 minutes.

The researcher can collect some of the data independently. I would like to take some time to chat with you about your service. If that is okay with you, I'm happy to find a time is most convenient for you. Every effort will be made to ensure you and your customers are not interrupted.

Following the research I will be generating a few design visuals, I would like to show these to you and get your feedback on them.

What opportunity do I have to consider this invitation?

Participation in this research is voluntary. I hope you will agree to take part, as your contribution to the study is important.

Please be aware that you can withdraw from the research, for any reason, and at any stage up until the completion of the work in October 2009. If you wish for your research data to be withdrawn, please contact me.

How do I agree to participate in this research?

By filling in and signing the attached Consent Forms.

Will I receive feedback on the results of this research?

On the Consent Form there is a box for you to tick that indicates whether or not you would like to receive a summary of the findings of this research. If answered 'yes' you will receive a printed report.

Should you have any further questions relating to this research that are not covered within the report please do not hesitate to contact me.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Alan Young, *alan.young@aut.ac.nz*, 09-921-9999 ext 8181 (Auckland number).

Concerns regarding the conduct of the research should be notified to the Executive Secretary, AUTEC, Madeline Banda, *madeline.banda@aut.ac.nz*, 09-921-9999 ext 8044 (Auckland number).

Whom do I contact for further information about this research?

Researcher Contact Details:

Leigh Parker Work Phone: 06-952-7219 l.parker@ucol.ac.nz	C/o School of Photography, Art & Design UCOL Corner King and Princess Streets Private Bag 11022 Palmerston North, 4410

Research Partners Contact Details:

Dr. Emma Dresler-Hawke Work Phone: 06-350-5799 ext 7141 Email: E.K.Dresler-Hawke@massey.ac.nz	C/o Department of Communication, Journalism and Marketing Massey University Private Bag 11222 Palmerston North
Maree Young Work Phone: 06-753-7799 Email: maree.young@tdhb.org.nz	C/o Taranaki District Health Board Public Health Unit Private Bag 2016, New Plymouth 4342 Taranaki
Amanda Brien Work Phone: 06-753-7777 ext 8538 Email: amanda.brien@tdhb.org.nz	C/o Taranaki District Health Board Public Health Unit Private Bag 2016, New Plymouth 4342 Taranaki

Project Supervisor Contact Details:

Alan Young
Work Phone: 09-921-9999 ext 8181
alan.young@aut.ac.nz

Dept of Postgraduate Studies
School of Art & Design
AUT University
Auckland, 1142

Service Blueprint
Observation Protocol

AUT
UNIVERSITY
TE WĀNANGA ARONUI O TAMAKI MAKAU RAU

Project Title: ***Implementing socially responsible graphic design: In what ways is expense a barrier to eating fresh fruit and vegetables in the rural community of [IRC].***

Project Supervisor: ***Dr. Alan Young***
Researcher: ***Leigh Parker***

The research will occur following consultation with the services owner/operator, to ensure interruptions are kept to a minimum. The steps below form the observation protocol guide. Some additional types of information may be suggested by the services, or may become apparent for inclusion during the research that are not itemised below.

Definitions

Onstage – refers to employees who interact directly with customers

Backstage – refers to employees who work behind the scenes and not directly with customers

1. Ensure service owner/operator a copy of the Information Sheet and completed a Consent Form
2. Book a convenient date & time with service owner/operator
3. Arrive on the premises
    a. Meet with the owner/operator
    b. Introduce research team members, especially actors
    c. Briefly refresh owner/operator on what will happen, Q&A if needed
4. Comply with any signing in and visitor identification procedures

Begin Observation

5. Inform Onstage Contact Employees that the observation is commencing, advising employees to carry on as if 'business as usual'.
6. Conduct 'Customer actions' and 'Physical evidence' observation components *(see protocol below)*
7. Conduct 'Onstage employee actions' observation component *(see protocol below)*
8. Prepare pencil sketch of service blueprint on the 'Service Blueprint Build-up' worksheet

Begin Interview

9. See 'Service Interview Protocol'

Customer Actions & Physical Evidence

	Who	What	How
Customer actions Gathering a record of the customer actions during the service experience	**Researcher 1** Observer	Shadow 'Researcher 2' as they act out a typical customer experience. Record all **customer actions** that occur at points of interaction with the service. Should anyone interrupt the role-play pause to attend to his or her enquiries.	Follow the actor into the service standing a few paces behind. Observe all the steps the actor takes in experiencing the service. Record these by note taking and photography. Complete the 'Customer Actions' section of the 'Service Blueprint Build-up' worksheet *(see attached)*.

	Researcher 2
	Actor
		Role-play the experience of a typical customer for the service.
		
		This is not a covert operation. Conduct should be as if this is a normal everyday experience.
		
		Interact with any customers or employees as appropriate.
		
		Should anyone interrupt the role-play pause to attend to his or her enquiries.
			Instructions…
			
			  Start outside the service premises.
			
			  Enter premise.
			
			  Collect any required tools or materials.
			
			  Identify where the fruit and vegetables are located.
			
			  Acquire a selection of produce.
			
			  Checkout, payment (with money supplied) and depart.
			
			Gather any items for the 'Physical evidence' component as appropriate throughout the experience (see below).

Physical evidence
 	
Gathering any tangibles that customers come in to contact with relating to the service experience
	Researcher 1
	Observer
	&
	Researcher 2
	Actor
		Collect evidence of any physical evidence of service that a customer comes into contact with.
		
		Check for any additional materials that may be received before or after the service experience.
		
		Examples…
		
		  Receipts
		
		  Advertising materials
		
		  Packaging
		
		  Trolley
			Gathering any physical items that become property of the customer throughout the interaction.
			
			Photographing any items that remain property of the service provider.
			
			Collection should happen both during the shadowing experience and through observations of advertising and marketing materials.

Onstage/visible Contact Employee Actions

	Who	What	How
Onstage/visible contact employee actions Gathering a record of the interaction between actor and frontline employees that occur face-to-face during the service experience	**Researcher 1** Observer	Shadow 'Researcher 2' as they act out a typical customer experience. Record all **onstage employee actions** that occur at points of interaction with the service. Should anyone interrupt the role-play pause to attend to his or her enquiries.	*Instructions…* Acquire a selection of produce. Checkout, payment (with money supplied) and depart. *Gather any items for the 'Physical evidence' component as appropriate throughout the experience (as in 'customer actions').*
	Researcher 2 Actor	Role-play the experience of a typical customer for the service. This is not a covert operation. Conduct should be as if this is a normal everyday experience. Interact with any customers or employees as appropriate. Should anyone interrupt the role-play pause to attend to his or her enquiries.	

• Service blueprint build-up form.

Service Blueprint Build-up

Project Title: Implementing socially responsible graphic design: In what ways is expense a barrier to eating fresh fruit and vegetables in the rural community of [IRC].

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TE WĀNANGA ARONUI O TAMAKI MAKAU RAU

PHYSICAL
EVIDENCE

CUSTOMER
ACTIONS

Line of Interaction -

ONSTAGE
CONTACT
PERSON

Line of Visibility -

BACKSTAGE
CONTACT
PERSON

Line of Internal Interaction -

Service Blueprint
Interview Protocol

AUT
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TE WĀNANGA ARONUI O TAMAKI MAKAU RAU

Project Title: ***Implementing socially responsible graphic design: In what ways is expense a barrier to eating fresh fruit and vegetables in the rural community of [IRC].***

Project Supervisor: ***Dr. Alan Young***
Researcher: ***Leigh Parker***

The research will occur following consultation with the services owner/operator, to ensure interruptions are kept to a minimum. The steps below form the interview protocol guide. Some additional types of information may be suggested by the services, or may become apparent for inclusion during the research that are not itemised below.

Definitions

Onstage – refers to employees who interact directly with customers

Backstage – refers to employees who work behind the scenes and not directly with customers

1. Ensure service owner/operator a copy of the Information Sheet and completed a Consent Form
2. Book a convenient date & time with service owner/operator
3. Arrive on the premises
   a. Meet with the owner/operator
   b. Introduce research team members, especially actors
   c. Briefly refresh owner/operator on what will happen, Q&A if needed
4. Comply with any signing in and visitor identification procedures
5. Complete 'Service Blueprint Observation Protocol'
6. Meet with the service owner/operator and move to a suitable environment for discussion, eg. office or staffroom.

Begin Interview

7. Present pencil sketch of the service blueprint to the service owner/operator to validate the accuracy of the map, check if there are any variable/additional onstage interactions that are missing and should be included eg. verbal marketing
8. Conduct 'Backstage Contact Employee Actions' and 'Support Processes' observation components *(see descriptions below)*
9. Check if any alternative forms of service exist for specific customer types, seasons or other scenarios – record on a new 'Service Blueprint Build-up' worksheet.

Interview Questions

Issue	Question focus
Opening	Discussion of service blueprints, show examples.
Pencil Sketch	Present the pencil sketch developed from the 'Service Blueprint Observation Protocol'.
	What are the 'backstage actions' that happen behind the scenes of your fresh fruit and vegetable service?
	What are the 'support processes' that are in place in your fresh fruit and vegetable service?
Alternative Services	Are there any additional services you offer that differ from the one we experienced today? If so, lets create a quick blueprint sketch of this/these.
	For special customers, at certain times of the year, etc?
Additional Physical Evidence	In addition to the physical evidence of service that we gathered is there any other things we should collect?
Finishing Up	Is there anything else that we haven't covered which you would like to add?

Backstage/non-visible Contact Employee Actions & Support Processes

	Who	What	How
Backstage/non-visible contact employee actions Gathering a record of the behind the scenes interactions with customers	**Researcher** Interviewer **&** **Service owner/ operator** Interviewee	Record all **backstage actions** that occur at points of interaction with the service. *Examples…* Customer telephone communication Customer online communication	Present the examples of service blueprints, discuss if needed. Use the pencil sketch developed from the 'Service Blueprint Observation Protocol'. Ask the service owner/operator to help identify any **backstage actions** that relate to activities on the line of interaction. Sketch these activities onto the blueprint.
Support processes Gathering a record of the activities such as ordering, delivery and shelf stocking.	**Researcher** Interviewer **&** **Service owner/ operator** Interviewee	Record all **support processes** that occur at points of interaction with the service. *Examples…* Supply chain Product selection/sourcing Display process Shelve maintenance Register/computer systems	Present the examples of service blueprints, discuss if needed. Use the pencil sketch developed from the 'Service Blueprint Observation Protocol'. Ask the service owner/operator to help identify any **support processes** that relate to activities on the line of interaction. Sketch these activities onto the blueprint.

Parent/Guardian Consent Form

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TE WĀNANGA ARONUI O TAMAKI MAKAU RAU

Project Title: ***Implementing socially responsible graphic design: In what ways is expense a barrier to eating fresh fruit and vegetables in the rural community of [IRC].***

Project Supervisor: **Dr. Alan Young**
Researcher: **Leigh Parker**

○   I have read and understood the information provided about this research project in the Information Sheet dated 13th August 2009.

○   I have had an opportunity to ask questions and to have them answered.

○   I understand that there is a possibility of emotional risk involved with taking part in this study for my family members and me.

○   I understand that I may access and change any responses we have given if I am concerned.

○   I permit the artist to use the photographs that are part of this project and/or any drawings from them and any other reproductions or adaptations from them, either complete or in part, alone or in conjunction with any wording and/or drawings solely and exclusively for (a) the artist's portfolio; and (b) educational exhibition and examination purposes and related design works.

○   I understand that the photographs will be used for academic purposes only and not be published in any form outside of this project without my written permission.

○   I understand that any copyright material created by our family in the Photo Journal project is deemed to be owned by the researcher and that I do not own copyright of any of the photographs.

○   I understand that I may withdraw my child/children and/or myself or any information that we have provided for this project at any time prior to completion of data collection, without being disadvantaged in any way.

○   If my child/children and/or I withdraw, I understand that all relevant information including photographs, tapes and transcripts, or parts thereof, will be destroyed.

○   I agree to my child/children taking part in this research.

○   **I agree to take part in this research.**

•   I wish to receive copy of any written projects generated by this research
(please tick one):

        Yes ○   No ○

Child/children's name/s: ………………………………………………………………………

                                ………………………………………………………………………

Parent/Guardian's signature: ………………………………………………………………………

Parent/Guardian's name: ………………………………………………………………………

Parent/Guardian's Contact Details (if appropriate):

                                ………………………………………………………………………

                                ………………………………………………………………………

                                ………………………………………………………………………

Date: ………………………………………………………………………

Approved by the Auckland University of Technology Ethics Committee on 13th August 2009, AUTEC Reference number 09/71.

Note: The Participant should retain a copy of this form.

Assent Form

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TE WĀNANGA ARONUI O TĀMAKI MAKAU RAU

Project Title: **Implementing socially responsible graphic design: In what ways is expense a barrier to eating fresh fruit and vegetables in the rural community of [IRC].**

Project Supervisor: **Dr. Alan Young**

Researcher: **Leigh Parker**

○ I have read and understood the sheet telling me what will happen in this study and why it is important.

○ I have been able to ask questions and to have them answered.

○ I understand that notes will be taken during the interviews and that they will also be audio-taped and transcribed.

○ I understand that while the information is being collected, I can stop being part of this study whenever I want and that it is perfectly ok for me to do this.

○ If I stop being part of the study, I understand that all information about me, including the recordings or any part of them that include me, will be destroyed.

○ I agree to take part in this research.

Participant's signature: ………………………………………………………………

Participant's name: ………………………………………………………………

Date: ………………………………………………………………

Approved by the Auckland University of Technology Ethics Committee on 13th August 2009, AUTEC Reference number 09/71.

Note: The Participant should retain a copy of this form.

Child Information
& Assent Form

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TE WĀNANGA ARONUI O TAMAKI MAKAU RAU

Project Title: **Implementing socially responsible graphic design: In what ways is expense a barrier to eating fresh fruit and vegetables in the rural community of [IRC].**

Project Supervisor: **Alan Young**

(parent/ guardian's please read to children)

Hello – my name is Leigh Parker.

I would like to find out about what you think of healthy food and how much it costs. I would like to invite your family to be involved in a study. This study will include talking to you, you and your family taking photos with a disposable camera, drawing pictures and writing some answers. It will take place over one to two weeks.

You can ask me about my work whenever you want to.

Let me know how you feel about this by colouring in one of these words -

Happy   Fine
Not Sure
Worried

If you are not sure or worried come and talk to me about it or ask one of your parents about this.

I am finding out about how healthy food is expensive – you might like to find out about this as well. Expensive is a word that means 'costs a lot'; it is the opposite of cheap.

YES

Please circle   if you would like to take part in my study.

NO

Please circle   if you do not want to do this.

MAYBE

Please circle ~~MAYBE~~ if you are not sure. If you cannot decide that is fine because you can come along anytime and tell me or one of your teachers or your parents that you want to join in.

This is my photo

I hope you are excited about doing this. It will be great to have your help in my study.

Leigh Parker

Thank you for completing this form – will you ask your parent/guardian to sign here if they feel that you understand what the project is about.

Signature: …………………………………………………………………

Date: …………………………………………………………………

Approved by the Auckland University of Technology Ethics Committee on 13th August 2009, AUTEC Reference number 09/71.

Note: The Participant should retain a copy of this form.

Families Information Sheet

AUT
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TE WĀNANGA ARONUI O TAMAKI MAKAU RAU

Date Information Sheet Produced:

13th August 2009

Project Title

Implementing socially responsible graphic design: In what ways is expense a barrier to eating fresh fruit and vegetables in the rural community of [IRC].

An Invitation

Hi, my name is Leigh Parker. I am a Graphic Design Lecturer who works at UCOL in Palmerston North and I am currently studying for a Master's degree in Art and Design at the Auckland University of Technology.

My Master's project includes designing product or service solutions to address expense as a barrier to healthy eating. This component of the research aims to understand health food barriers from the perspective of those who encounter them. It is specifically targeted at rural families who have children aged 9 years and older.

I would like to invite you to participate in my research. Participation is completely voluntary.

This is a very important part of my research. Your opinions and involvement are very important contributions for the success of my study. I would be delighted of you are able to assist me by simply participating in this research process.

What is the purpose of this research?

The focus of this project is to investigate ways in which expense may be a barrier to eating fresh fruit & vegetables within the rural South Taranaki Community of [IRC].

The product or service solutions designed within this project could come from three possible directions, depending on whether the barrier turns out to be perceived or actual, surmountable or inequitable…

1. *Perceived barrier*

    If expense turns out to be a perceived barrier an opportunity will exist for improving current information design solutions. Potential projects may include cooking brochures, health food promotion, budgeting information kits, etc.

2. *Actual barrier*

    a. In the instance when expense is a surmountable barrier there will be opportunities to improve or develop service solutions. Potential projects may include food exchange program, box schemes, new community gardens, community lead supplier service design, etc.

    b. If expense is an inequitable rural barrier this will provide an opportunity for developing design solutions that seek advocacy for the community. Potential projects may include digital stories, campaigns, letters to government, etc.

How was I chosen for this invitation?

You have been chosen because you and your family live in [IRC], with children aged 9 years or older. You use fresh fruit and vegetable services and can identify with the following statement…

'Expense is a barrier to eating fresh fruit and vegetables for our family'

What will happen in this research?

1. I will contact you and arrange to meet with you at a convenient location for an interview.

2. At the start of the interview I will explain my research.

3. The interview includes questions about how your family may have experienced expense as a barrier to eating fresh fruit and vegetables.

4. The interview will finish and we will summarise some key points together.

5. I will leave behind a Photo Journal for you and your family to complete over the next week or so. The journal has a series of questions to answer and a disposable camera for taking photos.

6. You can contact me once the Journal is complete and I will return to pick up the camera and journal.

7. You will have access to the research findings and design projects.

8. Towards the end of the project I will ask you if you are available to take part in a Focus Group to review the product or service solutions that I have designed.

What are the benefits?

This research project has the potential to improve the health and diets for [IRC] residents, through counteracting the barrier of expense in relationship to purchasing fresh fruit and vegetables. It may also be used to inform future food service research in other rural New Zealand communities.

Who else is involved in this research?

The Interviews and Photo Journals research contribute to a more comprehensive research [IRC] Research Project. Amanda Brien and Maree Young from the Taranaki District Health Board initiated the project. I will also be working with Dr Emma Dresler-Hawke from Massey University who has an interest in community based food cost analysis. The project is collaborative, which means the research team will be working together to gather information and to analyse the findings.

How will my privacy be protected?

Confidentiality will be observed. All of the information you provide, whether at an Interview or within a Photo Journal, will be viewed only by members of the research team.

I will personally store all the research data at my home in a locked filing cabinet until the data has been analysed. Following the analysis the data will be promptly relocated to AUT in Auckland. Data will be stored on AUT premises in locked filing cabinets belonging to my supervisor in WM building. The storage facility will be provided and maintained by the Art & Design School. The research data will be kept for six years. At the end of the six years the Interview and Photo Journal information will be shredded.

Within the Photo Journals you will be asked to use the camera to take some pictures, and some of these will be of family members. I might like to use some of these photos in my research documents. I will seek your permission first and if you are unhappy photos will not be used.

What are the costs of participating in this research?

There is no monetary cost involved in participation in this survey. The interview will take up 1-2 hours of your time. You will have the photo journal for between 1-2 weeks and it is anticipated filling in the detail will take between 2-6 hours.

What opportunity do I have to consider this invitation?

Participation in this research is voluntary. I hope you will agree to take part, as your contribution to the study is important.

Please be aware that you can withdraw from the research, for any reason, and at any stage up until the completion of the work in November 2009. If you wish for your research data to be withdrawn, please contact me.

How do I agree to participate in this research?

By filling in and signing the attached Consent-Assent Forms.

Will I receive feedback on the results of this research?

On the Consent Form there is a box for you to tick that indicates whether or not you would like to receive a summary of the findings of this research. If answered 'yes' you will receive a printed report.

Should you have any further questions relating to this research that are not covered within the report please do not hesitate to contact me.

If I experience any discomfort or embarrassment is there counselling available?

Yes, free counselling is available.

- Life Line: 0800 111 77
- Youthline: 0800 376 733
- AUT Counselling Services

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Alan Young, *alan.young@aut.ac.nz*, 09-921-9999 ext 8181 (Auckland number).

Concerns regarding the conduct of the research should be notified to the Executive Secretary, AUTEC, Madeline Banda, *madeline.banda@aut.ac.nz*, 09-921-9999 ext 8044 (Auckland number).

Whom do I contact for further information about this research?

Researcher Contact Details:

Leigh Parker Mobile Phone: 021-045-9660 Email: leigh_parker@orcon.net.nz	C/o School of Photography, Art & Design UCOL Private Bag 11022 Palmerston North, 4410

Research Partners Contact Details:

Dr. Emma Dresler-Hawke Work Phone: 06-350-5799 ext 7141 Email: E.K.Dresler-Hawke@massey.ac.nz	C/o Department of Communication, Journalism and Marketing Massey University Private Bag 11222 Palmerston North
Maree Young Work Phone: 06-753-7799 Email: maree.young@tdhb.org.nz	C/o Taranaki District Health Board Public Health Unit Private Bag 2016, New Plymouth 4342 Taranaki
Amanda Brien Work Phone: 06-753-7777 ext 8538 Email: amanda.brien@tdhb.org.nz	C/o Taranaki District Health Board Public Health Unit Private Bag 2016, New Plymouth 4342 Taranaki

Project Supervisor Contact Details:

Alan Young Work Phone: 09-921-9999 ext 8181 Email: alan.young@aut.ac.nz	Dept of Postgraduate Studies School of Art & Design AUT University Auckland, 1142

Approved by the Auckland University of Technology Ethics Committee on 13th August 2009, AUTEC Reference number 09/71.

Families Recruitment Advertising

Project Title: *Implementing socially responsible graphic design: In what ways is expense a barrier to eating fresh fruit and vegetables in the rural community of [IRC].*

Project Supervisor: *Dr. Alan Young*
Researcher: *Leigh Parker*

The following bullet points indicate the body copy for the [IRC] Research Project advertisement that may potentially be used in the [IRC] Primary School Newsletter.

Recruitment Advertisement

Research Participants Wanted

Volunteers are sought to take part in a [IRC] research project. The project is a follow up from previous research, which showed that price was a reason why some people from the South Taranaki region could not include fresh fruit and vegetables in their diets. This project is designed to look more closely at this particular issue from the point of view of residents, in order to understand and capture the real stories.

This research project has the potential to improve the diets and health of [IRC] residents, through addressing the perceived or actual barrier of expense. It may also be used to inform future food service research in other rural New Zealand communities.

What: An Interview and a Photo Journal.

Who: Families, with children 9 years or older, who have had first hand experience of not being able to eat fresh fruit and vegetables because of how much they cost.

Where: In your own home, the researcher will come to you.

When: At a time that best suits you between 1st July 2009 and 18th September 2009.

How: Participants are needed for two types of research; for an interview and for filling in a photo journal. The interviews will last for about 1-2 hours. Your family will have the photo journal for 1-2 weeks to give you time to fill it in. It may take up to 6 hours to complete.

For more information please contact:

Leigh Parker Work Phone: 06-952-7219 l.parker@ucol.ac.nz	C/o School of Photography, Art & Design UCOL Corner King and Princess Streets Private Bag 11022 Palmerston North, 4410

Approved by the Auckland University of Technology Ethics Committee on type the date final ethics approval was granted, AUTEC Reference number xx/xxx.

Information Session Advertisement

Research Participants Wanted

Volunteers are sought to take part in a [IRC] research project. The project is a follow up from previous research, which showed that price was a reason why some people from the South Taranaki region could not include fresh fruit and vegetables in their diets. This project is designed to look more closely at this particular issue from the point of view of residents, in order to understand and capture the real stories.

This research project has the potential to improve the diets and health of [IRC] residents, through addressing the perceived or actual barrier of expense. It may also be used to inform future food service research in other rural New Zealand communities.

Participants are needed for two types of research; for an interview and for filling in a photo journal. The interviews will last for about 1-2 hours. Your family will have the photo journal for 1-2 weeks to give you time to fill it in. It may take up to 6 hours to complete.

What: An information session.

Who: Families, with children 9 years or older, who have had first hand experience of not being able to eat fresh fruit and vegetables because of how much they cost.

Where: Venue to be confirmed.

When: Date & time to be confirmed.

For more information please contact:

Leigh Parker Work Phone: 06-952-7219 l.parker@ucol.ac.nz	C/o School of Photography, Art & Design UCOL Corner King and Princess Streets Private Bag 11022 Palmerston North, 4410

Approved by the Auckland University of Technology Ethics Committee on type the date final ethics approval was granted, AUTEC Reference number xx/xxx.

Appendix 11

Photo Journal
Question Guide

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TE WĀNANGA ARONUI O TAMAKI MAKAU RAU

Project Title: **Implementing socially responsible graphic design: In what ways is expense a barrier to eating fresh fruit and vegetables in the rural community of Waverley.**

Project Supervisor: **Dr. Alan Young**
Researcher: **Leigh Parker**

Introduction and instructions

Thank you for agreeing to participate in this research. A visual story is a technique used in social science and design research to gather data from informed sources. Your answers to the questions will not be considered "right" or "wrong." They are merely information that you will supply based on your experiences, observations, or feelings. We are working with a community group that wants to understand if our community needs to improve the food resources available for all people. Please be assured that all your responses are confidential and will be used for statistical purposes only. Our summary report will make no references to names.

- The purpose of this research project is understand through words and pictures (1) what you think about expense as a barrier (what issues there are and which experiences have you been through), (2) what you do or have done during your experiences (real and imagined reactions), and (3) what objects and communication tools you have or would have found useful during those experiences.

- The purpose of your journal is to allow you to describe in detail your thoughts and ideas about expense as a barrier to healthy eating. The camera is for you to take pictures so that I can see what you are talking about.

- I will use this research to develop new design projects that design project, which is a solution that helps solve, eliminate or reduces expense as a barrier that stops people within your community from accessing fresh fruit and vegetable. At first, this will be fictional profiles of people who experience expense as a barrier and then models of what they experience. Then I will come up with designs that can help.

- So answer the questions as fully as possible. Feel free to cut out pictures from magazines, draw, as well as take photos. Please include the photo number next to your description. Thank you for agreeing to help me with this project.

Section 1: About you and your family

1. Family. What are your first names? *Take picture of the family.*
2. Family. What are your ages?
3. Adult(s). What education/training have you had?
4. Family. What ethnic group do you feel you belong to?
5. Family. What languages do you speak?
6. Family. Where do you live? In what kind of building? *Take picture.*
7. Family. How would you describe your neighbourhood?

8. Family. Why do you like or dislike the place you live in? *Take picture.*

9. Adults. How would you describe your job (occupation/income/etc)?

10. Family. What do you do for fun? *Take picture.*

11. Family. If you were to tell someone about what kind of people you are, what 5 words would you use? Why? *Take picture.*

Section 2: About access to fresh fruit and vegetables

There are many different places you can get fresh fruit and vegetable from — large supermarkets, medium or small neighborhood grocery stores, home gardens, at school, road side stall and farmers markets. I would like to find out about the types of places you visit for your fresh fruit and vegetables.

1. Family. Where to you go to get fresh fruit and vegetable? *Draw on map provided*

- - - - - - - - - - - - -

(This section repeated four times for Adults to fill in)

2. Adult. Name one place that you get fresh fruit and vegetables from. *Take picture.*

3. Adult. Tell me in detail about this place.

4. Adult. Why do you get fresh fruit and vegetable from here? (Convenience, variety offered, cleanliness, safety, location, etc.)

5. Adult. How expensive is this? *A shop receipt or list with costs*

6. Adult. How do you get to the shop and back? *Take picture.*

- - - - - - - - - - - - -

7. Child. Where does your family get or buy fresh fruit and vegetables? *Draw pictures.*

8. Child. Tell me about this.

9. Child. What do you get? *Draw pictures.*

10. Child. How much does it cost?

11. Child. How do you get to this place? *Draw picture/take photo.*

- - - - - - - - - - - -

12. Are you satisfied with the stores you use most frequently? (Quality of food and service, location, cleanliness, food cost, and variety)

13. Family. The best fresh fruit and vegetable service is… because…

14. Family. The worst fresh fruit and vegetable service is… because…

15. Family. Which services make it difficult to buy fresh fruit and vegetable? Why is it difficult?

16. Family. Where do you store fresh fruit and vegetables in your house? *Take picture/s.*

17. Family. If your family does cook, who does the cooking and where? *Take picture/s.*

18. Adults. Are there any fresh fruit and vegetables you buy in bulk? *Take picture/s*

19. Does your family grow your own food in a garden or fish or hunt for your food? Why/why not?

20. Are there community gardens in your part of town? Do you use this garden? Why/why not?

21. Do you regularly get food at no cost from neighbors or others you know who grow or hunt their own food?

22. Are there farmers' markets in your community? Do you ever go to a farmers' market to buy food? Why/why not?

23. Do you feel alternative food supplies could be enhanced within your community? How?

Section 3: About expense as a barrier to healthy eating

1. Adults. Tell me in your words what you define as a barrier.

2. Adults. Tell me in your words what you define as being expensive as far as food goes; feel free to provide examples to help me understand.

3. Adults. What do you think are major and minor factors that contribute to expense as a barrier? *Please list*

4. Adults. What do you currently do to overcome these barriers? *Take picture*

5. Adults. Complete this statement. When it comes to feeding the family 'value for money' is…

6. Adults. The qualities that are most important to us in fresh fruit and vegetable are (price, variety, quantity, etc)… because...

7. Adults. Have you gone looking for help or guidance in order to help overcome expense as a barrier? Where did you go? What did you look at? Who did you talk too?

Section 5: About risks

1. What are some of the risks you have experienced when getting or using fresh fruit and vegetables?

2. How could some of these risks be reduced or eliminated?

3. What tools or information would be useful to help you? *Take pictures if appropriate.*

Section 5: About knowledge

Please tell me about the families knowledge of the following.

1. Budgeting skills

2. Gardening

3. Cooking

4. Taste in food

Section 6: Ideal situation

This section looks at recording one typical day and the food experiences. Along side that there is space for you to provide thoughts on what an ideal day with your preferred nutrition would be like. Please record what the family eats (including food items consumed away from home)

Family	On a typical day…	On an ideal day…
Breakfast		
Morning tea		
Lunch		
Afternoon tea		
Dinner		
Other		

Appendix 11

1. Describe your ideal fresh fruit and vegetables service.

Section 6: Wrapping it up

1. What are the key three thoughts that I should take away from my talk with you about expense as a barrier to healthy eating as experienced by families who live in rural communities?

2. Is there anything that we have not addressed that you feel I should know?

Approved by the Auckland University of Technology Ethics Committee on *type the date final ethics approval was granted*, AUTEC Reference number xx/xxx.

Interview Schedule

AUT
UNIVERSITY
TE WĀNANGA ARONUI O TAMAKI MAKAU RAU

Project Title: ***Implementing socially responsible graphic design: In what ways is expense a barrier to eating fresh fruit and vegetables in the rural community of [IRC].***

Project Supervisor: ***Dr. Alan Young***

Researcher: ***Leigh Parker***

All interviews will be loosely structured with the same questions in mind, however the interviews were directed predominately by the interviewee and what they wished to express. This flexibility was decided on in order to achieve the most insight possible into people's experiences and ideas. By using this approach some this may be discussed that the researcher could not have anticipated as being important when writing the questions.

Issue:	Question focus:
Opening	Tell me a story about the last time you, and your family, were not able to eat fresh fruit and vegetables because of the price.
Who	Who were you getting ff&v's from? What type of supplier was it? Who were you buying the ff&v for (how many people)? Was it you that was purchasing the ff&v or someone else? Tell me about these people and how you feel about them?
What	What were the steps or factors that lead up to this experience? What happened during the barrier experience? What was the service like (environment and process)? When did you realise expense was a barrier? What made it a barrier? What did you do? What are the most important aspects of the whole experience?
When	When did this happen? What things were important at this point in time that contributed to this experience?
Where	Where were you when you experienced this? Did the location have anything to do with the experience?

How	How did it work out?
	How did this experience make you feel?
	Is there anything you have done since this experience to change things?
[IRC]	What ff&v services are you aware of in [IRC]? What are the good and bad things about these services? Are these services working for you? What would need to change to help you out? What services do you use instead?
Expense	Can you tell me more about expense? What is expensive? What is not expensive? Do you budget for food? If so what is roughly the range you try to stick to?
FF&V's	What are your thoughts on eating ff&v's?
Information	Have you accessed any information (brochures, websites, other advice) since going through this experience? If so, can you tell me about these in detail? If not, where would you go do get information about expense as a barrier?
Finishing up	Is there anything else that we haven't covered which you would like to add?

MEMORANDUM
Auckland University of Technology Ethics Committee (AUTEC)

To: Alan Young
From: **Madeline Banda** Executive Secretary, AUTEC
Date: 13 August 2009
Subject: Ethics Application Number 09/71 **Implementing socially responsible graphic design: in what ways is expense a barrier to eating fresh fruit and vegetables in the rural community of IRC.**

Dear Alan

Thank you for providing written evidence as requested. I am pleased to advise that it satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTEC) at their meeting on 15 June 2009 and that I have approved your ethics application. This delegated approval is made in accordance with section 5.3.2.3 of AUTEC's *Applying for Ethics Approval: Guidelines and Procedures* and is subject to endorsement at AUTEC's meeting on 14 September 2009.

Your ethics application is approved for a period of three years until 13 August 2012.

I advise that as part of the ethics approval process, you are required to submit the following to AUTEC:

- A brief annual progress report using form EA2, which is available online through *http://www.aut.ac.nz/research/research-ethics*. When necessary this form may also be used to request an extension of the approval at least one month prior to its expiry on 13 August 2012;

- A brief report on the status of the project using form EA3, which is available online through *http://www.aut.ac.nz/research/research-ethics*. This report is to be submitted either when the approval expires on 13 August 2012 or on completion of the project, whichever comes sooner;

It is a condition of approval that AUTEC is notified of any adverse events or if the research does not commence. AUTEC approval needs to be sought for any alteration to the research, including any alteration of or addition to any documents that are provided to participants. You are reminded that, as applicant, you are responsible for ensuring that research undertaken under this approval occurs within the parameters outlined in the approved application.

Please note that AUTEC grants ethical approval only. If you require management approval from an institution or organisation for your research, then you will need to make the arrangements necessary to obtain this.

When communicating with us about this application, we ask that you use the application number and study title to enable us to provide you with prompt service. Should you have any further enquiries regarding this matter, you are welcome to contact Charles Grinter, Ethics Coordinator, by email at ethics@aut.ac.nz or by telephone on 921 9999 at extension 8860.

On behalf of the AUTEC and myself, I wish you success with your research and look forward to reading about it in your reports.

Yours sincerely

Madeline Banda
Executive Secretary
Auckland University of Technology Ethics Committee

Cc: Leigh Parker leigh_parker@orcon.net.nz

From the desk of …   Private Bag 92006, Auckland 1142   Tel: 64 9 921 9999
Madeline Banda   New Zealand   ext 8044
Executive Secretary   E-mail: ethics@aut.ac.nz   Fax: 64 9 921 9925
AUTEC   page 1 of 1

[Store Name] – Fresh Fruit & Vegetables
July 2009

	Brand Price Weight $per 80 gms
	Brand Price Weight $per 80 gms

[Store Name] – Canned Fruit & Vegetables
July 2009

	Brand Price Weight $per 80 gms
	Brand Price Weight $per 80 gms

[Store Name] – Frozen Fruit & Vegetables
July 2009

	Brand Price Weight $per 80 gms
	Brand Price Weight $per 80 gms

[Store Name] – Dried Fruit & Vegetables
July 2009

	Brand Price Weight $per 30 gms
	Brand Price Weight $per 30 gms

Source: Tool adapted with permission from E. Dresler-Hawke, (2007)

Introduction
These findings are from a cost analysis study that was conducted in [IRC] and [Urban Town], 2009 to 2010. The purpose of the study was to collect data on the cost of meeting the *5+ A Day* public health message. This campaign encourages eating two servings of fruit and three servings of vegetables per day to give a total of *5+ A Day*. The New Zealand Ministry of Health (MoH) also recommends the same daily consumption pattern.

Prices from the local mini-market ([IRC] *Mini Mart*) were compared to the nearest supermarket ([Urban Town] *Pak'N'Save*). The lack of access to affordable fresh fruit and vegetables in smaller rural Taranaki towns was highlighted as an issue in the 2006 Scoping project of Nutrition and Physical Activity for Māori conducted by the Public Health Unit (PHU) in 2006.

Methodology
The methodology is based on that used by Dresler-Hawke (2007) in her article *Take five: the cost of meeting the fruit and vegetable recommendations in New Zealand.*[1] To determine the cost of meeting *5+ A Day* with fresh fruit and vegetables there was four waves of data collection over a one year period to reflect seasonal price variations. An additional wave of data collection on the cost of processed fruit and vegetables was conducted, Winter 2009, as their prices are thought to be less influenced by seasonal variations. It was intended to be a 'snapshot' to capture the prices and availability of fruit and vegetables to consumers. In this study 'on special' prices were included in data collection as it was felt that this influences most consumers purchasing habits. In the Dresler-Hawke study special prices were not included, but the 'normal' or 'non-special' price was included.

In measuring the servings of fruit and vegetables, the WHO (1990) recommended daily intake of 80g (total 400g) of fresh, frozen, or canned and 30g of dried fruit and vegetables was used. To establish the price, unit/80g and unit/30g, two different strategies were applied
1. The items sold on price per kilogram were converted by dividing the price by 1 000 to give price per 1g, and then multiplied by 80 for fresh, frozen or canned products or 30 for dried products.
2. The items sold on weight were converted by dividing the actual with in grams and multiplying by 80 for fresh, frozen or canned products or 30 for dried products. Average weights for items were also checked using crop and food guides.

Overall Findings – Fresh Fruit and Vegetables
As shown in the Graph One the mean cost of fresh fruit and vegetables at [IRC] *Mini Mart for* the 12 month period was $0.66, with a median value of $0.49.

Graph One- Four Square - Cost of Fresh Fruit and Vegetables - Total Data
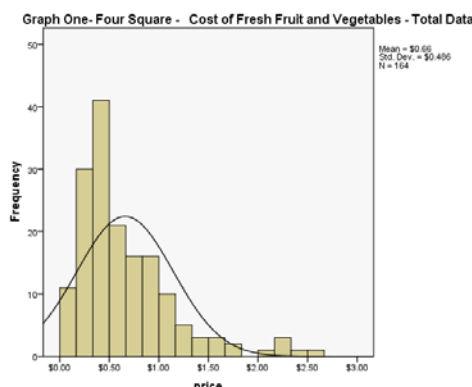
As shown in the Graph Two the mean cost of fresh fruit and vegetables at *Pak'N'Save* Supermarket for the 12 month period was $0.57, with a median value of $0.36. A Mann-Whitney Test[2] showed buying fresh fruit and vegetables was statistically significantly cheaper at *Pak'n'Save* compared to *Mini Mart* (p=001).

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[1] Paper presented to the Australian and New Zealand Marketing Academy, Dunedin, New Zealand, 3-5 December 2007. Emma Dresler-Hawke is employed as a Senior Lecturer in Marketing at Massey University, Palmerston North.
[2] A Maan-Whitney Test (also called the Wilcoxon's rank sum test) has been used as the test for significant between the population as the populations do not present as normal, i.e graphs show they tail off rapidly to the right. The *t* test for comparing the means of two population was not used at it based on two assumptions: that both population are normal and that they had the same variance. The Maan-Whitney Test has weaker assumptions; the null hypothesis is that the two populations are identical (but not necessarily normal).

1

Graph Two - Pak'n'Save - Cost of Fresh Fruit and Vegetables - Total Data
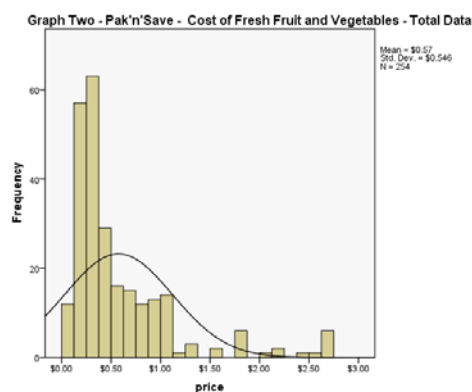
There were more items available in Autumn (N=128) and Summer (N=111) than in Spring (N=108) and Winter (N=71). When analysed by season using a Kruskal-Wallis test, the difference in price between the seasons was not statistically significant (p=0.066). One reason for the having no seasonal difference maybe explained by the price food index for the year which show little change in price between seasons.

Price food index - Fresh Fruit and Vegetables - Jan 2009-April 2010

Winter 2009 – cost of 5+ *A Day*

Mini-market - [IRC] *Mini Mart*

Cheapest		Most expensive	
Pumpkin	$0.10	Capsicum – Red	$1.61
Cabbage	$0.31	Mushroom-Button	$1.20
Cauliflower	$0.34	Avocado	$1.01
Kiwifruit – green	$0.11	Grapes	$0.76
Oranges – NZ navel	$0.20	Nectarines	$0.60
Total	**$1.06**	**Total**	**$5.18**

Supermarket – [Urban Town] *Pak'n'Save*

Pumpkin	$0.08	Mushroom – flat	$1.60
Cauliflower	$0.13	Radish	$1.27
Cabbage	$0.14	Spinach	$1.11
Kiwifruit-green	$0.08	Tamarillos	$0.64
Apple-Braeburn	$0.10	Grapes- Red	$0.64
Total	**$0.53**	**Total**	**$5.26**

The mean price of fresh fruit and vegetables purchased in Winter 2009 at *Mini Mart* was $0.54 (CI: $0.40-$0.68) per serve, and a median of $0.42. This included 31 (11 fruit and 20 vegetables) different items and had a range of $0.10 to $1.61.

2

Graph Four - Cost of Fresh Fruit and Vegetables - Four Square - Winter 2009
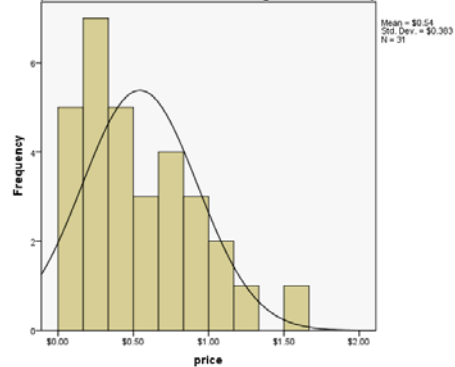
The mean price of fresh fruit and vegetables purchased in Winter 2009 at *Pak'n'Save* was $0.48, (CI: $0.37-$0.58) and a median of $0.43. This included 40 (15 fruit and 25 vegetables) different items and had a range of $0.08 - $1.60. The differences in prices using a *t*-test between the two stores were not statistically significant (p=0.448)[3].

Graph five- Cost of Fresh Fruit and Vegetables - Pak'n'Save - Winter 2009
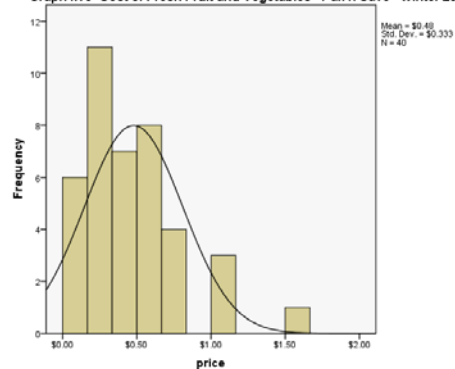
Spring 2009– cost of 5+ *A Day*

Mini-market - [IRC] *Mini Mart*

Cheapest		Most expensive	
Pumpkin	$0.11	Parsnip	$2.50
Cabbage	$0.18	Lettuce-hydroponic	$2.29
Leeks	$0.42	Tomatoes	$1.60
Oranges – NZ navel	$0.25	Strawberries	$1.12
Kiwifruit – green	$0.26	Grapes-Red	$0.78
Total	**$1.22**	**Total**	**$8.29**

Supermarket – [Urban Town] *Pak'n'Save*

Cabbage	$0.10	Mushroom – button	$1.75
Pumpkin	$0.11	Cherry tomato	$1.27
Lettuce	$0.14	Courgette	$1.12
Kiwifruit-green	$0.08	Strawberries	$0.95
Apple-Braeburn	$0.16	Grapes- green	$0.48
Total	**$0.59**	**Total**	**$5.57**

The mean price of fresh fruit and vegetables purchased in Spring 2009 at *Mini Mart* in [IRC] was $0.77 (CI: $0.57-$0.96) per serve, and a median price of $0.55. This included 37 (17 fruit and 20 vegetables) different items and had a range of $0.11 to $2.50.

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[3] The distributions of the two samples fitted with the assumptions of a *t*-test , that the populations were normally distributed and the variances were the same (*Four Square* variance = 0.146, and *Pak'n'Save* variance =0.111)

3

Graph Six - Cost of Fresh Fruit and Vegetables - Four Square- Spring 2009
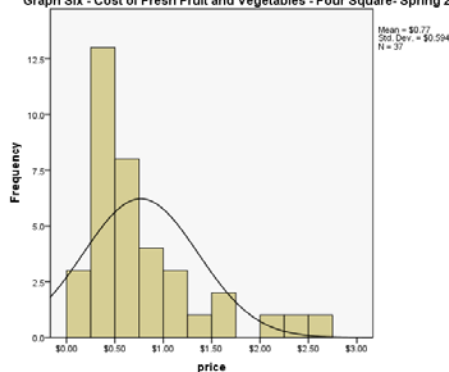
The mean price of fresh fruit and vegetables purchased in Spring 2009 at *Pak'n'Save* was $0.50 (CI: $0.41-$0.59), and a median price of $0.36. This included 71 (30 fruit and 41 vegetables) different items and had a range of $0.08 - $1.75. The differences in prices using a Mann Whitney test[4] were statistically significant (p=0.004).

Graph Seven - Cost of Fresh Fruit and Vegetables - Pak'n'Save - Spring 2009
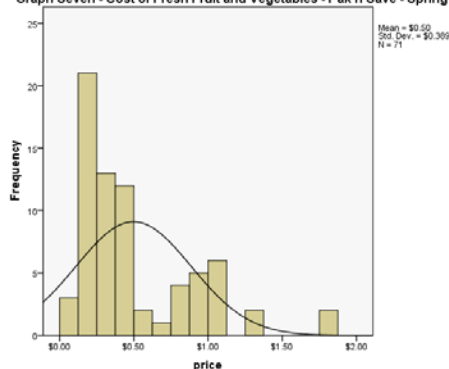
Summer 2010 – cost of *5+ A Day*

Mini-market - [IRC] *Mini Mart*

Cheapest		Most expensive	
Carrots	$0.14	Lettuce-fancy	$2.29
Cabbage	$0.32	Mushroom - white	$1.22
Tomatoe	$0.32	Cucumber-telegraph	$0.99
Banana	$0.30	Blueberries	$1.60
Orange	$0.36	Strawberries	$1.01
Total	**$1.44**	**Total**	**$11.61**

Supermarket – [Urban Town] *Pak'n'Save*

Carrots	$0.08	Capsicum-orange	$2.68
Cabbage	$0.17	Mushroom-flat	$1.75
Cauliflower	$0.25	Asparagus	$0.95
Watermelon	$0.22	Blueberries	$2.55
Orange	$0.24	Raspberries	$2.39
Total	**$0.96**	**Total**	**$10.32**

The mean price of fresh fruit and vegetables purchased in Summer 2010 at [IRC] *Mini Mart* was $0.69 (CI: $0.57-$0.82) per serve and a median price of $0.53. This included 43 (19 fruit and 24 vegetables) different items and had a range of $0.14 to $2.29.

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[4] A Maan-Whitney Test (also called the Wilcoxon's rank sum test) has been used as the test for significant between the population as the populations do not present as normal, i.e graphs show they tail off rapidly to the right. The *t* test for comparing the means of two population was not used at it based on two assumptions: that both population are normal and that they had the same variance. The Maan-Whitney Test has weaker assumptions; the null hypothesis is that the two populations are identical (but not necessarily normal).

4

Graph Eight - Cost of Fresh Fruit and Vegetabes - Four Square - Summer 2010
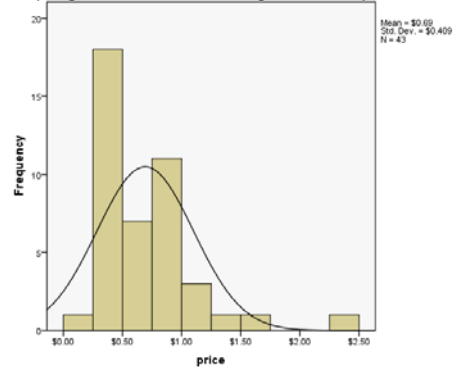
The mean price of fresh fruit and vegetables purchased in Summer 2010 at [Urban Town] *Pak'n'Save* was $0.70 (CI: $0.54-$0.87), with a median cost of $0.42. This included 68 (28 fruit and 40 vegetables) different items and had a range of $0.08 - $2.68. The differences in prices using a Mann Whitney test were statistically significant (p=0.044).

Graph Nine - Cost of Fresh Fruit and Vegetables Pak'n'Save - Summer 2010
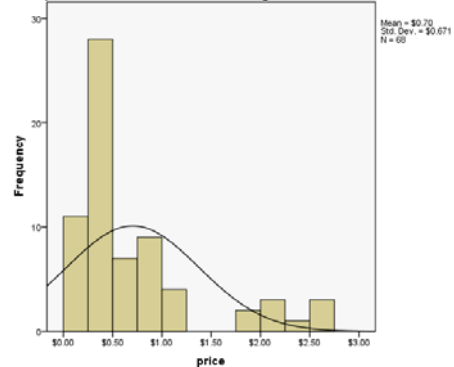
Autumn 2010 – cost of *5+ Aday*

Mini-market – [IRC] *Mini Mart*

Cheapest		Most expensive	
Pumpkin-buttercup	$0.05	Capsicum	$2.36
Mushroom-white	$0.26	Lettuce-hydroponic	$2.29
Cabbage	$0.30	Avocado	$1.48
Watermelon	$0.18	Passion fruit	$1.49
Apple-Braeburn	$0.25	Mandarin	$0.80
Total	**$1.04**	**Total**	**$8.42**

Supermarket – [Urban Town] *Pak'n'Save*

Pumpkin-buttercup	$0.06	Capsicum-orange	$2.68
Cabbage	$0.17	Mushroom-brown	$1.75
Corn	$0.19	Tomato-cherry	$1.59
Apple-Braeburn	$0.16	Rockmelon	$0.91
Kiwifruit-green	$0.16	Grape-green	$0.72
Total	**$0.74**	**Total**	**$7.65**

The mean price of fresh fruit and vegetables purchased in Autumn 2010 at [IRC] *Mini Mart* was $0.63 (CI: $0.49-$0.77) per serve, and the median cost was $0.42. This included 53 (23 fruit and 30 vegetables) different items and had a range of $0.05 to $2.36.

5

Graph 10 - Cost of Fresh Fruit and Vegetables - Four Square - Autumn 2010
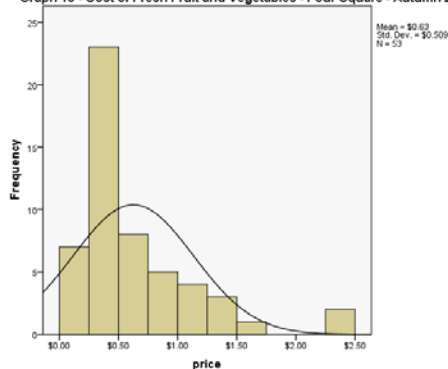
The mean price of fresh fruit and vegetables purchased in Autumn at [Urban Town] *Pak'n'Save* was $0.58 (CI: $0.44-$0.72), with a median cost of $0.32 per serve. This included 75 (29 fruit and 46 vegetables) different items and had a range of $0.06 to $2.68. The differences in prices using a Mann Whitney test were not statistically significant (p=0.125).

Graph 10 - Cost of Fresh Fruit and Vegetables - Pak'n'Save - Autumn 2010
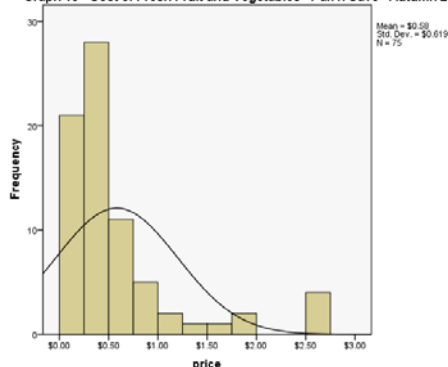
Processed Items
The cost of processed fruit and vegetables, including canned, dried, or frozen, items was collected in the first round of data collection in Winter 2009. Processed items were only included if they had a paired fresh item. For example, prunes were included as they are the dried product of a plum, but dates were not as there is no fresh counterpart.

Cost of Fresh Items
Using the total data (all seasons and both stores) for fresh items (N= 418) the mean cost for the whole year was $0.61, the median cost was $0.41, with the minimum cost being $0.05 and the maximum cost being $2.68.

6

Cost of Fresh Fruit and Vegetables - Total Data
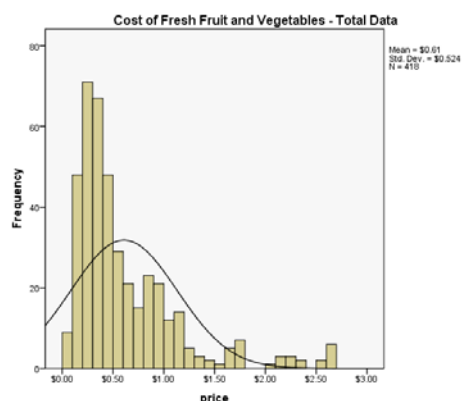
Cost of Processed
Using the total data (all seasons and both stores) for processed items (N= 282) the mean cost for the whole year was $0.46, the median cost was $0.38, with the minimum cost being $0.06 and the maximum cost being $1.58.

Cost of Processed fruit and vegetable -total data
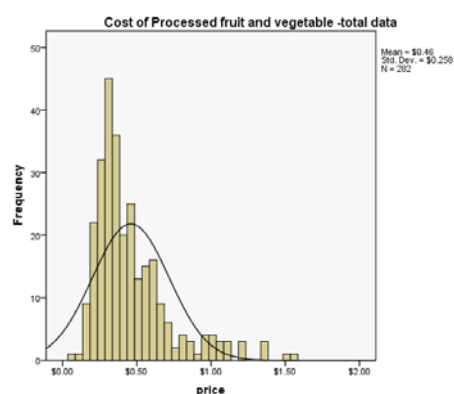
A Mann-Whitney Test[5] showed there was not statistically significantly difference between the cost of fresh and processed items. Further analysis Using a Mann-Whitney U Test showed that there was no statistically significant difference between the price of processed (mean cost=$0.45) and fresh (mean cost=$0.45) fruit (p=0.088), but there was a difference in the cost of processed (mean cost = $0.47) and fresh (mean cost =$0.73) vegetables (p = 0.000).

Cost of Processed Items by Store
Overall the findings show that the average, or mean, cost of processed items were less expensive at *Pak'n'Save* ($0.44:CI $0.44-$0.47) than they were at *Mini Mart* ($0.52:CI $0.46-0.58).

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[5] A Maan-Whitney Test (also called the Wilcoxon's rank sum test) has been used as the test for significant between the population as the populations do not present as normal, i.e graphs show they tail off rapidly to the right. The *t* test for comparing the means of two population was not used at it based on two assumptions: that both population are normal and that they had the same variance. The Maan-Whitney Test has weaker assumptions; the null hypothesis is that the two populations are identical (but not necessarily normal).

7

Cost of Processed Fruit and Vegetables - Four Square
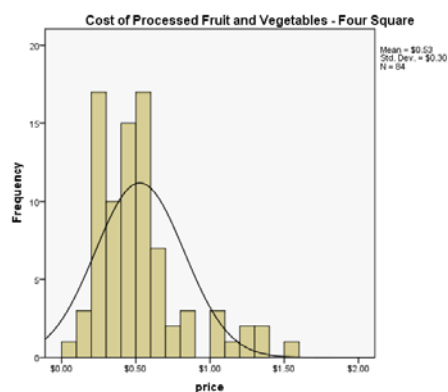
Using a Mann-Whitney U Test the price differences between the two store were found to be statistically significant (p=0.003)

Cost of Processed Fruit and Vegetables - Pak'n'Save
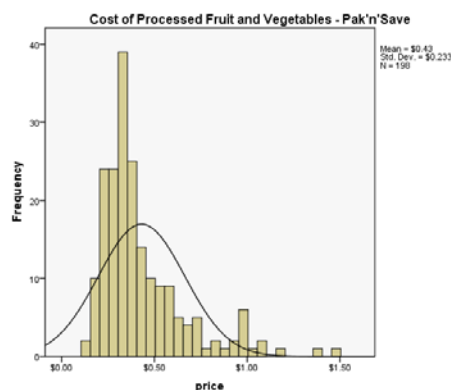
Substituting Processed for Fresh Fruit and Vegetables

The findings show that substituting some processed items for fresh fruit and vegetables is an effective way to reduce food costs while still meeting the MoH and *5+ A Day* recommendations for eating at least five servings of fruit and vegetables per day. For example, the mean cost per serve in Winter 2009 at *Mini Mart* was $0.53 (CI: $0.47-$0.59) when substituting processed items compared to $0.54 (CI: $0.40-$0.68) for using only fresh items. For *Pak'n'Save* the cost reduces to $0.45 (CI: $0.41-$0.48) when substituting processed items compare to $0.49 (CI: $0.39-$0.61) for using only fresh items.

Example of cost of *5+ A Day* using processed and fresh items

Mini-market – [IRC] *Mini Mart*- Processed and Fresh
Pumpkin	$0.10	
Cabbage	$0.31	
Frozen Mixed vegs	$0.20	
Kiwifruit – green	$0.11	
Sultanas	$0.15	
Total	**$0.87**	Cost for a family of four = $24.36

Mini-market – [IRC] *Mini Mart* – Fresh only
Pumpkin	$0.10	
Cabbage	$0.31	
Cauliflower	$0.34	
Kiwifruit – green	$0.11	
Oranges – NZ navel	$0.20	
Total	**$1.06**	Cost for a family of four =$29.68

This example shows that substituting processed with fresh fruit and vegetable reduced the cost of meeting *5+ A Day* by $0.19, or a percentage decrease of 22%. For a family of four this would equate to a saving of $5.32 a week or $276.64 a year.

8

Seasonal changes

When analysed by store type and season using a Mann-Whitney U test it was significantly cheaper to purchase fruit and vegetables (substituting processed with fresh) during Winter (p=0.009), Spring (p=0.000) and Summer (p=0.044) at *Pak'n'Save* than at the *Mini Mart*. There was no statistically differences in the cost of purchasing fruit and vegetables (substituting processed with fresh) between *Pak'n'Save* and *Mini Mart* in Autumn.

Discussion

Overall the findings support the 2006 research which highlighted the issue of access to affordable fruit and vegetables in small rural Taranaki towns, such as [IRC]. The findings show it was significantly cheaper to shop at [Urban Town] *Pak'N'Save* than at the local [IRC] *Mini Mart*. However, when the cost of petrol, (estimated as $14.00 for the 86km return trip by car or $12.00 return by bus) is added in, the savings are quickly eroded. For example, the cost of shopping at *Mini Mart* in Winter for a family of four for fresh fruit and vegetables was $24.36 per week, compared to $14.84 at [Urban Town] *Pak'N'Save*. This gives a cost saving of $9.52. It is suggested that investigating transport barriers would be one way to help people reduce their food bills.

The findings also show that substituting processed with fresh items could be another strategy to reduce cost. In particular, for vegetables as the cost difference between fresh and processed was statistically significant. For example the cost of fresh loose tomato ranged from $0.32 per serve in Summer to $0.56 per serve in Winter. Canned tomatoes could be purchased for as little as $0.21 per serve. Recent advances in technology now means that frozen and canned products have similar nutritional value to fresh products. It would be helpful to work with the community to promote this message. As it is about a 30 minute drive, special care would be required to wrap chilled or frozen items, or use a chilly bin/bag with slipper pads to keep them at appropriate temperature. Otherwise the quality and integrity of these items could be jeopardised.

The data also shows that there were number of low cost fresh fruit and vegetables available throughout the year. Namely, pumpkin, carrots, apples and kiwifruit. The use of these cheaper items could be promoted by increasing the knowledge of skills of how to prepare such items through easy to follow recipes, demonstrations and cooking workshops.

9

Contents of the vegebox

Fruit	Weight (kg)
Apple	2.06
Gold Kiwi	1.82
Pear	1.24
Orange	1.49
Tangelo	0.94
Grapefruit	0.46
Lemon	0.37

Vegetables	Weight (kg)
Lettuce	0.22
Cauliflower	0.87
Onion	0.85
Avocado	0.19
Carrot	1.42
Kumara	0.63
Potato	2.02

Total Weight	14.58 kg

Cost and serving price breakdown

	Nth Island	Nth Rural
Price	$36.50	$42.55
Weight	14.580g	14.580g
/80gsm	182.25	182.25
$/80gsm	$0.20	$0.23

156 | When graphic design was no longer enough

This image has been removed by the author of this thesis for copyright reasons.

collaboration

rural community

Food security in an isolated rural community
Visual evaluation techniques

Research Aim | To investigate access and availability to fresh fruit and vegetable consumption in an isolated rural community.

Research Team

The Taranaki District Health Board (TDHB) established a gardening project with local education settings. Since, a multifactorial approach has been developed with Massey University (MU) and Auckland University of Technology (AUT) to explore the wider issues of food security.

Isolated Rural Community

The selected isolated rural community is situated on the border of two regional districts. Population is just less than 900 and made up of 30.5% Māori (regional average 15.8% Māori). Median income is $15,600 per annum. The community contains a Primary School & two early childcare centres. The nearest supermarket 30 minutes drive and two out of ten local retailers sell fruit and vegetables.

Food Security

"Food Security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet dietary needs and food preferences for an active and healthy life" (FAO, 1996).

5+-A-Day Programme

In 1994, to encourage increased public awareness of the importance of fruit and vegetables in the diet, United Fresh promoted a daily intake minimum of five portions, this meant most New Zealanders should consume a minimum of two servings of fruits and three servings of vegetables per day thus giving rise to the slogan '5+-A-DAY'. New Zealand is one of 18 countries globally that has a nationwide 5+-A-DAY campaign. 5+-A-DAY initiative has been promoted in supermarkets, on packaging, on buses, on television and radio, magazines, and in newspapers (5+-A-Day, n.d.).

Scoping

In 2005, the TDHB commissioned a 'Maori Nutrition and Physical Activity Scoping Project' to identify issues and key messages promoted. A key recommendation was to address food security issues in rural Taranaki, particularly around the access and availability of fresh fruit and vegetables.

Key community stakeholders from a suitable community were consulted. Consequently gardens were established at the local Playcentre, Kōhanga Reo and Primary School. These were made possible by a funding grant and an enthusiastic community member.

The project has now grown beyond the gardens to incorporate other supply and access aspects of food security. This has been a result of MU and AUT becoming involved. The project now includes pre and post programme evaluation with community, commercial landscape mapping exercise, case studies, service mapping, information design critique and cost analysis.

Research Plan

Project	Objectives
Education Garden Project	• Increase 'how to grow' knowledge • Increase knowledge of fresh fruit and vegetables varieties • Increase consumption benefits knowledge • Reduce access barriers • Increase consumption

Evaluation (pre/post questionnaires)	• Assess the effectiveness of the Education Gardens Project
	• Record initial and subsequent knowledge of the following...
	  - Knowledge of types
	  - Likes and dislikes
	  - Levels of consumption
	  - Awareness of healthy eating
	  - Access (shops vs home gardens)

Mapping (commercial landscape)	• Recording food advertising and litter items within a 500 metres radius of the Primary School
Case Studies (interviews & photo-journals)	• Generate a qualitative understanding of superior as barrier from the resident's perspective • Generate a qualitative understanding of consumer behaviour relating to perceived risks associated with fruit & vegetable consumption
Service Mapping (blueprinting)	• To generate an understanding of fresh fruit & vegetable availability, service and access within the Isolated Rural Community • Visually represent all the isolated rural community fresh fruit and vegetable services • Reveal the underlying support processes and connections
Information Design Critique	• To evaluate the current design solutions used within the Isolated Rural Community community relating to improving access and availability of fresh fruit and vegetables
Cost Analysis	• To conduct market research on the price, and seasonal variation of prices, of available selected fresh and processed fruit and vegetables in order to determine the daily cost of meeting the 5+-A-Day initiative in the Isolated Rural Community
Digital Story	• Create a digital presentation that communicates the findings of the Isolated Rural Community Research back to the community • Tell the 'story of this project' from the perspective of those involved in the project
Media	• Consistent messages to support healthy choices • Promote project and healthy choices via local newspaper, notice boards, retailers
Cooking & Gardening Workshops	• Knowledge, skills and access to fruit & vegetable
Publications	• Awareness of project by other health professionals & academics
Co-Design Session	• Design product/service design solutions
Funding Applications	• Gain funding to refund a percentage of the research costs

Project Progress

2005   Scoping project identified food security issues in rural Taranaki.

2006   A potential rural community site identified for action.

2007   Consulted with key community stakeholders to establish community gardens in the local Primary School. Local Primary School also joined the Fruit in School programme.

2008   Vegetable gardens established at Playcentre, Kōhanga Reo & Primary School.

2009   Massey University and Auckland University of Technology involved. Project broadened to include food supply and accessibility.

Formative Evaluation

Methods

In October 2008, a pre-programme survey was conducted with the parents and children from the Kōhanga Reo, Play Centre and Primary School. There were 22 respondents to this survey. The main topics of the survey included...

- Fruit and vegetable consumption
- Knowledge of different varieties of fruit and vegetable
- Sources of fruit and vegetables included if they had gardens or fruit trees at home

A post-programme survey is to be conducted in Term 4 (October 2009).

Key Findings

- Respondents were able to identify 39 vegetables and 29 fruit
- Respondents were more likely to dislike vegetables than fruit
- 41% of respondents ate at least three servings of vegetable per day
- 72% ate at least two servings of fruit per day
- 79% of respondents purchase fruit and vegetables out of town

Vegetables — Top vegetables identified by respondents / Fruit — Top fruit identified by respondents
Figure 1: The programme fruit and vegetable preferences

Food Landscaping

Methods

A Food Landscaping exercise was conducted based on a study by Kelly, Cretikos, Rogers & King (2008). This highlighted the impact of the wider environment on consumers food choices. Promotion of healthy food is an important aspects of food security.

Advertisements and food-related litter recorded within a 500m radius from the local Primary School. Food was classified as core, non-core or miscellaneous drinks (tea and coffee) based on criteria from Kelly et al (2008).

A coding schedule was designed to capture data details as follows:

i)   Advertisement type (food or non-food product)
ii)   Food-related litter type (core or non-core)
iii)   A description of the item found, including product and brand name
iv)   The distance of the item from the centre of the school grounds (<250 m or 250-500 m from the school)
v)   The size of the item
vi)   Location of item (shopping area, main or residential street)

Key Findings

- Food related litter accounted for nearly all (92%) of recorded data
- Majority (91.5%) of food items were classified as non-core
- Alcoholic beverages (23%) and confectionary (23%) were the most common food items
- Food items were concentrated at the street corners surrounding the primary school

Primary School
Legend — Number of items: 1 - 2, 3 - 5, 6 - 9, 10 - 13, 14 - 22
Figure 2: Commercial landscaping density of items

Cost Analysis

Methods

To determine the cost of meeting the objective of a minimum daily intake of two servings of fruit and three servings of vegetables, one wave of data collection was conducted in the sixth week in winter (in July 2009) in the isolated rural town. In this town there were two small stores supplying fruit and vegetables. The data picture was intended to be a 'snapshot' to capture the prices and availability of fruit and vegetables to the consumers of this particular rural community.

In measuring the servings of fruit and vegetables, the recommended daily intake of 80g (total 400g) of fresh, frozen, or canned fruit and vegetables and 30g of dried fruit promoted by the World Health Organization was adopted (World Health Organization, 2003). To establish the price unit/80g and unit/30g, two different strategies were applied:

1. *The items sold on price per kilogram were converted by dividing the price by 1000 to give price per 1g, and then multiplied by 80 for fresh, frozen, or canned products or 30 for dried products.*

2. *The items sold on weight basis were converted by dividing the actual weight in grams and multiplying by 80 for fresh, frozen, or canned products or 30 for dried products.*

There were several forms of foods excluded from the assessment. The fruit and vegetables were restricted to the most common fresh fruit and vegetables, excluding exotic items such as bok choy, guavas, and lychees. In line with other studies examining fruit and vegetable intakes, potatoes and other related root vegetables (considered as 'starchy' food), tomatoes (in ketchup), and fruit (in sauces) were excluded and not assessed as part of the total daily intake (Giskes, Turrell, Patterson & Newman (2002); Roos, Johansson, Kasmel, Klumbiene & Prättälä (2000)). It should be noted that New Zealand 5+-A-Day campaigns include promotion of potatoes and kumara whereas other countries usually exclude these.

To determine whether fresh fruit and vegetables are more expensive than processed, this study compared prices for 29 fruits and 30 vegetables for which prices were available for both fresh and processed forms. For comparison, the fresh fruit and vegetables were matched with their plain, unsweetened, unflavoured, processed counterparts. It is noteworthy that processed fruit and vegetables are not promoted as part of the 5+-A-Day in New Zealand.

In the final analysis, there were 40 different fresh fruit and vegetables and 60 processed fruit and vegetables recorded. Among the processed fruits and vegetables, there were 18 frozen, 17 dried, and 25 canned fruit and vegetables selected from 18 different brands.

Key Findings

There was a wide variation in prices for fruit and vegetables both in fresh and processed forms between the three stores. Overall, fresh fruit and vegetables were least expensive at the Urban Supermarket, with fruit prices ranging from $0.08 per serving for Kiwifruit to $0.64 per serving for Grapes. The vegetables ranged from $0.08 per serving for Carrots to $1.92 per serving for Cherry Tomatoes. Only 4 fruits (Mandarins, Nectarines, Grapes, Tamarillo) and 10 vegetables (Avocado, Broccoli, Capsicum, Cherry Tomatoes, Corn, Cucumber, Lettuce, Radish, Spinach, Watercress) cost more than the weighted average price (fruit $0.29, vegetable $0.54).

The total average cost of meeting the Fresh 5+-A-Day initiative with in the selected stores ranged from $2.06 to $2.61 per person. There was significant difference in the price of fresh fruit and vegetables between the Urban Supermarket and the Rural Mini Mart (T-test = 0.045). Figure 3 shows the cost of meeting the 5+-A-Day from the food stores with the Urban Supermarket being the cheapest.

Furthermore, research indicated that fresh, frozen, and canned foods are nutritionally comparable (Breene, 1994), so with the inclusion of selected items of processed fruit and vegetables into the daily intake, consumers could meet the 5+-A-Day initiative for even less $1.80 per person and not feel constrained by the limitations of fruit and vegetables being expensive or perishable.

Travel

Methods

The distance was measured from the isolated rural community to the two closest towns in either direction. Both towns have large Supermarkets. Petrol prices were recorded from the same week that the Cost Analysis data was recorded.

Key Findings

- The average distance to a large town with a Supermarket was 43.8km
- Unleaded 91 petrol was priced at $1.69 per litre
- A return trip to the Supermarket in a car that averages 10lt/100km would cost $14.80

Cost of vegetables / Cost of fruit
Legend — Produce distributor: Rural Store, Rural Mini Mart, Urban Supermarket
Figure 3: Cost of meeting 5+-A-Day

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MASSEY UNIVERSITY   TARANAKI DISTRICT HEALTH BOARD   AUT UNIVERSITY

Access to fruit and vegetables in an isolated rural community

Visual evaluation techniques

Research Aim | To investigate access and availability to fresh fruit and vegetable consumption in an isolated rural community.

collaboration

rural community

Scoping

In 2005, the Taranaki District Health Board (TDHB) commissioned a 'Māori Nutrition and Physical Activity Scoping Project' to identify issues and key messages promoted. A key recommendation was to address food security issues in rural Taranaki, particularly around the access and availability of fresh fruit and vegetables.

Key community stakeholders from a suitable community were consulted. Consequently gardens were established at the local Playcentre, Kōhanga Reo and Primary School. These were made possible by a funding grant and an enthusiastic community member.

The project has now grown beyond the gardens to incorporate other supply and access aspects of food security. This has been a result of Massey University (MU) and Auckland University of Technology (AUT) becoming involved. The project now includes pre and post programme evaluation with community, commercial landscape mapping exercise, case studies, service mapping, information design critique and cost analysis.

Research Team

The TDHB established a gardening project with local education settings. Since, a multifactorial approach has been developed with MU, AUT and the Universal College of Learning (UCOL) to explore the wider issues of food security.

Isolated Rural Community

The selected isolated rural community is situated on the boarder of two regional districts. Population is just less than 900 and made up of 30.5% Māori (regional average 15.8% Māori). Median income is $15,600 per annum. The community contains a Primary School and two early childcare centres. The nearest supermarket 30 minutes drive and two out of ten local retailers sell fruit and vegetables.

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	• Record initial and subsequent knowledge of the following...
	  – Knowledge of types
	  – Likes and dislikes
	  – Levels of consumption
	  – Awareness of healthy eating
	  – Access (shops or home gardens)

Mapping (commercial landscape)	• Recording food advertising and litter items within a 500m metres radius of the Primary School
Case Studies (interviews & photo journals)	• Generate a qualitative understanding of expense as barrier from the resident's perspective • Generate a qualitative understanding of consumer behaviour relating to perceived risks associated with fruit & vegetable consumption
Service Mapping (blueprinting)	• To generate an understanding of fresh fruit & vegetable availability, services and access within the isolated rural community • Visually represent all the isolated rural community fresh fruit and vegetable services • Reveal the underlying support processes and connections
Information Design Critique	• To evaluate the current design solutions used within the isolated rural community relating to improving access and availability of fresh fruit and vegetables
Cost Analysis	• To conduct market research on the price, and seasonal variation of prices, of available selected fresh and processed fruit and vegetables in order to determine the daily cost of meeting the 5+–A-Day initiative in the isolated rural community
Digital Story	• Create a digital presentation that communicates the findings of the isolated rural community research back to the community • Tell the 'story of this project' from the perspective of those involved in the project
Media	• Consistent messages to support healthy choices • Promote project and healthy choices via local newspaper, notice boards, radio/tv
Cooking & Gardening Workshops	• Knowledge, skills and access to fruit & vegetable
Publications	• Awareness of project by other health professionals & academics
Co-Design Session	• Design products/service design solutions
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Project Progress

2005	Scoping project identified food security issues in rural Taranaki.
2006	A potential rural community site identified for action.
2007	Consulted with key community stakeholders to establish community gardens in the local Primary School. Local Primary School also joined the Fruit in School programme.
2008	Vegetable gardens established at Playcentre, Kōhanga Reo and Primary School.
2009	Massey University, Auckland University of Technology and UCOL involved. Project broadened to include food supply and accessibility.

Formative Evaluation

Methods

In October 2008, a pre-programme survey was conducted with the parents and children from the Kōhanga Reo, Play Centre and Primary School. There were 22 respondents to this survey. The main topics of the survey included...

- Fruit and vegetable consumption
- Knowledge of different varieties of fruit and vegetable
- Sources of fruit and vegetables included if they had gardens or fruit trees at home

A post-programme survey is to be conducted in Term 4 (October 2009).

Key Findings

- Respondents were able to identify 39 vegetables and 29 fruit (figure 1)
- Respondents were more likely to dislike vegetables than fruit
- 41% of respondents ate at least three servings of vegetables per day
- 72% ate at least two servings of fruit per day
- 79% of respondents purchase fruit and vegetables out of town

Figure 1. Top vegetables and top fruit identified by respondents.

Food Landscaping

Methods

A Food Landscaping exercise was conducted based on a study by Kelly, Cretikos, Rogers & King (2008). This highlighted the impact of the wider environment on consumers food choices. Promotion of healthy food is an important aspects of food security.

Advertisements and food-related litter items were recorded within a 500m radius from the local Primary School (figure 2). Food was classified as core, non-core or miscellaneous drinks (tea and coffee) based on criteria from Kelly et al (2008).

A coding schedule was designed to capture data details as follows:

i) Food-related litter type (core or non-core)
ii) A description of the item found, including product and brand name
iii) The distance of the item from the centre of the school grounds (<250m or 250-500m from the school)
iv) The size of the item
v) Location of item (shopping area, main or residential street)

Key Findings

- Food related litter accounted for nearly all (92%) of recorded data
- Majority (91.9%) of food items were classified as non-core
- Alcoholic beverages (23%) and confectionary (23%) were the most common food items
- Food items were concentrated at the street corners surrounding the primary school

Figure 2. Commercial landscaping density of items.

Cost Analysis

Methods

The cost of meeting 5+–A-Day fruit and vegetable recommendations, two and three serves daily respectively, was investigated in the sixth week of winter (July 2009). Firstly data was collected from the two small stores of the isolated rural community. This was repeated at a large urban supermarket in the nearest neighbouring town for comparison. The 'data picture' was intended to be a snapshot of availability for fruit and vegetables for consumers of this particular town.

The distance between the rural community and the nearest supermarket was 43.8km. The cost of Unleaded 91 petrol at the time of data collection was $1.69 per litre. Thus, an approximate cost for a return trip to the urban supermarket in a car averaging 10L per 100km was $14.80.

Measurements were based on the international 5+–A-Day programme. This amounts to the recommended daily intake of 80g (total 400g) of fresh, frozen, or canned fruit and vegetables and 30g of dried fruit and vegetables. Two different strategies were applied to establish price per serving

1. The items sold on price per kilogram were converted by dividing the price by 1000 to give the price per 1g. This was then multiplied by 80 for fresh, frozen of canned products or 30 for dried products.

2. The items sold on weight basis were converted by dividing the actual weight in grams. This was then multiplied by 80 for fresh, frozen or canned products or 30 for dried products.

Only the most common fruit and vegetables were recorded in the assessment. Exotic varieties like bok choy, guava and lychees as wells as items like gherkin and pickled onions were excluded. Potatoes, kumara and other starchy root vegetables were also excluded in line with other studies examining vegetable intake (Giskes, Turrell, Patterson & Newman, 2002; Roos, Johansson, Kasmel, Klumbiene & Prättälä, 2000). Highly processed items like tomato in ketchup and fruit in sauce, juice and jams were omitted too.

Research indicated that fresh, frozen, and canned foods are nutritionally comparable (Breene, 1994). So, with the inclusion of selected items of processed fruit and vegetables into the daily intake, consumers could meet the 5+–A-Day initiative for even less and not feel constrained by the limitations of fruit and vegetables being expensive or perishable.

The cost analysis included 40 different fresh fruit and vegetables and 60 processed varieties. The latter consisted of 25 canned, 18 frozen and 17 dried fruit and vegetables from 18 different brands. To determine the difference between fresh and processed products, this study compared prices for 29 fruits and 30 vegetables where both forms were available.

Key Findings

- Total average daily cost of meeting the fresh 5+–A-Day recommendations per person was $2.61 in the rural community, compared to $2.18 in the urban supermarket (figure 4).
- There was a wide variation in price for all types of fruit and vegetables, both fresh and processed.
- Substituting fresh fruit and vegetables with processed products reduces the cost per person to $1.80.
- Fresh fruit and vegetables were less expensive at the urban supermarket ($0.08 per serve kiwifruit to $0.64 per serve grapes; $0.08 per serve carrot to $1.92 per serve cherry tomato).
- In the urban supermarket the average price per serving was $0.29 for fruit and $0.54 for vegetable. Four fruit and ten vegetables cost more than the average price (these more expensive items are indicated on Figure 3 with an asterisk).
- The results suggest a household of four people would need to spend $57.68 to $73.08 per week to meet recommendations for fresh fruit and vegetables. Substituting fresh with processed equivalents would reduce the cost to $50.40.
- Prices at the urban supermarket were significantly cheaper (p < 0.05). However, adding in the cost of petrol for a return trip ($14.80) negates some of this saving.

Figure 3. Cost of meeting 5+–A-Day.

Figure 4. Daily average cost of meeting the fresh 5+–A-Day.

Total average daily cost of meeting the fresh 5+–A-Day

Digital Story

Methods

A digital story is currently being developed with whānau from the Kōhanga Reo, Play Centre and Primary School. The aim of this tool is to feedback evaluation findings to the wider community about establishing gardens in a more engaging way. It is hoped that using an interactive and visual method will 'turn on the lights' for the community to develop their own solutions to the identified issues.

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MASSEY UNIVERSITY   TARANAKI DISTRICT HEALTH BOARD   UCOL REGIONAL COLLEGE OF LEARNING   AUT UNIVERSITY

Figure 23.
Raw data lists in Microsoft Excel.

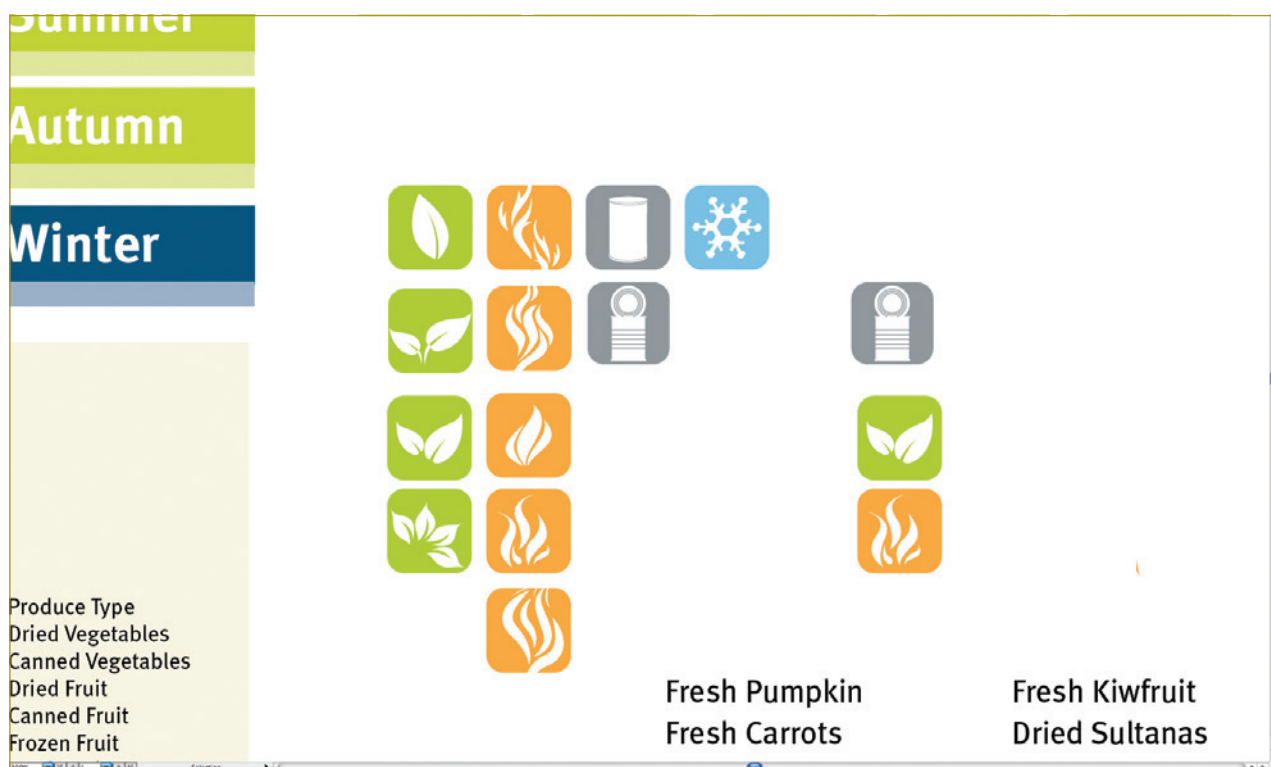**Figure 24.**
Assessing what Best Buy content to include
and exclude from the posters.

Figure 25.
Fresh and processed icon development.