Stone Chips to Silicon Chips:
A Grounded Theory of Information and Communication Technology adoption in Australian Indigenous households—rural, urban and remote.

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A thesis submitted for the degree of Doctor of Philosophy of The Australian National University
Declaration

I, Peter John Radoll, hereby certify that this thesis entitled ‘Stone chips to Silicone Chips: A Grounded Theory of Information and Communication Technology adoption in Australian Indigenous households—rural, urban and remote’, submitted for examination in the degree of Doctor of Philosophy, is the result of my own original work and that where reference is made to the work of others, acknowledgment is duly given.

......................................

(Peter John Radoll)
Acknowledgments

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Abstract

Information and Communication Technologies (ICTs) have become an everyday part of life. Communication networks within Australia link financial, educational, government and non-government services to Australian households. Both the 2001 and 2006 Australian Census data demonstrate that Indigenous Australians are 69% less likely to access the Internet at home than the rest of the Australian population. This study examines the factors affecting the adoption of Information and Communication Technologies in Australian Indigenous households and provides a plausible explanation as to why this gap exists.

This study uses a multiple case study approach and draws on the Glaserian Grounded Theory Methodology to examine Indigenous household ICT adoption in a rural Indigenous community, an urban Indigenous community and a remote Indigenous community, to identify differences and commonalities of ICT adoption and non-adoption in diverse cultural and geographical locations across Australia.

The theoretical lens draws on Pierre Bourdieu’s theory of habitus to develop a practice perspective of household ICT adoption established through the habitus concepts of structures and agency or society and individual. The research establishes the existence of the Indigenous substantive field and postulates that new practices are formed with the intersection of the Indigenous field and external fields. Through the development of substantive fields this thesis develops a theoretical framework of Indigenous household ICT adoption. The findings suggest that a single model of ICT adoption can be applied to all Indigenous communities across Australia. The results could have considerable practical and policy significance.
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Abbreviations and Acronyms

- CDEP – Community Development Employment Projects
- ICT – Information and Communication Technologies
- IS – Information Systems
- TRA – Theory of Reasoned Action
- GTM – Grounded Theory Methodology
- DOI – Diffusion of Innovations
- TPB – Theory of Planned Behaviour
- MATH – Model of Adoption of Technology in Households
- TAM – Technology Acceptance Model
- UTAUT – Unified Theory of Acceptance and Usage of Technology
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Chapter 1  Introduction

1.1 Background to the research

The overarching purpose of this thesis is the building of a substantive theory of Indigenous household information and communication technology (ICT) adoption. The term ICT is used to refer to both computers and the internet in this thesis. The substantive theory will serve as a guide to addressing low household adoption of ICTs by Indigenous Australians. This will be achieved by producing a theoretical foundation of the issues associated with low adoption of ICTs by Australian Indigenous peoples by:

1. exploring the factors that lead to adoption of ICTs in Indigenous households;
2. exploring the factors that lead to non-adoption of ICTs in Indigenous households;
   and
3. establishing the understanding of these factors, their interactions and their determinants.

There is a growing body of evidence that demonstrates the benefits of ICT adoption to communities, households and individuals. These benefits include access to online services such as government services, educational institutions, electronic health, and electronic banking, as well as increased income (Adesina and Baidu-Forson 1995; Allyn and Yun 2005; Alston 2003; Alston et al. 2003a; Arocena and Senker 2003; Baker 2001; Benton Foundation 1998; Clark 2004; Curtin 2001; Daly 2005; Daly 2006; Green et al. 2007; Pietro 2007).

Quality, coverage and usage of ICTs together is now regarded as a critical issue for Australian society. This is likely to increase in scale and importance as ICTs form the
basis of much economic activity, and not having access to ICTs has a clear detrimental economic and social impact. It is clear that some individuals, because of geographic location, education, economic position or culture, may be excluded from ICT access (Australian Bureau of Statistics 2001c; Australian Bureau of Statistics 2006a). This exclusion is framed around the concept of the digital divide which separates society between the haves and the have-nots (Attewell 2001; Davis et al. 2002; Gurstein 2004; Trachtenberg 2000).

The use of ICT is quite low for Indigenous Australians compared with non-Indigenous Australians. The 2006 Australian Bureau of Statistics (ABS) Census demonstrated that 43% of Indigenous households had access to the internet, compared with 64% of those from other households (Australian Bureau of Statistics 2006b). The 2006 Census also demonstrated that the household ICT adoption rate for Indigenous households reduces with remoteness, while non-Indigenous household ICT adoption rates remain relatively consistent across all localities (see Figure 1.1).

![Household Internet Access by Remoteness](image)

**Figure 1.1:** COMPARISON OF NATIONAL NON-INDIGENOUS AND INDIGENOUS INTERNET ACCESS (Source: ABS 2006)
While many factors in what affects the household adoption of ICTs in society more broadly have been identified in previous research (Brown and Venkatesh 2005; Brown et al. 2006; Lloyd and Hellwig 2000; Venkatesh and Brown 2001; Venkatesh et al. 2000), little research has been conducted that explains the low ICT adoption by Australian Indigenous households.

This chapter proceeds as follows: Section 1.2 discusses the research framework, the research question and the aims and objectives of the research. Section 1.3 discusses the motivation for the research to be undertaken. Section 1.4 discusses the research methodology. Section 1.5 provides an outline of the thesis. Section 1.6 discusses the definition of Indigenous Australian, Section 1.7 concludes this chapter.

1.2 Research framework, aims and objectives

This thesis examines how Indigenous households adopt ICTs in a rural community, an urban community and a remote community to identify differences and commonalities of ICT adoption or non-adoption in diverse cultural and geographical locations across Australia. The three areas that are examined in this thesis are classified by the Australian Bureau of Statistics (ABS) as an inner-regional (foundation case study in Chapter 4), major city (second case study in Chapter 5) and very remote (final case study in Chapter 6) areas of Australia (Australian Bureau of Statistics 2004b). These ABS classifications of the three areas are discussed further in Chapters 4, 5 and 6. In accordance with research ethical protocols, the communities in this study will remain anonymous and will only be referred to as the rural Indigenous community, the urban Indigenous community and the remote Indigenous community respectively. Indigenous communities are located across three State and Territory jurisdictions of Australia.
The research problem for this thesis is to discover why Indigenous households have low ICT adoption rates. Investigating ICT adoption problems is usually framed around examining the factors associated with the phenomenon (see Anandarajan et al. 2002; Cornell and Swedberg 1995; Jepsen 2007; Levin and Wadmany 2008; Taylor 2002; Tsakloglou and Papadopoulos 2002). This research will be guided by previous research in that it will investigate the factors affecting the adoption of ICTs in Australian Indigenous households.

The research question to be addressed in this thesis is:

**What factors affect the adoption of Information and Communication Technologies in Australian Indigenous households?**

There are three principles that drive this research. Firstly, there is little research on the factors affecting the adoption of ICTs in Indigenous households. This has left the research area void and this needs to be addressed. Secondly, as I am Aboriginal, it is hoped that I can assist the broader Indigenous community through the utilisation of my research capacity; finally, the building of a theory of Indigenous household ICT adoption is vital to the Indigenous community as ICTs can increase income, provide better civic engagement, higher education achievement and better health outcomes (Marker et al. 2002). Household use of ICTs can also assist in addressing the continuing disadvantage faced by the Indigenous community by improving access to education, government, financial and health services.
There are two primary objectives of the research:

1. to investigate the factors that affect the adoption of ICTs in Australian Indigenous households;
2. to develop a theoretical framework that can be used to explain the adoption of Information Communication Technology in Australian Indigenous households.

This research aims to contribute to the information systems field in both theoretical and practical terms. Theoretically it aims to contribute to the understanding of ICT adoption in Australian Indigenous households. It aims to contribute to the knowledge of how Indigenous Australians make decisions regarding the adoption and use of ICTs in the home context and examines reasons why Indigenous people do not adopt ICTs into the home. This so-called non-adoption is just as important to this thesis as finding the answers to non-adoption could assist in explaining low ICT adoption rates in Australian Indigenous households. The research could also assist Indigenous communities with ICT adoption strategies and assist in providing a basis for sound policy for State and Federal Government ICT or ICT-based Indigenous programs. From the practical point of view, the research will address the issues that have significant financial, social and educational implications for Indigenous Australians.

This thesis does not undertake a comparative study between the Indigenous and non-Indigenous communities; rather it examines how Indigenous households adopt ICTs. This research is explanatory in nature with the main aim of explaining the household ICT adoption process for Indigenous households. It is envisaged that the model developed will also be used to predict Indigenous household ICT adoption.
1.3 Motivation

It is generally recognised that the Australian Indigenous population is the most impoverished community in Australia and continues to experience chronic disadvantage relative to the non-Indigenous community. Average life expectancy of Indigenous males is 57 years while for non-Indigenous males it is 76 years\(^1\) (Altman and Hunter 2003). Similarly, the average life expectancy for Indigenous females is 65 years and for non-Indigenous females it is 82 years (Altman and Hunter 2003; Australian Bureau of Statistics 2001a; Australian Bureau of Statistics 2006a). The extent to which social indicators play a role in the household adoption of ICTs has not previously been researched specifically in Indigenous communities. However, non-Indigenous research in the area demonstrates that these do play a role (Lloyd and Bill 2004; Lloyd and Hellwig 2000).

Since 2001 there have been a number of ICT projects that have been undertaken throughout Australia's Indigenous communities by the Federal Government (Australian Government 2000; Australian Government 2002a; Australian Government 2002b; Australian Government 2005b). These projects, while implementing the provision of ICTs in remote, rural and urban communities, were developed with the aim of increasing Indigenous use of ICTs (Alston 2003; Australian Government 2002b; Australian Government 2005b). However, the 2001 and 2006 Censuses demonstrated that ICT adoption rates for Indigenous households have remained stagnant over time at approximately 69% lower than the non-Indigenous community (Australian Bureau of Statistics 2001a; Australian Bureau of Statistics 2004c; Australian Bureau of Statistics 2006a; Australian Bureau of Statistics 2008)

\(^1\) In recent years there has been an active public debate about the best method of calculating Indigenous life
There are two primary motivations for this research. The first motivation is that Indigenous Australians adopt ICTs into their households at a lower rate than other Australians. It is important that this lower adoption be addressed because there is a risk that as other Australians move toward higher rates of household adoption and more household use of ICTs, the Indigenous community could miss out on the advantages that ICTs bring by having them in the home. The second motivation is that ICTs have the potential to assist Indigenous communities in the areas of health, education and employment. It was discussed previously that having access to ICTs has a positive impact on income, access to educational institutions and the services government provides.

ICT adoption relies heavily on the community that it is being diffused in. Cooper and Zmud (1990) argue that ICT implementation is defined as an effort directed toward diffusing appropriate information technology within a user community. Moreover, Martinko et al. (1996) propose that the introduction of a new technology, along with other external environmental and internal intrapersonal influences—combined with prior success or failure involving information technology, evokes causal attributions which serve as cues for further attributions regarding information technologies.

1.4 Methodology

Given that there is little research on Australian Indigenous household ICT adoption, a theory building qualitative research methodology is required. While case study research is usually undertaken to test hypotheses or some aspect of a recognised theory, case
Case study research can be combined with the Grounded Theory Methodology (GTM) to build a theory (Eisenhardt 1989). Grounded Theory is derived from sociological research and was introduced by Glaser and Strauss (1967). GTM is described as ‘the discovery of theory from data systematically obtained from social research’ (Glaser and Strauss 1967, p.2). There are a number of strengths with using the GTM. Firstly, the GTM is able to be applied to emerging research areas where there is little theoretical understanding. Secondly, the GTM forces the researcher to keep an open mind as they undertake the research processes of coding, forming categories and memoing. Most importantly, the findings that form the final substantive theory of the phenomenon being studied are grounded in the empirical data. GTM is appropriate for information systems research (Lehmann 2001; Lehmann and Fernandez 2007; Levina 2005; Orlikowski and Iacono 2001). The GTM with case studies is used in this research to develop a grounded theory of Indigenous household ICT adoption.

It is important to note that Indigenous communities are the most studied communities in Australia. For more than two centuries non-Indigenous researchers have examined every facet of Australian Indigenous life, utilising many different research methods and methodologies, some of which have been ethically unsound and detrimental to the Indigenous community being studied (Dodson and Smith 2003). This research differs in that the research is being undertaken by an Aboriginal researcher utilising culturally sensitive research methods and methodology.
1.5 Thesis Outline

This thesis is structured as follows:

- This chapter has outlined the background and research objectives of the thesis and has discussed the research problem and question. It outlines the issues to be investigated as they relate to the Indigenous community.

- Chapter 2 provides a preliminary literature review of key ICT adoption theories.

- Chapter 3 outlines the research methodology undertaken for this research and discusses the rationale behind the choice of research methodology. The research methods used for data collection are also discussed.

- Chapter 4 provides the detailed results and analysis of the foundation case study. It develops the first theoretical framework of propositions to be tested in the subsequent case studies.

- Chapter 5 provides the detailed results and analysis of the second case study. It develops the second theoretical framework after the examination of the first group of propositions has been undertaken.

- Chapter 6 provides the detailed results and analysis of the third case study. It develops the third theoretical framework after an examination of the second group of propositions has been undertaken.
• Chapter 7 details the combined results and delimits the propositions from the final theoretical framework to form for first theoretical construct. It compares the final theoretical construct with previous adoption theories.

• Chapter 8 develops the emergent theory of Indigenous household information and communication technology adoption.

• Chapter 9 synthesises the results of the study and discusses the conclusions drawn from the outcomes of the research. It discusses the strengths of the findings in relation to previous research. It also discusses the strengths and weaknesses of the methodology used for the study.

1.6 Definition of Indigenous Australian

Defining an Indigenous individual is a difficult task as Indigenous identity is not officially in Australian legislation. However, there is a shared definition of Indigenous identity across Australia. That is, for an Aboriginal person to officially be considered Aboriginal they must fulfil what is known as the ‘test of Aboriginality’. There are three criteria to be fulfilled before an Aboriginal person can be officially considered Aboriginal. The three criteria are (Gardiner-Garden 2000; High Court of Australia 1983):

1. must be a member of the Aboriginal race

2. identifies as an Aboriginal

3. is accepted by the Aboriginal community in which they live

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2 The Aboriginal community is made up of the other Aboriginal people in the local area. The usual way to prove identity is to have an Aboriginal organisation produce a Certificate of Aboriginality endorsed by the board of the Aboriginal organisation, which is made up of members of the local Aboriginal community.
The word Indigenous is used almost universally across Australia to refer to Aboriginal and Torres Strait Islander peoples. However, many Aboriginal people tend to identify themselves with their clan or family group at the local level such as Eora, Pitjantjatjara and Yuin. Some Indigenous people will identify themselves with the general region from where their family originates, and use a collective noun such as Koori to refer to Aboriginal people in some parts of New South Wales, or Murri to refer to Aboriginal people in northern New South Wales and Queensland, or Nyoongar to refer to Aboriginal people in parts of South Australia and Western Australia.

1.7 Conclusion

The household ICT adoption gap between Indigenous and non-Indigenous households, highlighted by the ABS Census data, shows that there has been a consistent gap of approximately 69% in both the 2001 and 2006 Censuses. There is little previous research that examines the low rates of Indigenous household ICT adoption. ICTs have the potential to increase income, provide access to health, education and government services. This research builds on previous adoption research and utilises a grounded theory approach to examine the factors that affect the adoption of ICTs in Australian Indigenous households and builds a substantive theory of Indigenous household ICT adoption.
Chapter 2  Preliminary Literature Review

2.1 Introduction

This chapter provides a preliminary literature review for this study. This review was undertaken with the aim of examining the literature for theoretical sensitivity. It was not undertaken with a view of testing an established adoption theory.

The term adoption is used throughout the information systems (IS) discipline to describe the uptake of ICTs. IS literature also uses the term diffusion: however, diffusion is described as ‘the process by which an innovation is communicated through certain channels over time among the members of a social system’ (Rogers 1995, p.5). Specifically adoption pertains to the ‘decision to make full use of an innovation as the best course of action available’ (Rogers 1995, p.21).

The following section provides the background to adoption research and underlying theories. These include: the Diffusion of Innovations Theory (DOI) (Rogers 1995), Theory of Reasoned Action (TRA) (Ajzen and Fishbein 1980; Fishbein and Ajzen 1975), The Theory of Planned Behaviour (TPB) (Ajzen 1991), the Model of Adoption of Technology in Households (MATH) (Venkatesh and Brown 2001), the Technology Acceptance Model (TAM) (Davis 1989), Unified Theory of Acceptance and Use of Technology (Venkatesh et al. 2003), and Structuration Theory (Giddens 1984).

The chapter proceeds as follows. This section outlines the structure of the chapter and discusses the terms associated with this chapter. Section 2.2 provides an overview of key adoption theories commonly applied to IS research. Section 2.3 concludes this chapter.
2.2 Key Adoption Theories

There has been much research on the adoption or uptake of ICTs and researchers have examined the problem from many aspects. Diffusion research has focused on the diffusion of innovations and technology. Some have examined diffusion from focused aspects while others have attempted to develop a broad generalisable model of adoption for all innovations and technology. A number of these are discussed.

Key models such as Diffusion of Innovations Theory (DOI) (Rogers 1995), the Theory of Reasoned Action (TRA) (Ajzen and Fishbein 1980; Fishbein and Ajzen 1975), the Theory of Planned Behaviour (TPB) (Ajzen 1991), the Technology Acceptance Model (TAM) (Davis 1989), and Structuration Theory (Giddens 1984) have produced significant and insightful contributions to the research area of diffusion and adoption of ICTs. Such theories as DOI and TAM postulate that perceived ease of use and usefulness are key to adoption, while other theories such as TRA and TPB rely upon behaviour and belief which are independent of the ‘perceived outcome’ of use of the technology to explain adoption (Compeau et al. 1999).

In the following section a brief overview of the strengths and weaknesses of each of the key diffusion theories is presented.

2.2.1 Diffusion of Innovations Theory (DOI)

The Diffusion of Innovations Theory (DOI) was developed by Rogers over a period of some three years from 1962 to 1965 and is defined by Rogers (1995) as ‘the process by which an innovation is communicated through certain channels over time among the
members of a social system. It is a special type of communication, in that the messages are concerned with new ideas’ (Rogers 1995, p.5). Rogers (1995) believed that previous diffusion theories (see Shannon and Weaver 1949) were too linear and could not explain the dynamics of innovation adoption and that a more robust model of diffusion needed to be developed which was dynamic.

Rogers (1995) suggests that there are five dimensions of innovation adoption:

1. **Complexity** – *Can I understand the innovation?* This is the degree or perceived degree of difficulty of the innovation to use.

2. **Compatibility** – *Is it consistent with current values at the individual or community level?* Before adopting an innovation there needs to be an analysis of whether this innovation will be compatible with the local and cultural values.

3. **Observability** – *Are the operations and results of the innovation visible to me?* What is the degree to which the innovation is observable? That is, if the innovation has a positive outcome then more than likely others will adopt the technology.

4. **Trialability** – *Can I try it first?* This is the degree to which a new innovation can be trialled before deciding to adopt or reject it.

5. **Relative advantage** – *Is it good?* This can be measured in economic terms as well as social prestige.
Rogers (1995) explains the innovation adoption process is an information seeking and processing activity in which an individual or decision maker follows a set of processes to obtain knowledge and information about the innovation and, more importantly, to decrease their uncertainty about the innovation (Rogers 1995, p.20). Rogers developed a five stage process for individuals or decision makers to pass through when adopting a new behaviour or practice (Rogers 1995). These are:

1. **Knowledge** – This occurs when an individual learns of the existence of an innovation. This could also be known as ‘first contact’ and could be the most important aspect of technology adoption as it is only once an individual knows about an innovation that they can move on to the next phase after gaining this knowledge.

2. **Persuasion** – This phase of adoption is where the individual or decision makers form their opinion of the innovation; whether it is favourable or unfavourable.

3. **Decision** – The decision phase is where the individual or decision makers make moves to either reject the innovation and disregard it or make moves toward embracing the innovation and adopt it.

4. **Implementation** – This phase is included in the diffusion theory if and only if Phase 3 above had a positive outcome and a decision to adopt was reached by the individual or the decision makers. Implementation pertains to the physical implementation of the adopted innovation.
5. Confirmation – The final phase is where the individual or decision makers seek positive reinforcement regarding their decision to adopt the innovation. At this stage some individuals may reverse their previous positive decision, especially if there are conflicting reports regarding the innovation.

![Diagram of Diffusion of Innovations Theory](image)

Figure 2.1: DIFFUSION OF INNOVATIONS THEORY (Source: Rogers 1995)

There are numerous studies that have examined or tested DOI from many aspects with varying results (Gurbaxani 1990; Henriksen and Hviid 2005; Nilakanta and Scamell 1990; Straub 1994; Valente 2005). It is argued that the reason for these varying results is that DOI focuses quite heavily on the beliefs about the technology and the outcome of using the technology along with the adoption process of the technology (Benbasat and Barki 2007; Compeau et al. 1999; Straub Jr. and Burton-Jones 2007). Moreover, these
inconsistencies in research results could also be attributed to the argument that DOI does not incorporate choice parameters and that choice fluctuates over time and over ‘diffusion arenas’ (Lyytinen and Damsgaard 2001, p185).

2.2.2 Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), Model of Adoption of Technology in Households (MATH)

Theory of Reasoned Action

The Theory of Reasoned Action (TRA) was established as a theory construct by Ajzen and Fishbein (1975). They theorise a model of psychological process that attempts to describe the perceived relationship between human behaviour and attitudes. Their theory, and consequently their model, argues that a particular attitude coupled with certain behaviour will lead to a ‘reasoned action’ (Fishbein and Ajzen 1975) (see Figure 2.2). TRA was first developed within the context of consumer behaviour research, focusing on human behaviour in the early 1970s. TRA views human behaviour as perceptions regarding one’s self and that human behaviour can be broken down into an intention which is pitched around social ‘subjective norms’. Since TRA’s inception many studies have shown that TRA is a strong predictor of human intention in non-consumer related areas. These studies include family planning (see Davidson and Jaccard 1975) and female occupation (see Greenstein et al. 1979). TRA has proved to be a good predictor of goal intention as well (Sheppard et al. 1988).

However, Fishbein and Ajzen acknowledge that their model has many limitations. In particular, their model has issues with the distinction between a goal intention and a behavioural intention. Their model was developed to predict human behaviour, not the outcomes of those behaviours or, more succinctly, the model only deals with one’s
volitional control. Therefore, when a set of circumstances or actions falls outside of the control of the individual, TRA is problematic. That is, realising the goal from behavioural intention is not easy; unlike behaviour, the realisation of goals has less to do with volitional control and more to do with resources, environmental obstacles and cooperation from others (Sheppard et al. 1988).

Choice among the many alternatives is another issue with Fishbein and Ajzen’s (1975) model. Individuals are faced with many alternatives in terms of products and brands. Fishbein and Ajzen (1975) argue that feelings and thoughts towards alternatives only influence performance on an individual’s attitude. This is in contrast to other research which believes that the ‘presence of choice may dramatically change the nature of the intention formation process and the role of intentions in the performance of behaviour’ (Sheppard et al. 1988, p.327). Moreover, ‘choice is seen as a process of comparing and selecting among the attitudes and subjective norms associated with each of the alternatives in the choice set’ (Sheppard et al. 1988, p.327). That is, the intention of individuals can be guided by the choices available to them and this can have an impact on the goal intention. In cases where this occurs TRA is unable to predict the outcome (Terry et al. 1993).
Figure 2.2: THEORY OF REASONED ACTION (Source: Ajzen and Fishbein 1975)

**Theory of Planned Behaviour (TPB)**

Theory of Planned Behaviour (TPB) (Ajzen 1991) is a more flexible model of TRA. When Ajzen and Fishbein (1975) developed their TRA model they limited the model to a fixed behaviour and did not build into the model the flexibility which would incorporate or consider the dynamic nature of human behaviour as it truly is (Taylor and Todd 1995). Therefore, Ajzen (1985) developed the TPB into a more flexible form which would not only take into consideration the individual’s ‘subjective-norm’ but it would also consider other factors that affect a person’s behaviour. This includes external factors that are not always within one’s control (for example finances, the cooperation of others, and opportunity) and the internal factors like having the ability and ‘self-control’ (see Figure 2.3) (Netemeyer et al. 1991).
The TPB, while attempting to understand and explain human behaviour, has been shown to be a better indicator or predictor of human behaviour than TRA as it views human behaviour in a more dynamic way (Harrison et al. 1997; Mathieson 1991; Taylor and Todd 1995; Venkatesh et al. 2000).

However, TPB does not consider or deal with the causal effect very well. Compeau et al. (1999) identify the relationships in the adoption process when using TPB as primarily unidirectional where as relationships within the adoption process are usually bi-directional (Benbasat and Barki 2007; Compeau et al. 1999; Straub Jr. and Burton-Jones 2007).

Model of Adoption of Technology in Households (MATH)

A Model of Adoption of Technology in Households (MATH) has been developed by Venkatesh and Brown (2001). They argue that there are hedonic and utilitarian aspects of household ICT adoption, further arguing that these aspects are related to motivation to adopt ICTs. Social factors were also found to be a prominent determinant of household ICT adoption and these social factors are a result of the power given to an individual from within their social group. In their study Venkatesh and Brown (2001) found that there were four drivers of non-adoption in households. The first driver was ‘a normative influence’ and the remaining three are classified as barriers being information from secondary sources, rapid change in technology, and lack of knowledge (Venkatesh and Brown 2001, p.85). They claim that ‘the factors influencing non-adoption are not simply the lack of factors favouring adoption’ which then suggests that ‘adopters and non-adopters do not lie on the opposite ends of the same continuum’ meaning that adopter and non-adopters have unique dimensions to their respective adoption processes (Venkatesh and Brown 2001, p.85). The underlying theory used for accessing MATH
was the TPB (see Figure 2.3). As discussed above TPB has deficiencies in

demonstrating the causal relationship of adoption of ICTs, therefore, suggesting that
MATH has limited generalisability.

Figure 2.3: THEORY OF PLANNED BEHAVIOUR (Source: Ajzen 1991), MODEL OF
ADOPTION OF TECHNOLOGY IN HOUSEHOLD (Source: Venkatesh and Brown 2001)

2.2.3 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is based on the principles of Fishbein and
Ajzen's (1975) attitude paradigm or TRA. The TAM specifies how to measure the
behaviour-relevant components of attitudes; distinguishes between beliefs and attitudes;
and specifies how external stimuli are causally linked to beliefs, attitudes and behaviour
(Davis 1989). The aim of the TAM as explained by Davis (Davis 1989, p.467) is:
‘to provide an explanation of the determinants of computer acceptance that is
general, capable of explaining user behaviour across a broad range of end-user
computing technologies and user populations, while at the same time being both
parsimonious and theoretically justified’

Even though the TAM is regularly referred to as the most influential theory in IS
(Benbasat and Barki 2007), it is also recognised that the TAM has led to a number of
‘dysfunctional outcomes’ (Benbasat and Barki 2007). The heavy reliance on the TAM,
as Benbasat and Barki (2007) argue, is likened to ‘the putting of blinkers’ on IS
researchers, diverting their main focus from investigating and understanding of the
adoption phenomena (2007, p.212). Furthermore, Benbasat and Barki (2007) argue that
examining behavioural aspects of users has many advantages over the TAM which
takes a ‘narrow’ ‘view of user’s direct interaction with systems’ (2007, p.215).

TAM has proven to be quite deficient with many additions and modifications to the
model over the years in an attempt to better explain technology acceptance (Benbasat
and Barki 2007; Kwon and Chidambaram 2000; Levin and Wadmany 2008; Straub Jr.
and Burton-Jones 2007). This is because the TAM does not consider many aspects of
the dynamic way in which humans make decisions about technology and therefore
many studies have extended the TAM to assist in addressing these shortcomings, but in
doing so are creating a more generalist approach to technology acceptance (Dasgupta et
al. 2002; Gefen and Straub 1997; Lynch et al. 2002; Malhotra and Galletta 1999).
2.2.4 Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Venkatesh et al. (2003) is a model designed to consolidate previous TAM studies in an attempt to address the weaknesses of TAM (see Figure 2.5).

The UTAUT focus is on behavioural intention and use behaviour of individuals. There are five primary determinants of UTAUT which are: Performance Expectancy, which is defined as ‘the degree to which an individual believes that using the system will help him or her to attain gains in job performance’, Effort Expectancy which is defined as ‘the degree of ease associated with the use of the system’, Social Influence which is defined as ‘the degree to which an individual perceives that important others believe he or she should use the new system’, Facilitating Conditions which are defined as ‘the degree to which and individual believes that an organisation and technical infrastructure exists to support use of the system (Venkatesh et al. 2003, pp.447–456), and Behaviour Intention which ‘is the subjective probability that he or she will perform the behaviour in question’ (Fishbein and Ajzen 1975, p.288).
In the UTAUT model, effort and performance expectancy are added to the TAM constructs of perceived ease of use and usefulness. The addition of these concepts has a flaw as Marchewka et al. (2007) argue that ‘perceived ease of use can be expected to be more salient only in the early stages of using a new technology’ and it can also have a ‘positive effect on perceived usefulness of the technology’ (p.94).

The strength of UTAUT has been able to explain the adoption of technology in some contexts which demonstrated its validity in these contexts (AIAwadhi and Morris 2008; Venkatesh et al. 2003). While other studies have shown that the strength of UTAUT to predict use of technology lessens in different cultural contexts (Al-Qeisi 2009). However, Marchewka, Liu and Kostiwa (2007) found little support for some aspects of the UTAUT in their study. They argue that both age and gender did not appear to be important factors in the adoption the technology and that most participants ‘are most likely familiar with the use of technology in their everyday lives’ (p.103) which would effect the strength of UTAUT.
2.2.5 Giddens Structuration Theory

Certain theories that have been applied to ICT adoption are based on the sociological notion of the relationship between society and the individual or ‘structures’ and ‘agency’ (see Figure 2.5). Structures are the tangible and intangible aspects of society that create an individual’s social setting such as workplace, job titles, salutations and so on, and are a way of understanding how an individual’s agency is constrained by these structures (Bourdieu 2007; Levina and Vaast 2005). Agency is the capability of an individual to originate a particular act. It is essentially a way of understanding how an individual expresses their free will.

Giddens Structuration Theory has influenced diffusion and adoption research by providing a more holistic view of human behaviour associated with the use of ICTs.
Giddens believes that agency is vital to understand human behaviour and acknowledges that it is the reflexive form of knowledgeable of the agent that is most deeply rooted in the recursive ordering of social practices. How we view this ‘reflexivity’ or recursive ordering is an important component to understanding structuration. Giddens believes that we should think of reflexivity as ‘the monitored character of the ongoing flow of social life’ (Giddens 1984, p.3). Taking this concept one step further Giddens (1984) argues that to be a ‘human being is to be a purposive agent, who both has reasons for his or her activities and is able, if asked, to elaborate discursively upon those reasons’ (1984, p.3). The key point here is that structuralism has made abstractions related to the generative structures, taking these structures as agents making them able to both take action and restrain action (Giddens 1984).

However, there are aspects of Giddens Structuration Theory that are contested by others. Brubaker (2004a) does not disagree with this notion of structuralism but argues that Giddens structures only exist in and through the systems of dispositions of the agents, thus the agency of the structures is an oversimplification of the relationship between agents and the structures. Moreover, as highlighted by Barrett and Walsham (1999) Giddens ‘seeks to analyze the role of time and space in understanding the modern era’ of which ICTs are a significant part (1999, p.3); however, as Barrett and Walsham (1999) also argue Giddens does not address these linkages and as such Giddens Structuration Theory does not provide a sound explanation of ICT adoption.
2.3 Conclusion

This chapter has outlined key adoption and diffusion theories which are commonly used across the IS discipline to predict and assess adoption and diffusion of ICTs primarily within organisational research. DOI is a general theory of innovations and while Rogers (1995) did not incorporate networked ICTs in his model, DOI has been used in IS adoption research, albeit with varying results because of its unidirectional causal relationship. TRA and TPB, both of which are key ICT adoption models, have also provided mixed results. Once again this is because the causal relationship is unidirectional. The MATH model was created to predict household ICT adoption; however, with TPB at its core MATH has the same underlying problems as TPB. The TAM also has similar problems in that the causal relationship in the model is not well defined and as such has led to widely varying results. The UTAUT which attempts to address the weaknesses of TAM also has issues. Studies using the UTAUT have found support and not support in the same study. Giddens Structuration Theory has provided a model of adoption that reflects the complexity of human decision making; however,
Giddens model is very complex and difficult to understand and implement from an IS perspective.

Overall many of these theories lack both contextual and temporal factors that are important to household ICT adoption. While Giddens Structuration Theory comes close to addressing these issues, there is still insufficient understanding or acknowledgement of adoption of ICTs within the context of households and specifically Australian Indigenous households.

While current diffusion and adoption theories provide great insight into specific areas of ICT adoption, it appears that no one single theory provides the framework for examining household adoption of ICTs. An examination of the adoption models has provided some insight as to the direction of IS adoption theories; however, there are limitations to how these can be applied to household ICT adoption. Therefore, this research aims to address the problem through the development of a grounded theory Indigenous household adoption model.

This chapter has considered key adoption theories which have enabled the researcher to be theoretically sensitive to ensure that the findings of this research are not forced into a preconceived theory. During the research detailed knowledge of the individual adoption theories were set aside as required by GTM (Glaser 1978; Glaser and Strauss 1967).
Chapter 3  Research Method

3.1 Introduction

Indigenous people are looking towards research and its designs with the hope that it will contribute to their self-determination and liberation as a way to address their continued struggle for social and economic equality (Rigney 1999). However, while Indigenous Australians are arguably the most studied peoples in Australia, most research on Indigenous Australians is being conducted by non-Indigenous researchers (Dodson and Smith 2003). Many Indigenous Australians are unsure if research will address their inequality (Dodson and Smith 2003); this is because the foundation of much research on Indigenous communities is a construction of a racialised research industry, and there is little evidence that non-Indigenous researchers use any form of Indigenous epistemology when developing research methodologies or protocols to research Indigenous communities (Rigney 1999). Moreover, cultural assumptions throughout the dominant epistemologies underlying much research in Australia are oblivious to Indigenous traditions (Foley 2003). It is argued that the legacy of racialisation of research is that its ideology continues today to re-shape knowledge construction of Indigenous people through colonial research ontologies and epistemologies (Foley 2002; Rigney 1999).

To overcome these shortcomings, Rigney (1999) proposes a new approach to research that is undertaken by Indigenous researchers on Indigenous Australians, namely Indigenist research. He argues that Indigenous researchers should utilise an epistemological approach that enables Indigenist research to be conducted that assists Indigenous communities with their quest for equality. ‘Indigenist research is research by Indigenous Australians whose primary informants are Indigenous Australians and
whose goals are to serve and inform the Indigenous struggle’ for equality (Rigney 1999, p.119; Rigney 2001).

The research in this thesis aims to be Indigenist research in that, I am an Aboriginal researcher; Indigenous Australians are the only informants; and the research informs and serves to address one aspect of the Indigenous struggle for equality in Australia, namely the low adoption rates of Information and Communication Technologies (ICTs) in Indigenous households. As this is exploratory research examining Indigenous household ICT adoption, and with the aim of being Indigenist research, this research draws on the philosophical assumptions from the exploratory interpretive research paradigm. This approach suggests a subjective epistemology (Walsham 1995), which can assist in enabling Indigenist research to be conducted, with an underlying ontological belief that reality is socially constructed.

To date there has been little research conducted on household ICT adoption and even less for Indigenous household ICT adoption. With little prior research in the area and with a desire both to develop a model of Indigenous household ICT adoption, and to discover the process of Indigenous household ICT adoption, it leaves limited choice of methodology that can be drawn upon. That is, the chosen research methodology would need to be able to develop a theoretical foundation from empirical data that would assist in developing a theoretical framework that addresses the research question.

The research strategy adopted in this thesis was to conduct an empirical exploration of Indigenous communities in Australia across three State and Territory jurisdictions while drawing on the classic Glaserian Grounded Theory Methodology. The sources of data that were collected for this thesis were semi-structured interviews, participant
observation and Australian Bureau of Statistics data. Sampling was conducted in three locations which constitutes the three case studies in this thesis.

This chapter is structured as follows. Section 3.2 discusses the research approach. Section 3.3 discusses the grounded theory methodology and data collection. Section 3.4 discusses the use of grounded theory with case studies. Section 3.5 discusses the research design and participants. Section 3.6 concludes this chapter.

3.2 Research Approach

The choice of research methodology is never arbitrary—rather the research approach depends on ‘what you are trying to find out’ (Silverman 2000, p.1). There are two main paradigms in research, namely quantitative and qualitative, both of which have strengths and limitations.

Quantitative research methodologies can demonstrate statistical correlations between variables. This is a strength of quantitative research as correlation can be used to demonstrate a relationship that seemingly might not have existed. However, critics of quantitative research argue that if all research was undertaken in a quantitative way, it would rule out the study of many interesting phenomena relating to what individuals actually do in their everyday life (Barrett and Walsham 1999; Hinkson 1999; Yin 2003). Moreover, qualitative researchers believe that the use of quantitative research is not the only way of establishing validity of findings, as validity of findings can also be established with qualitative research. Qualitative researchers have the underlying belief that qualitative research methods are able to provide a deeper understanding of social
phenomena than could be obtained by using only quantitative data (Denzin and Lincoln 1994; Silverman 2000).

Based on the philosophical assumptions in information systems (IS) research, research can be considered positivist, interpretive and critical (Myers et al. 1998). Research can be considered positivist if there is a testable hypothesis or quantifiable measures of variables. Positivist research assumes that there is an independent relationship between humans and social reality (Miles and Huberman 1984).

Research methods such as case study research can be considered both positivist and interpretive depending on the researcher’s philosophical standpoint (Benbasat et al. 1987; Klein and Myers 1999; Myers 1997; Walsham 1995). The epistemological stance on interpretive research is that knowledge is gained through social constructions which can include elements such as shared meanings, language and documents and so on (Walsham 1993). This aspect of interpretive research enables Indigenist research to be undertaken in this thesis as Indigenous peoples can have a shared meaning of knowledge and language that at least in part is different from non-Indigenous Australians (Keen 1994).

In an exploratory interpretive research approach there are no predefined variables to be measured and tested but rather the research focuses on the human sense-making of the social phenomena being studied (Kaplan and Maxwell 1994). Examples of interpretive case study research in information systems include the work of Walsham (1995) and, Orlikowski and Iacono (2001).
The research in this thesis seeks to establish the factors affecting the adoption of ICTs in Australian Indigenous households. It focuses on the development of a model of salient factors that affect Indigenous household ICT adoption.

There are three main characteristics of this research:

1. The key focus of this study is on household adoption of ICTs by Indigenous Australians.

2. The broad abstract conceptual aspects of the research such as ‘factors’, ‘interactions’, and ‘conceptual model’, are not easily quantifiable in quantitative measures. It is for this reason that the methodology used in this research will be a qualitative methodology.

3. Much research and many PhD theses tend to build on previous research or test some component of an established model within a particular context. There is a growing but limited volume of research on household ICT adoption and even less on Australian Indigenous household ICT adoption, therefore a theory building research methodology will be employed.

Using a theory building methodology is appropriate where there is little theoretical understanding of a phenomenon (Eisenhardt and Graebner 2007; Eisenhardt 1989). Theory building research begins as close as possible to not having an underlying theory and not having a hypothesis to test.

This research attempts to address an IS social issue and will utilise an exploratory interpretive empirical approach with the focus on Indigenous Australians’ interpretations of household ICT adoption. This is a recognised approach to addressing
such research (Walsham 1995). Given that there is limited previous research to draw upon and with an aim of the research to be Indigenist, the classic Glaserian Grounded Theory Methodology was chosen as it was viewed as the most appropriate methodology, for epistemological and ontological reasons for exploring the phenomenon being studied.

### 3.3 Grounded Theory Methodology

Grounded Theory Methodology (GTM) was first introduced by Glaser and Strauss in 1967 and since has become a well recognised research methodology for IS research (see Barrett and Walsham 1999; Fernandez 2005; Glaser and Strauss 1967; Lehmann and Fernandez 2007; Levina 2005; Orlikowski and Iacono 2001; Trauth and Jessup 2000). It is recognised that GTM came to prominence and was given legitimacy in IS research after Orlikowski (1993) won the Management Information Systems Quarterly Best Paper award using grounded theory (Orlikowski 1993; Urquhart and Fernandez 2006). GTM is described by Glaser (1998) as ‘the systematic generation of theory from data acquired by a rigorous research method’ (Glaser 1998, p.3). This methodology grounds the data and keeps the researcher open to new ideas or exploration through the use of grounded theory.

Glaser (1998) is clear in making sure that those wishing to use GTM as their research methodology should be aware that GTM is a specialised methodology that sets out to develop a set of integrated conceptual hypotheses rather than findings. Moreover, Glaser (1998) explains that GTM is the development of relationships between concepts. However, he points out that descriptive findings do play a role; once a theory is
generated, it is a theory that has been generated by the conceptual description of the research findings (Glaser 1998).

The most vital aspect of GTM is to ensure that the theory generated is truly grounded in the findings of the substantive area, and that the researcher discovers the theory and does not force the data into preconceived ideas that they might have about the substantive area. Stating this more clearly, the data should not be forced into a theory; rather the data will produce a theory in good time by using the GTM in a rigorous manner. Glaser (2005) states that the ‘full power of grounded theory comes with staying open to the emergent and to earned relevance throughout the whole GT methodology process’ (2005, p.1). GTM is a methodology that is based on the concept–indicator model where instances of concepts are derived from the data. GTM provides modes of conceptualisation for describing or explaining a particular phenomenon see Figure 3.1 (Glaser 2005).

![Concept Indicator Model](image-url)

*Figure 3.1: CONCEPT INDICATOR MODEL (Source: Glaser 1978, p.62)*
There are a number of key aspects to doing GTM. These are organised and discussed in the following sections.

### 3.3.1 Preliminary Literature Review

There is a requirement that preconceptions are minimised before the researcher enters the field. In his book ‘Doing Grounded Theory: Issues and Discussions’, Glaser (1998) states that the researcher should not undertake a comprehensive literature review in the substantive area before entering the field and that any literature review should be incorporated at the end of the study. There are a number of reasons for this. Firstly, it is to ensure, as much as possible, that the researcher is able to stay open to the emergence and discovery of concepts throughout the study. Secondly, there is a possibility that the literature read by the researcher may lead a researcher into an area that has little to do with the study being undertaken. Thirdly, the researcher can speculate too much on interconnections within the developing theory or model that have little to do with what is actually going on in the researched area. The fourth reason is that the researcher really does not know what literature is important until they discover the concepts that emerge from the empirical data. The final reason is to ensure, as much as possible, that the researcher does not have any predetermined or rigid thoughts of what they might find in the field.

### 3.3.2 Fieldwork Preparation

As stated previously, any researcher entering the field should have a clear and open mind. This is achieved by not having any preconceived ideas about what you will find; a researcher will enter the field without undertaking a literature review.
It is recognised that entering the field with no prior knowledge is next to impossible because researchers are not a blank slate. But what is more important in staying in line with the grounded theory methodology is to ensure that the researcher does not start with view of either proving or disproving a theory (Urquhart and Fernandez 2006).

It is also important that all the information is divulged to the reader to strengthen the validity of the research and findings. Therefore, I declare that a limited preliminary literature review was undertaken prior to this research. As part of my PhD coursework, there was a requirement to produce an annotated bibliography as a major assessment. At the time, it made sense to put this effort into the PhD rather than just researching in a completely different area. Moreover, it was during the compilation of the annotated bibliography that I came across a paper by Eisenhardt (1989) that introduced me to the Grounded Theory Methodology.

While I was aware of the general theories of diffusion in the early stages of the fieldwork preparation, after reading the requirement of GTM to not read in the substantive area, I did not revisit the extant literature until the early stages of the development of the first theoretical construct in Chapter 7. As it turned out, only a small section of the annotated bibliography was useful, as the research yielded concepts that were unrelated to literature that I had read previously. This demonstrates that the limited previous reading did not impede the process of keeping an open mind to new ideas and the subsequent emergent theory. This also allows GTM to be used in this research.
3.3.3 Collection of the Data

Data collection with GTM can be undertaken in numerous ways. Glaser and Strauss (1967) use the term ‘all is data’ meaning that every aspect of the researched area can be considered data. This includes, but is not limited to: interviews, ethnography and quantitative data (Glaser and Strauss 1967).

Glaser and Strauss (1967) warn that recording of interviews can have a detrimental effect on both the volume of data collected and the analysis of the data. They argue that recording of interviews slows data collection and gives the researcher ‘too much unnecessary data’ (Glaser and Strauss 1967); however, the recording of the interviews, their transcription and loading into analysis software packages is now becoming more accepted when using GTM (Urquhart and Fernandez 2006). This is because the researcher is able to leave analysis to undertake other tasks and return to the point where they had left off without losing data. Another strength of recording the interviews is that the researcher is able to revisit the data for further analysis or clarification.

A crucial part of the data collection is the concept of theoretical sampling. ‘Theoretical sampling is the conscious, grounded deductive aspect of the inductive coding, collecting and analysing’; it is the process of collecting additional data (Glaser and Strauss 1967, p.157). The initial analysis of the ‘first slice of data’ determines where the researcher needs to go to look for the next ‘slice of data’ (Glaser and Strauss 1967). The goal of theoretical sampling is to capture all possible variants of the study areas and provide a deeper understanding of the phenomenon being researched. The process of theoretical sampling is completed when saturation of the emergent codes for the substantive area has been achieved. Choosing the next ‘slice of data’ is an important consideration and is driven by the emerging theory. As the theory emerges, the researcher then seeks to
saturate the emergent codes by sampling from ‘comparison groups’ (Glaser 1978). Theoretical sampling can be considered similar to the case study technique of data triangulation by using independent slices of data to better understand a phenomenon that is only partially understood (Lehmann and Fernandez 2007). There are two layered cycles to theoretical sampling; firstly, intra-case sampling where theoretical focus is on selecting the next slice of data, and secondly, inter-case sampling where the propositions can be enhanced and strengthened in their explanatory and predictive qualities (Lehmann and Fernandez 2007).

There are four key strategies for theoretical sampling—these are: maximising or minimising the differences between groups or between the data. Each of these strategies has different objectives (see Table 3.1).

Table 3.1: CONSEQUENCES OF MINIMISING OR MAXIMISING DIFFERENCES IN COMPARISON GROUPS FOR GENERATING THEORY (Source: Lehmann and Fernandez 2007)

<table>
<thead>
<tr>
<th>Data on Category</th>
<th>Similar</th>
<th>Diverse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Differences Minimised</td>
<td>Maximum similarities in data leads to: 1. Verifying usefulness of categories 2. Generating basic properties 3. Establishing a set of conditions for a degree or category. These can be used for predication</td>
<td>Identifying/developing fundamental differences under which category and hypotheses vary</td>
</tr>
<tr>
<td>Group Differences Maximised</td>
<td>Identifying/developing fundamental uniformities of greatest scope</td>
<td>Maximum diversity in data quickly forces: 1. Dense developing of property of categories 2. Integrating of categories and properties 3. Delimiting scope of theory</td>
</tr>
</tbody>
</table>
3.3.4 Analysis of the Data – Constant Comparison

There are a number of aspects to the analysis phase of GTM. These are: open coding, selective coding, theoretical coding, memoing, constant comparison, theoretical sorting, and writing. These are discussed below:

*Open Coding*

During the process of open coding a researcher reads the data while looking for instances of a particular event that is indicative of a particular categorical property (Rosenbaum 2005). An instance can be few lines of a transcribed interview that points to a particular event or events that are salient to a particular category. A number of these instances are then combined to form a core category. This is achieved through conceptualisation and from then on the researcher employs a technique of selective coding.

*Selective coding*

Selective coding is the process of assigning previously created codes to future instances of a particular event that has occurred in the data (Glaser 1998). That is, selective coding is the re-using of emergent codes that are related to the same conceptual category. This re-using of the codes can be undertaken in the same interview transcript or any subsequent transcripts.

*Theoretical Coding*

Theoretical codes conceptualise how the substantive codes may relate to each other as propositions to be integrated into the theory. Theoretical coding provides integrative scope and a fresh perspective. Theoretical coding provides GTM with a grounded integration (Glaser 1978; Glaser 2005).
Memoing

Memoing is the process that drives theory generation. Memos are also essential in providing the researcher with an understanding of the data. Memos are the writing up of the theorised ideas which have been derived from the codes and the relationships between the codes. Memos lead to ideation. Memoing is the only process that continues from the beginning to the end of the research. Memoing is started when the first interview is being coded. That is, coding and memoing occur simultaneously through the coding process (Glaser 1978). Memoing is important to theoretical sampling. The memos can assist in determining the direction that the theoretical sampling should go, which is derived from the deductions of the researcher from the data (Glaser 1978).

It is important that memoing takes precedence over all of the other activities required under the GTM. This is because memoing is where ideas are written down and where the theory is formed. Memoing needs precedence because the data will be there for the researcher to come back to, whereas ideas can come to mind at random times and can easily be forgotten if not written down or documented. It is essential when writing memos, the researcher think and write theoretically. The memo writing should be free from concerns of spelling, grammar, sentence structure and so on. The idea of taking these writing practices into account is to ensure that the writing process is not interrupted and that ideas flow more easily; and it is a method of preventing writers block (Glaser 1978). Memos are easily modifiable, and are able to be modified as ideas are formed, shaped and reshaped as the developing theory emerges. Once the researcher is confident with their emerging theory from the memos, the researcher then can review the extant literature as it relates to the emerging theory.
**Constant comparison**

Throughout the entire process of open coding, selective coding, theoretical coding and memoing, the researcher must constantly compare each instance of a code with the other instances of the same code, and also compare with the new codes (Glaser 1992). That is, each instance of a particular event in the data is constantly compared with that of the previous instance and so on.

**Theoretical Sorting**

Theoretical Sorting is the final stage of generating the substantive theory. Sorting refers to the theoretical sorting of memos from which the theory is finally generated (Glaser 1978). Sorting shows the relationships between the concepts. Throughout the sorting process more memos are generated which will require the researcher to incorporate these newly generated memos into the sorting process. On completion of the sorting process the first draft of the emerging theory materialises.

**Writing**

Writing is the final stage of the GTM. Once the theoretical sorting has been completed, the theory is in its draft format and needs to be written up (Glaser and Kaplan 1996). Once the first draft is completed, it is then a matter of refining the concepts and polishing the writing into the final draft theory.
Figure 3.2: GROUNDED THEORY BUILDING PROCESS (Source: Fernandez 2005)

3.4 Grounded Theory Methodology and Case Studies

Case study research is a common qualitative method used in IS research. Yin (2003) defines the scope of a case study as an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident.

As highlighted previously, a researcher can take a positivist approach to case study research; however, case study research utilising Yin (2003) can also be interpretive research (Barrett and Walsham 1999; Benbasat et al. 1987; Walsham 1995). This is
because case studies can provide a rich interpretive description of the phenomenon being studied. Case studies are heuristic, enhancing the reader’s understanding of the situation or the phenomenon under study. They can reveal previously unobserved relationships, leading to new perceptions about the phenomenon being studied (Miles and Huberman 1984; Yin 2003). An examination of the literature demonstrates that similar interpretivist research, as that being undertaken in this thesis also uses interpretive case studies with the Grounded Theory Methodology (see Barrett and Walsham 1999; Levina 2005; Orlikowski and Iacono 2001; Trauth and Jessup 2000).

The strengths and advantages of using case study research far outweigh the limitations. Yin (2003) argues that the unique strength of case study research is the ability to present a holistic view of a phenomenon through a variety of evidence that can be employed, such as observation, interviews, documents and artefacts. Anchored in a real life situation, like the research in this thesis, the case study approach is particularly valuable for interpretive research (Walsham 1993). Case studies can provide rich descriptives of little known phenomena in complex social situations (Yin 2003).

Multiple case studies have many advantages over single case studies. Firstly, evidence that emerges from multiple case studies is often more compelling and is considered much more robust; however, there are dangers with multiple case studies that need due consideration. Multiple case studies require extensive resources and considerable time which can be beyond the capabilities of a single researcher or student (Yin 2003).

The approach in this thesis attempts to balance the openness of grounded theory by discovering emergent ideas from case studies. Glaser and Strauss’s (1967) strict inductive approach to research ensures the researcher is open to new emergent ideas.
from the research field. Moreover, it is the act of ‘keeping open’ to new ideas that is at
the core of theory development using GTM (Glaser and Strauss 1967). The approach in
this thesis requires open questions, as well as questions seeking information on ICTs.

The use of GTM together with case studies has grown to become an accepted method
for investigation in IS (see Barrett and Walsham 1999; Eisenhardt 1989; Lehmann and
Fernandez 2007; Levina 2005; Orlikowski 1993; Orlikowski and Iacono 2001;
Rosenbaum 2005; Trauth and Jessup 2000; Urquhart and Fernandez 2006). Lehmann
and Fernandez (2007) provide a guideline of how to undertake GTM research utilising
case studies (See Table 3.2).
<table>
<thead>
<tr>
<th>ANALYSIS STEPS</th>
<th>RESULTS AND DELIVERABLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Open coding of incidences in the interview transcripts and supporting</td>
<td>Basic, ‘raw’ categories and properties</td>
</tr>
<tr>
<td>documents, the ‘texts’</td>
<td></td>
</tr>
<tr>
<td>2. Assembling the network of individual texts, i.e. writing the ‘story’ of the</td>
<td>Case history/story</td>
</tr>
<tr>
<td>case</td>
<td></td>
</tr>
<tr>
<td>3. Using the ‘story’ for reviewing, refining and collapsing the basic</td>
<td>Hierarchy of ‘core’ categories embracing ‘substantive’ categories, formed from raw</td>
</tr>
<tr>
<td>categories, based on uniform and/or overlapping properties; merging raw</td>
<td>categories</td>
</tr>
<tr>
<td>categories into families of ‘substantive’ categories and further reducing</td>
<td></td>
</tr>
<tr>
<td>these to ‘core’ categories</td>
<td></td>
</tr>
<tr>
<td>4. ‘Theoretical’ coding of the case ‘story’ for ‘relations’ between core</td>
<td>Identifying main interactive categories; distinction between primary and secondary</td>
</tr>
<tr>
<td>categories; this is for the case in hand, although the categories and</td>
<td>interaction; identifying direction of linkages; defining the specific nature of each</td>
</tr>
<tr>
<td>relations from previous cases are used in constant comparison</td>
<td>interaction</td>
</tr>
<tr>
<td>5. Establishing and refining categories and their linkages</td>
<td>Models of the interaction of all categories; distinction between primary and secondary</td>
</tr>
<tr>
<td></td>
<td>interactions; identifying direction of linkages; defining the specific nature of each</td>
</tr>
<tr>
<td></td>
<td>interaction</td>
</tr>
<tr>
<td>6. Comparing between cases, ‘stories’ as well as individual ‘texts’</td>
<td>Establishing the differences between the cases, by contrasting the case in hand with each</td>
</tr>
<tr>
<td></td>
<td>of the previous cases in turn</td>
</tr>
<tr>
<td>7. Establishing and refining the theoretically relevant differences</td>
<td>Distilling any new, ‘derived’ categories and relationships ‘constructs’ from the</td>
</tr>
<tr>
<td>between the cases</td>
<td>comparative analysis</td>
</tr>
<tr>
<td>8. Distilling theory elements from both the case in hand and from the</td>
<td>Theorems and propositions, forming the ‘n\textsuperscript{th}-generation’ of the (provisional) Theoretical Framework</td>
</tr>
<tr>
<td>comparative analysis</td>
<td></td>
</tr>
<tr>
<td>9. ‘Densifying’ the (provisional) Theoretical Framework by comparison with its</td>
<td>Revised ‘nth-generation’ (provisional) Theoretical Framework</td>
</tr>
<tr>
<td>previous ‘generation’</td>
<td></td>
</tr>
<tr>
<td>10. Delimiting and ‘axiomatising’ the last generation (provisional) Theoretical</td>
<td>Final Substantive Theory</td>
</tr>
<tr>
<td>Framework</td>
<td></td>
</tr>
</tbody>
</table>
3.5 Research Design

Throughout the early stages of my PhD planning, the first case study to be identified was in the rural area of Australia. Choosing which area in rural Australia was difficult. It was important to find a community that would be a good representation of a rural community yet have the potential to extend theory. After reading Eisenhardt (1989), noting that it is acceptable to purposely sample from the field, a rural community was selected. Therefore, the selection of the first case study location was not random. Purposeful sampling is acceptable in situations that require such an approach (Eisenhardt 1989; Maxwell 2005; Miles and Huberman 1994). The second and third case study areas were chosen through the process of theoretical sampling as required by the GTM. Theoretical sampling is the grounded deductive aspect of the inductive coding or is where additional slices of data are collected from.

The way in which the GTM is applied in this thesis is that firstly the rural case study is undertaken, and then the propositions from the rural case study, which have been used to create the first theoretical framework (see Chapter 4), are investigated in the urban area case study (see Chapter 5). The propositions are enhanced to cover the salient aspects of Indigenous household ICT adoption in both the rural and urban Indigenous communities. They are then investigated in the remote area case study (see Chapter 6) and again the propositions are enhanced to capture all salient aspects of the Indigenous household ICT adoption process from across all three localities. The third theoretical framework then becomes the first theoretical construct which is then delimited, after drawing on the extant literature, to become the final theoretical construct (see Chapter 7). The final theoretical construct again draws on the extant literature to form the final draft theory (see Chapter 8).
3.5.1 Data Collection and Identification of Aboriginal Participants

Interviews are the most important source of case study data. Interviews are guided conversations rather than structured queries. That is, case study interviews are likely to be fluid exchanges rather than rigid questions and answers. There are two important aspects to interviews that a researcher must keep in mind. Firstly, the researcher must follow their own line of inquiry, as reflected by their research protocols and research problem. Secondly, the researcher must ask questions in an unbiased manner that also serves the needs of the line of inquiry (Yin 2003). Yin (2003) argues that interviews must operate on two levels, simultaneously fulfilling the need of the researcher’s line of enquiry, while asking open-ended questions in a friendly and non-threatening way.

Flick (2002) argues that, when undertaking interviews there are often two types of responses from the interviewee. That is, the interviewee can give an outsider an outsider’s response to a question or the interviewee can give an insider an insider’s response to a question. There are many advantages to having an insider’s response to a question. Being an insider can expose certain activities or connections that an outsider would not be privy to; however, to receive an insider’s response to a question you must be a member of the group being studied. The main issue with undertaking a study from an insider’s perspective is the issue of replication of the study. If an insider is able to receive insider responses, an insider would be required to replicate the study, as many activities could be hidden from an outsider (Flick 2002; Yin 2003). As I am an Aboriginal researcher researching Indigenous Australians, some responses to questions will be considered an insider’s perspective.

Before entering the field, the research plan had to be detailed and participant recruitment procedures had to be approved by the University’s Human Ethics
Committee. The names of the communities in this study were outlined in the ethics protocols, but to ensure the anonymity of the communities, as required by the ethics committee, they have not been included in this thesis. A discussion of recruitment procedures is outlined below. The information provided is an overview, as detailed explanations are provided in the appendices associated with each of the empirical chapters.

Interviews were undertaken with Aboriginal Australians. No participant identified themselves as being Torres Strait Islander. In determining Aboriginality each participant self-identified. The University’s Human Ethics Committee suggested that initial community contact should occur through community organisations. This requirement was fulfilled in all three localities. Participants were chosen incidental to opportunity from locations that Aboriginal people are known to frequent. After the initial contact, interviews were held in various locations. It was very difficult to find a quiet space to conduct the interviews away from distractions, in all of the three localities. Interviews were conducted in homes, offices, Aboriginal organisations, schools, on the river bank, in the bush and in the desert. The participants were aged from mid 20s to late 70s across the three localities and included a mix of both males and females. Drawing on previous IS research and following the Glaserian GTM, interviews were recorded, transcribed and coded and the themes informed the next interview.

Before each interview, each participant was provided with an introductory letter. The letter introduced me as the researcher and provided a general overview of the research being undertaken. Each participant was also requested to read and sign a consent form to have their voice recorded (see Appendix A). These procedures were outlined as a requirement by the University’s Human Ethics Committee.
At the conclusion of each interview, participants were offered a small financial payment as compensation for their time to undertake the interview. Interviewees were not informed about the offer of a payment until the interview was completed. No participant refused the payment.

It is a requirement of the GTM that interviews continue until case saturation is achieved. There were twelve interviews undertaken in the rural area when case saturation was achieved. After the analysis of the first case study, the urban area was sampled, with another twelve interviews being conducted until case saturation was achieved. After the analysis of the urban case study, the remote area was sampled and case saturation was achieved after eleven interviews.

The time taken to collect the data from the three communities varied. Data collection in both the rural and urban communities took approximately two weeks, whereas the data collection in the remote Indigenous community took approximately eight weeks. I resided in the locations until case saturation was achieved. Further details on data collection procedures from each of the three communities are outlined in detail in the appendices associated with the empirical chapters.

### 3.5.2 Additional Procedures for Interviewing Aboriginal Participants

A number of considerations and procedures had to be taken into account before this study was conducted. These included research ethics protocols (including additional procedures for Aboriginal participants), the sampling approach, and conducting a pilot study to identify any weakness in the research design.
Having Aboriginal participants required additional ethics procedures to be fulfilled. The University’s Human Ethics Committee requires researchers undertaking research on Indigenous Australians to also address the Aboriginal and Torres Strait Islander Human Ethics Guidelines published by the National Health and Medical Research Council (NHMRC), and the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS). These guidelines are designed to ensure that research undertaken in Indigenous communities is conducted in a way that respects Indigenous Australian cultures, and to ensure the research is not detrimental to the Indigenous community in any way. In addressing these guidelines, it was important that the research design was such that data were collected in a respectful manner, and that the correct permissions were sought from the community. The guidelines also state that dissemination of research results to the participants and their communities is quite important. As part of my responsibility to the communities in this thesis, I am to provide each of the participant communities with a booklet outlining the research findings. The findings will be presented at various community meetings and functions on the completion of this thesis.

Having fulfilled the obligations and the additional requirements of the University’s Human Ethics Committee, I also had to fulfil the cultural needs of the participant community in the remote locality. Before I could undertake fieldwork in the remote Aboriginal community, a research permit had to be granted by the community. To obtain this permit I had to submit a request to the Regional Aboriginal Land Council who then liaised with the Local Aboriginal Land Council on my behalf. It is important to note that there is no guarantee that a researcher will be permitted to enter a community, let alone be able to undertake fieldwork even if a research permit is granted. This required me to submit the research permit application approximately five
months prior to departure to the community which is considered the minimum lead time for such requests.

A number of practical issues had to be overcome to be able to undertake the research in the remote locality. This included access to accommodation and electricity. There is limited visitor accommodation in remote Indigenous communities, and remote Indigenous communities usually use diesel generators for electricity there is no electricity grid and access to power is limited. Access to electricity is vital to operate the laptop computer used for the fieldwork. To overcome these issues, I decided that I would camp in a tent and hire a petrol generator to undertake the remote fieldwork. Due to the limitations of accessing the required equipment near the remote locality, I drove this equipment to the location, which was over 3000kms from my home. To demonstrate how this worked from a practical perspective, a photograph of my remote fieldwork campsite is included in Appendix B.

Before entering the field, a pilot study in an urban environment was undertaken. This was to refine the methods to be used in the research field. The pilot study’s purpose was to identify any issues with the chosen methods. The pilot highlighted a language issue that I did not expect.

I interviewed three Aboriginal people and these interviews highlighted an issue that needed to be addressed. I had originally planned to have the interview recordings transcribed by a third party while I was still in the field. The aim was to have the transcript available for coding in the field. This is because the GTM requires that each interview be coded and the themes from the previous interview incorporated into the questions for the next interview. A transcription provider from Sydney, Australia was
chosen; however, the provider had trouble transcribing the interviews. Aboriginal people tend to speak a version of Aboriginal English which incorporates traditional language and Aboriginal slang. Examples of words that the service provider had trouble with are: ‘mob’ which refers to an Aboriginal person’s traditional tribal clan and ‘gubba’ which refers to non-Indigenous people. Some Aboriginal people either add or drop consonants to different words. Words like ‘over’ can be pronounced ‘h-over’ and the word ‘him’ can be pronounced ‘im’. The provider had difficulty in producing a quality transcription and it took me approximately 1.5 hours to edit each of the three test transcripts. The original voice recording had to be used for verification. To ensure the GTM was strictly adhered to, I decided to transcribe the interviews myself in the field.

A research design that enabled me to implement the GTM was successfully achieved. It fulfilled the University’s Human Ethics Committee requirements, and it addressed the addition procedures of the NHMRC and AIATSIS for Aboriginal participants.

### 3.6 Conclusion

This chapter has outlined the assumptions, approach and research design. Utilising the classic Grounded Theory Methodology combined with multiple case studies, this research explores the factors affecting Indigenous household ICT adoption across three Indigenous communities—rural, urban and remote. Taking an Indigenist interpretive approach, the research assumes a subjective epistemology and takes the ontological view that reality is socially constructed.

This chapter has discussed in detail the research approach to this study where propositions from the foundation case (Chapter 4) would be tested in the second
(Chapter 5) and third (Chapter 6) case studies. The propositions would then be delimited to form the final theoretical construct in Chapter 7.

The next chapter provides the empirical data from the foundation case study and forms the first theoretical framework.
Chapter 4  Foundation Case: The Rural Indigenous Community

4.1 Introduction

This chapter describes the first case study, or the foundation case for this thesis. In accordance with the research ethics protocols, the specific location will be not be mentioned throughout the thesis.

This chapter examines the factors affecting the household adoption of Information and Communication Technology (ICT) in a rural Indigenous community of Australia. The concept of an ‘Indigenous community’ is abstract as the Indigenous community is made up of those people who identify as being either Aboriginal or Torres Strait Islander. The official definition of Indigenous was outlined in Chapter 1. The Indigenous community in this chapter is defined as those Aboriginal people that live within the local government area of the township that is being sampled. The Australian Bureau of Statistics (ABS) defines a community as a geographic location where a group of people, with shared interests, is bound by a local government boundary, who share a common governance structure (Australian Bureau of Statistics 2001b; Australian Bureau of Statistics 2004b). The community in this chapter falls under the governance of one local shire council. The area in this study is classified by the ABS as an ‘inner regional’ area of Australia. The ABS states that Inner Regional Australia is defined in the remoteness structure as those areas where geographic distance imposes some restriction upon accessibility to the widest range of goods, services, and opportunities for social interaction (Australian Bureau of Statistics 2004b).
The Indigenous community in this case study was specifically chosen in accordance with Eisenhardt (1989) as it presents a rich source of data and provides an opportunity to extend the principles of adoption theory.

This community was chosen for two primary reasons. Firstly, the community provides a rich case study. The Indigenous community is split into two areas—the main township and the old mission (this is discussed further in section 4.2). Secondly, I was known to some members of the Indigenous community who live in the area, and it was hoped that this would assist in the early stages of participant recruitment (this is discussed further in section 4.3 and Appendix E). It should also be noted here that I had lived in this location for approximately two years but had not lived in the community for approximately nine years prior to the data collection.

This chapter is structured as follows. This section provides the introduction to the chapter. Section 4.2 provides the context for the research area through the use of Australian Bureau of Statistics Census data. Section 4.3 discusses the data collection methods used in the rural area. Section 4.4 discusses the investigation and emergence of the core categories. Section 4.5 details how the factors from the core categories interact with each other. Section 4.6 discusses theory building and develops the foundations for the first theoretical framework. Section 4.7 discusses the propositions to be investigated in the second case study and informs the reader of where theoretical sampling will be undertaken. Section 4.8 concludes this chapter.
4.2 Case Profile

Firstly, it is important to profile the Indigenous community being examined, as context is vital to understanding Indigenous household ICT adoption in the rural setting. Like a number of rural townships in Australia, the rural community in this study has both an ‘integrated’ Indigenous community and a geographically separate Indigenous community. By integrated I mean that there is a population of Indigenous people who live in the broader community or what could be described as the main township. The separate Indigenous community, as the term suggests, is quite literally separated from the main township. The distance between the old mission and the main township, in this case study, is approximately 5 kilometres. In this chapter the term ‘Indigenous community’ will mean the combined community of the separate and integrated Indigenous communities.

This separate Indigenous community is known as the ‘Mission’. Missions were used as a ‘holding place’ for Aboriginal people during less tolerant times in Australia’s political history. The formal terminology for a Mission in New South Wales (NSW) was Reserve. The Reserves first came into being in NSW in 1883 after the establishment of the NSW Aboriginal Protection Board. The Board’s policy was that all Aboriginal people should live on Reserves, and by 1900 there were some 133 Aboriginal Reserves (Parbury 1988). The primary purpose of these Reserves was to separate Aboriginal people from non-Aboriginal people as society was concerned about whites being raised and living among blacks (Armitage 1995; Davis-Hurst 1996). Traditional practices, language and ceremonies were banned on the Reserves and severe penalties ensured that the bans were observed. Moreover, these penalties extended to Aboriginal people
participating in ‘threatening or abusive language, card games, and intoxication’ (Parbury 1988, p.88). However, this changed in 1967.

In 1967, residents of Australia voted in a referendum to count Aboriginal people in the Australian Census and to give Aboriginal people equal rights (Attwood and Markus 2007). With an affirmative result of 90.8%, it remains the largest ‘Yes’ vote in Australia’s history of referenda (Australian Bureau of Statistics 2004c). As a result of the referendum, the Aborigines Protection Act 1909 was amended and the fences that bounded the mission were simply taken down and the legislative restrictions on Aboriginal people were removed (Australian Government 1969). While there is no longer a Government requirement for Indigenous people to stay on the ‘Mission’, many Indigenous people still choose to live in these locations, albeit with modern infrastructure. The reason many people stayed at the mission’s location was that they had never known any other home or could no longer return to their traditional lands due to white settlement of their lands (Davis-Hurst 1996).

Currently, the old mission in this rural locality is home to a number of Aboriginal organisations that service the entire Indigenous population. These include organisations such as the Aboriginal Medical Service, Aboriginal Community Development Employment Projects Office, Aboriginal Legal Service, Aboriginal Pre-school, Aboriginal Secondary College and the Aboriginal Lands Council. All these organisations fall under the Corporations (Aboriginal and Torres Strait Islander) Act 2006, also known as the CATSI Act 2006 (Australian Government 2005a).

The rural township in this research has a total population of approximately 17,000, with an Indigenous population of approximately 1,250. In 2006, the Indigenous population represented 7.4% of the population (Australian Bureau of Statistics 2006a). The
Indigenous population was made up of approximately 1,073 living in the main township and 173 living on the old mission (Australian Bureau of Statistics 2006a).

The following tables outlined in this section provide context to this case study. The tables provide an overview of the socioeconomic status of the rural Indigenous community as well as educational, employment and Internet connection data. All tables are my calculations based on a number of ABS releases from the 2006 ABS Census data. The statistics that are demonstrated in this section have been researched and calculated and entered into this chapter retrospectively after the analysis of the first case study was completed. The purpose of these tables is to assist the reader in understanding and contextualising both the case study and the analysis of the case study. The data presented capture the salient aspects of economic engagement and the crucial social environment of this study. The data displayed are the data that are available from the ABS in the areas that have emerged as being important in the process of Indigenous household ICT adoption. The data provide part of the contextual framework of the case study.

### 4.2.1 School Qualifications

School qualifications provide an insight into formal educational attainment relative to opportunity. In 2006, just over 12.5% of Indigenous people had completed Year 12 in this community, which is less than half that of the non-Indigenous population at 25.4%. A total of 20.9% of the Indigenous population completed either Year 11 or 12. This is in contrast to the non-Indigenous population of which 32% completed Year 11 or Year 12. Some 29.2% of the Indigenous population completed Year 10, with 39.4% of the non-Indigenous population having completed Year 10. The most revealing insight into the highest level of school education in this community is when we examine Year 9 and
below. For the Indigenous community 49.8% only completed Year 9 or below which is in contrast to the non-Indigenous community at 28.6% (see Table 4.1). We can see from the data that more non-Indigenous people stay in school longer, and more attain a higher level of school education than Indigenous people attained.

Table 4.1: HIGHEST LEVEL OF SCHOOL EDUCATION (Source: ABS 2006)

<table>
<thead>
<tr>
<th>Highest Year of School Completed</th>
<th>Indigenous</th>
<th>Non-Indigenous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 12 or equivalent</td>
<td>12.5</td>
<td>25.4</td>
</tr>
<tr>
<td>Year 11 or equivalent</td>
<td>8.4</td>
<td>6.6</td>
</tr>
<tr>
<td>Year 10 or equivalent</td>
<td>29.2</td>
<td>39.4</td>
</tr>
<tr>
<td>Year 9 or equivalent</td>
<td>27.8</td>
<td>14.7</td>
</tr>
<tr>
<td>Year 8 or below</td>
<td>20.9</td>
<td>13.4</td>
</tr>
<tr>
<td>Did not go to school</td>
<td>1.1</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Number of persons as a percentage of those 15 years and over

4.2.2 Non-School Educational Qualifications

The 2006 Australian Census data also demonstrated a gap in non-school educational qualifications between the Indigenous and non-Indigenous community. The percentage of Indigenous people who completed non-school educational qualifications totals 16.3% which was approximately half that of the non-Indigenous population of 31.2% (see Table 4.2). We can deduce from these figures that almost twice as many non-Indigenous people had attained post-secondary qualifications as Indigenous people in this rural community.
Table 4.2: LEVEL OF NON-SCHOOL EDUCATIONAL QUALIFICATIONS (Source: ABS 2006)

<table>
<thead>
<tr>
<th>Level of non School Education</th>
<th>Indigenous</th>
<th>Non-Indigenous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postgraduate Degree</td>
<td>0.4</td>
<td>0.5</td>
</tr>
<tr>
<td>Graduate Diploma or Graduate Certificate</td>
<td>0.0</td>
<td>0.8</td>
</tr>
<tr>
<td>Bachelor Degree</td>
<td>1.5</td>
<td>4.7</td>
</tr>
<tr>
<td>Advanced Diploma or Diploma Certificate Level</td>
<td>1.9</td>
<td>5.2</td>
</tr>
<tr>
<td>Certificate Level</td>
<td>12.5</td>
<td>20.0</td>
</tr>
</tbody>
</table>

Number of persons as a percentage of those 15 years and over with qualifications

4.2.3 Labour Force

Employment and labour force participation data for the rural community are displayed in Table 4.3. The Indigenous unemployment rate in this community in 2006 was three times that of the non-Indigenous labour force, with Indigenous unemployment at 34.8% and non-Indigenous unemployment at 10.1%. The census data demonstrate that the total number of the Indigenous population in employment was just 26.7% compared to 45.9% for the non-Indigenous population (see Table 4.3).

Table 4.3: LABOUR FORCE STATUS (Source: ABS 2006)

<table>
<thead>
<tr>
<th>Labour Force Status</th>
<th>Indigenous</th>
<th>Non-Indigenous</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Employment of population (a)</td>
<td>26.7</td>
<td>45.9</td>
</tr>
<tr>
<td>% Labour force participation (b)</td>
<td>40.9</td>
<td>51.0</td>
</tr>
<tr>
<td>% Unemployment (c)</td>
<td>34.8</td>
<td>10.1</td>
</tr>
</tbody>
</table>

a – Number of persons employed as a percentage of those 15 years and over
b – Number of persons in labour force as a percentage of those 15 years and over
c – Number of persons unemployed as a percentage of those 15 years and over
4.2.4 Family Status

The demographic data of the household in this rural community assist in providing a fuller contextual framework. Census data show that a total of 81.9% of all Indigenous households are family households in contrast to a total of 65.1% of all non-Indigenous households. The data also show that there is over three times the incidence of one parent families in Indigenous households at 40.0%, as compared with non-Indigenous households at 11.9%. The data demonstrate that there are twice as many lone person households in the non-Indigenous community at 32.2% as in the Indigenous community at 14.1% (see Table 4.4).

Table 4.4: FAMILY STATUS (Source: ABS 2006)

<table>
<thead>
<tr>
<th>Family Status</th>
<th>Indigenous</th>
<th>Non-Indigenous</th>
</tr>
</thead>
<tbody>
<tr>
<td>One family households:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Couple family with no children</td>
<td>11.9</td>
<td>28.9</td>
</tr>
<tr>
<td>Couple family with children</td>
<td>25.4</td>
<td>22.7</td>
</tr>
<tr>
<td>One parent family</td>
<td>40.0</td>
<td>11.9</td>
</tr>
<tr>
<td>Other family</td>
<td>1.3</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>78.6</td>
<td>64.3</td>
</tr>
<tr>
<td>Multiple family households</td>
<td>3.3</td>
<td>0.8</td>
</tr>
<tr>
<td>Total family households</td>
<td>81.9</td>
<td>65.1</td>
</tr>
<tr>
<td>Lone person households</td>
<td>14.1</td>
<td>32.2</td>
</tr>
<tr>
<td>Group households</td>
<td>4.0</td>
<td>2.7</td>
</tr>
</tbody>
</table>

4.2.5 Households with Internet Connection

The 2006 Australian Census data provide a quantitative overview of the level of ICT adoption in households in this rural community (see Table 4.5). The data show the total number of households in the rural community and the total number of those households...
connected to the Internet as a percentage of the total number of houses. From the data we can extrapolate that approximately 140 Indigenous households or 31.2% of all Indigenous households have an Internet connection while 2,906 or 46.0% of all non-Indigenous households have an Internet connection.

Table 4.5: NUMBER OF HOUSEHOLDS AND PERCENTAGE WITH INTERNET CONNECTION (Source: ABS 2006)

<table>
<thead>
<tr>
<th>Total number of households</th>
<th>Indigenous</th>
<th>451</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-Indigenous</td>
<td>6,319</td>
</tr>
<tr>
<td>Total number of households with Internet connection</td>
<td>Indigenous</td>
<td>140</td>
</tr>
<tr>
<td></td>
<td>Non-Indigenous</td>
<td>2,906</td>
</tr>
<tr>
<td>% with Internet connection</td>
<td>Indigenous</td>
<td>31.2</td>
</tr>
<tr>
<td></td>
<td>Non-Indigenous</td>
<td>46.0</td>
</tr>
</tbody>
</table>

4.2.6 Household Income

The 2006 Australian Census provides data on mean weekly household income. For Indigenous households in this rural community the mean weekly income was $697.55. The non-Indigenous households’ mean weekly income was significantly higher at $827.77 (see Table 4.6). This demonstrates a difference between the average Indigenous and non-Indigenous household incomes of approximately $130 per week or 15.7%.

Table 4.6: MEAN WEEKLY HOUSEHOLD INCOMES (Source: ABS 2006)

<table>
<thead>
<tr>
<th>Mean household income</th>
<th>Indigenous</th>
<th>$697.55</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-Indigenous</td>
<td>$827.77</td>
</tr>
</tbody>
</table>
4.2.7 Household Size

Figure 4.1 highlights the proportional household size difference between Indigenous and non-Indigenous households in the rural community. The diagram shows that approximately 26% of Indigenous households are two person households in contrast to approximately 36% of non-Indigenous households. At the other end of the scale there were approximately 14% of Indigenous households with six or more persons and just 2% of non-Indigenous households with six or more persons. This demonstrates that Indigenous households tend to be larger than non-Indigenous households.

![Proportional household size graph](image)

**Figure 4.1: PROPORTIONAL HOUSEHOLD SIZE (Source: ABS 2006)**

This section has provided an overview of the quantitative measures that are available from the ABS regarding the community in this case study. It demonstrates the disparity in the core areas of interest of this case study between Indigenous and non-Indigenous households.
4.3 Data Collection for the Rural Community

The case study text is based on twelve interviews which produced 7 hours and 39 minutes of interview recording. When transcribed, these interviews produced 151 pages of text. These interviews were collected over a period of 34 days.

Interviewees were chosen incidental to the opportunity presented. That is, interviewees were chosen where opportunity permitted and by referrals from the previous interviewee or Aboriginal organisations. All interviewees were over the age of 18 and were in decision-making positions within their respective households. For family households the parent or guardian was the interviewee, and in other households the interviewees were self-nominated heads of households. There was a mixture of both male and female participants. During data collection there was a number of potential interviewees who either refused to be interviewed or were too busy to be interviewed.

The time taken for each interview varied as outlined in the summary of interview data (see Table 4.7), but on average was 45 minutes. The interviews were conducted at a number of locations including community organisations, schools, in the local forest areas owned by the local Aboriginal Land Council, and in homes. Out of the twelve participants, nine were from the main township with three or 25% of all respondents to this case study residing on the old mission, which is roughly the proportion of the Indigenous community living on the old mission (see Section 4.2). For more detail on data collection in the rural community see Appendix E.
Table 4.7: SUMMARY OF INTERVIEW DATA

<table>
<thead>
<tr>
<th>Participant</th>
<th>Recording File Name</th>
<th>Transcribed .rft File Name</th>
<th>Length of Interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural Participant 1</td>
<td>2005-03-18-1</td>
<td>Rural_1</td>
<td>1:03:33</td>
</tr>
<tr>
<td>Rural Participant 2</td>
<td>2005-03-18-2</td>
<td>Rural_2</td>
<td>39:11</td>
</tr>
<tr>
<td>Rural Participant 3</td>
<td>2005-03-19-1</td>
<td>Rural_3</td>
<td>33:24</td>
</tr>
<tr>
<td>Rural Participant 4</td>
<td>2005-03-22-1</td>
<td>Rural_4</td>
<td>34:34</td>
</tr>
<tr>
<td>Rural Participant 5</td>
<td>2005-03-27-1</td>
<td>Rural_5</td>
<td>21:21</td>
</tr>
<tr>
<td>Rural Participant 6</td>
<td>2005-03-27-2</td>
<td>Rural_6</td>
<td>23:45</td>
</tr>
<tr>
<td>Rural Participant 7</td>
<td>2005-03-29-1</td>
<td>Rural_7</td>
<td>1:02:33</td>
</tr>
<tr>
<td>Rural Participant 8</td>
<td>2005-03-29-2</td>
<td>Rural_8</td>
<td>33:09</td>
</tr>
<tr>
<td>Rural Participant 9</td>
<td>2005-04-01-1</td>
<td>Rural_9</td>
<td>59:29</td>
</tr>
<tr>
<td>Rural Participant 10</td>
<td>2005-04-01-1</td>
<td>Rural_10</td>
<td>25:36</td>
</tr>
<tr>
<td>Rural Participant 11</td>
<td>2005-04-02-1</td>
<td>Rural_11</td>
<td>26:15</td>
</tr>
<tr>
<td>Rural Participant 12</td>
<td>2005-04-02-2</td>
<td>Rural_12</td>
<td>22:50</td>
</tr>
</tbody>
</table>

Each interview in this chapter is sourced by the allocated participant number according to the table above.

### 4.4 Investigation

As discussed previously, this study attempts to discover what factors affect the adoption of Information and Communication Technologies (ICTs) in Australian Indigenous households. The research examines factors that prevent adoption of ICTs in Indigenous households. The interviews were coded with reference to the research question (see Chapter 1). During the coding process each instance of factors that lead to home based adoption of ICTs was captured, and at the same time, factors that prevent Indigenous people from adopting ICTs in the household were also captured. The process of interpreting the data was broken down to enable constant comparison of the data as well as to provide a chain of evidence to demonstrate the path from interview to theory building. This fulfils the conditions of the GTM and complies with the requirements of theory building (Eisenhardt and Graebner 2007; Eisenhardt 1989; Glaser 1992; Glaser and Kaplan 1996; Glaser and Strauss 1967; Whetten 1989). The breaking down and
constant comparison of the data from the interviews consisted of firstly identifying the factors and their associated properties and then grouping a number of categories together as a congruent set.

4.4.1 Categories and Domains

While undertaking the fieldwork, the interview text was open coded into 172 categories. At the completion of the data collection, coding was re-examined, and the categories were reduced to 77 by re-assigning codes that were conceptually duplicated (see Appendix C). During the theoretical coding twelve core categories emerged. The way these core categories emerged was to create a wall chart of all discovered factors. Then each factor was grouped under emergent categories. This grouping was done firstly by theoretical sorting and was then drawn up onto a whiteboard so that the interrelationships could be observed (see Appendix D). The 12 emergent core categories are listed below (see Table 4.8).

Table 4.8: EMERGENT CORE CATEGORIES

<table>
<thead>
<tr>
<th>CORE CATEGORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
</tr>
<tr>
<td>Children</td>
</tr>
<tr>
<td>Employment</td>
</tr>
<tr>
<td>Flexible payment method</td>
</tr>
<tr>
<td>Family and friends with ICTs in their home</td>
</tr>
<tr>
<td>Researching Indigenous culture and family history</td>
</tr>
<tr>
<td>Poor financial management</td>
</tr>
<tr>
<td>Preference for face-to-face communication</td>
</tr>
<tr>
<td>Cost of ICTs</td>
</tr>
<tr>
<td>Substance abuse</td>
</tr>
<tr>
<td>Appropriate ICT training</td>
</tr>
<tr>
<td>Facing racism</td>
</tr>
</tbody>
</table>
4.4.2 The Emergent Domains

After examining the core categories and through constant comparison of the interviews, it was clear that a number of the core categories enabled the adoption of ICTs in the household, while other core categories prevented the adoption of ICTs in the household. The core categories fell into 2 emergent domains namely ‘Motivators’ and ‘Inhibitors’. The 2 domains emerged from the data during the analysis of the case and are grounded in the data and interview transcripts. There was a clear divide between the motivators and inhibitors in the emergent core categories. The concept of having motivating factors and inhibiting factors is salient to information systems adoption research as Venkatesh and Brown (2001) found in their study of household ICT adoption. Their study found that there are both barriers to and enablers of technology adoption which were not simply the converse of each other—rather there are discrete sets of factors that both enable adoption and present a barrier to adoption (Brown and Venkatesh 2005; Venkatesh and Brown 2001). The research findings in this thesis are similar in that there are both motivator and inhibitor factors of adoption and these are not simply the converse of the same concept. Rather, they are, in most cases, different concepts.

The concept of motivators and inhibitors reflects the influence that the categories, under each of the domains, has on the Indigenous household ICT adoption process. Both domains are an attempt to reflect the dynamics of the Indigenous household ICT adoption process. The term motivator is used to assert that there are factors that motivate Indigenous households to adopt ICTs. Concurrently, the same applies to inhibitor factors, in that inhibiting factors prevent Indigenous household ICT adoption. When the emergent aspects of the Indigenous ICT adoption process are divided into the two domains the core category table looks like this (see Table 4.9).
Motivators – are those things that provide a motivational influence on Indigenous people to adopt ICTs in the home.

Inhibitors – are described as those things that prevent Indigenous people from adopting ICTs for use in the home.

Table 4.9: DOMAINS AND THEIR CORE CATEGORIES

<table>
<thead>
<tr>
<th>MOTIVATORS</th>
<th>INHIBITORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>Facing racism</td>
</tr>
<tr>
<td>Children</td>
<td>Poor financial management</td>
</tr>
<tr>
<td>Employment</td>
<td>Preference for face-to-face communication</td>
</tr>
<tr>
<td>Flexible payment method</td>
<td>Cost of ICTs</td>
</tr>
<tr>
<td>Family and friends with ICTs in their home</td>
<td>Appropriate ICT training</td>
</tr>
<tr>
<td>Researching Indigenous culture and family history</td>
<td>Substance abuse</td>
</tr>
</tbody>
</table>

Taking these concepts and conceptualising the core categories, we find that there are four core emergent concepts in the motivator domain and four core emergent concepts in the inhibitor domain (see Table 4.10).

Table 4.10: EMERGENT CONCEPTUAL PROPERTIES OF THE DOMAINS

<table>
<thead>
<tr>
<th>MOTIVATORS</th>
<th>INHIBITORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Exposure in environment</td>
<td>1. Negative behaviour</td>
</tr>
<tr>
<td>1a. Education</td>
<td>1a. Substance abuse</td>
</tr>
<tr>
<td>1b. Employment</td>
<td>1b. Poor financial management</td>
</tr>
<tr>
<td>1c. Family and Friends with ICTs in their Home</td>
<td>2. Individual needs</td>
</tr>
<tr>
<td></td>
<td>2a. Preference for face-to-face communication</td>
</tr>
<tr>
<td></td>
<td>2b. Appropriate ICT training</td>
</tr>
<tr>
<td>2. Household lifecycle</td>
<td>3. Costs</td>
</tr>
<tr>
<td>2a. Children</td>
<td>3a. Cost of ICTs</td>
</tr>
<tr>
<td>3. Cost flexibility</td>
<td>4. Racism</td>
</tr>
<tr>
<td>3a. Flexible payment method</td>
<td>4a. Facing racism</td>
</tr>
</tbody>
</table>

Each core category will be described in more detail below.
4.4.3 Domains and their Meaning

The names of the two domains were not arbitrarily chosen, rather they were chosen to reflect the influence they have on the Indigenous household ICT adoption process. As discussed above, the two domain names emerged from the core categories and with the distinction between the two. That is, one positively affects the adoption process and the other negatively affects the adoption process. This provides a view of how and what motivates or inhibits Indigenous household ICT adoption.

The motivator domain was developed during theoretical coding of the core categories. The motivator domain first started as the concept ‘effective use’. This later became the motivator domain during theoretical coding as outlined in one of my memos below.

Each memo listed in this thesis is from my field notes which have been written up into Atlas.ti which is the software used to undertake the analysis of the case study interview texts. All memos will be referenced with my initials (PR) the date first created and last time it was updated. As discussed in Chapter 3 memos can have spelling and grammar errors, which, at my request, have not been corrected by the editor. Ideas are written down before they are forgotten and transcribed here exactly as in my field notes.

Up until now I have been using the word effective use to describe conceptually the aspects of ICT use by Aboriginal people. This is because I asked a question about what do they think is good use of ICT for Aboriginal people. Most of the replies come from what they currently do now. That is, they didn't speculate on what might be good use but told me what aspects of their use are good for Aboriginal people. Therefore, I have decided to remove the term effective use from my codes and replace it with the word motivator. Because when I examine the data more critically it looks like effective uses are really the motivation to use the technology or at least the reasons to use the technology.

(PR, 11/01/05-21/7/08)
The inhibitor domain was also developed through theoretical coding. The inhibitor domain first started as the term ‘barriers’. During the memoing process ‘barriers’ became inhibitors. Inhibitors are a more accurate description as the word barrier implies something you have go around or something physical that stops something, whereas inhibitors are things that prevent something occurring. An inhibitor is not necessarily something physical but can also be something that is perceived. To better explain this decision one of my memos is provided below.

*The concept barriers has connotations that there is something physical like a structure stopping a person partaking in the use of ICTs. Rather and on reflection of what is going on I believe a better more appropriate word would be inhibitor. As such I will now use the word inhibitor which rather than being a structure preventing the use of ICTs it is an agent that slows or interferes with the use of ICTs.*

(PR, 08/11/04-01/03/05)

There is interaction between the two domains which is discussed in section 4.5. In terms of the process of ICT adoption there is a constant battle between the two domains. This is outlined in my memo below.

*There seems to be a battle of the titans between Inhibitors and Motivators when it comes to ICT home based use by Aboriginal people. It looks like Inhibitors are what prevents Aboriginal people from using ICTs in the home and Motivators are just that, things that Motivate Aboriginal people to use ICTs in the home. This issue for now is that Inhibitors are winning the battle by a long way.*

(PR, 18/04/05-21/07/08)

In the following section, factors and their properties from both the Motivator and Inhibitor domains are explained in more detail.
4.4.4 Motivator Domain

As described above, the motivator domain contains those factors that influence or enable Indigenous household adoption of ICTs. The following describes each sub-category in the motivator domain. Each sub-category or factor has emerged from the data. To demonstrate the chain of evidence, factors will be presented with samples of the interview narrative, and where appropriate with memos which are derived from constant comparison of the interviews as required by the methodology (see Chapter 4).

Table 4.11: MOTIVATOR DOMAIN CONCEPTUAL PROPERTIES

<table>
<thead>
<tr>
<th>MOTIVATORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Exposure in environment</td>
</tr>
<tr>
<td>1a. Education</td>
</tr>
<tr>
<td>1b. Employment</td>
</tr>
<tr>
<td>1c. Family and friends with ICTs in their home</td>
</tr>
<tr>
<td>2. Household lifecycle</td>
</tr>
<tr>
<td>2a. Children</td>
</tr>
<tr>
<td>3. Cost flexibility</td>
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<td>3a. Flexible payment method</td>
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<td>4. Keeping culture</td>
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<td>4a. Researching Indigenous culture and family history</td>
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1. Exposure in environment relates specifically to an individual’s environment which they frequent—where they normally visit and interact with the broader society. Three factors emerged in this category from the data, namely: 1a. Education, 1b. Employment, and 1c. Family and friends with ICTs in their home. These three factors have been grouped in this category, as these three localities are where Indigenous people are exposed to ICT on a regular basis and are where Indigenous people use ICTs and begin to form an opinion regarding ICTs. Being exposed to ICTs strongly influences Indigenous people to adopt ICTs into the household. This is because Indigenous people see the value of the ICTs. Moreover, they see the capabilities of ICTs
and their compatibility within their work, educational and social environments. The importance of Indigenous people having exposure to ICTs emerged quite early in the memoing process as one of my memos articulates below:

Having exposure is important in introducing new technologies. This exposure is within a person’s own environment where all things are normal to them and where technology is introduced

(PR, 23/09/05, 25/10/08).

1a. Education is a core factor that relates to those who are currently studying in some form of education regardless of their age. Education is a more formal aspect of Exposure in environment. Education is a lifelong pursuit that takes place in the home, community and society (Sutherland 2003). Education and, in particular, educational institutions play an important role in influencing Indigenous household ICT adoption. Moreover, it is demonstrated in the data that using ICTs in an education institution such as in primary school, high school or Technical and Further Education Colleges, is a strong determining factor in household adoption of ICTs by Indigenous people. It should be noted that education is compulsory for all Australian children from the age of 6 to 15 years in the jurisdiction where the data were collected.

Some Indigenous individuals and Indigenous families use ICTs extensively for educational purposes. It emerged from the data that being exposed to ICTs every day in an educational institution creates a sense of ‘normal’ ICT use in everyday life.

Q. What about the kids. Do they learn computers at school?
A. They start in Kindergarten.
Q. And does she bring work home?
A. She bought some forestry research home the other day. She typed ‘rainforest’ in to the computer and she hit search and she picked out what she wanted.

Q. Then she takes that to school then?

A. She prints pictures off and things like that.

(Rural Participant 4)

Another participant commented about post-schooling study:

Q. So you are doing a TAFE course?

A. Yes.

Q. Is that essential to your course using computers?

A. Yes, we have to do two modules of computers to pass the course.

(Rural Participant 2)

There were a number of cases in the data where Indigenous parents had invested in a computer in the home, but only invested in Internet access as their children’s studies required it. One such example of this is highlighted by a parent stating that they have a computer but when questioned about whether they had Internet access their reply was ‘well, I haven't got to that stage yet.’ These ‘stages’ may in fact be driven by the need inside the household which, in this case, is the children’s educational requirements. The participant stated that ‘when the older grandchildren, the two eldest, they have started high school this year, when their assignments start catching up with them they will want to have access to it [the Internet].’

1b. Employment emerged as a factor that influences Indigenous household adoption of ICTs. As discussed under Education above, exposure in the immediate environment is a driving factor to Indigenous home base ICT use. Likewise employment is a factor. The use of ICTs in employment is conceptually the same as in education in that it is the everyday use of ICTs in the workplace that provides the exposure in the environment
that leads to the forming of ICT skills that in turn leads to household ICT adoption. It was confirmed in the data that those Indigenous people who have the type of employment that does not require use of ICTs are less likely to have ICTs in the home.

For some in the rural area, there seems to be an underlying willingness to use ICTs for purposes attached to the workplace if that provides the way to work outdoors. One example of this is where Indigenous people are working in the equestrian industry. One participant prepares reports about horses for the owners and provides additional reports for the veterinarian. The participant stated that she used the computer because it was part of her work duties, and that while she did not particularly like using computers in her role, it meant that she could work outdoors in a vocation which she enjoyed. Therefore, it could be argued that some Indigenous people use ICTs as a vehicle to a means rather than a means in itself.

1c. Family and friends with ICTs in their home relates to an individual’s immediate and extended family, as well as their friends, who have already adopted ICTs into their homes. It emerged from the data that having family and friends who have ICTs in the home has a positive influence on Indigenous household adoption of ICTs. This exposure to ICTs can be incidental to an Indigenous person’s normal activities. That is, the exposure only occurs when there is a need or desire to visit a family member or friend who has ICTs in the home. The conversation below demonstrates the impact of having both family and friends with ICTs in their home and the subsequent use of ICTs in the home.

Q. Do any of your other family have a computer?
A. Yes, my Nan does, my aunty does.
Q. What about friends?
A. Quite a few of my friends have computers.

Q. Is that why you have one?

A. Yes.

(Rural Participant 6)

And another,

Q. Because of your friends or your family?

A. Both really. My friends, I saw how the computer helped them a lot. So I needed to help my family with their education assignments, because we couldn’t go to the library all the time; it is pretty hard to do that.

(Rural Participant 5)

2. Household lifecycle is a core category that is to do with the cycle of household consumption behaviour of family households (Gilly and Enis 1982). More specifically, in this study the term relates to parents providing access to ICTs in the household for their children, but not necessarily for themselves. The term Household lifecycle is used to provide consistency with previous research (Brown and Venkatesh 2006). 2a. Children is a factor that relates specifically to having school-aged children in the household. This factor emerged as it was quite evident that Indigenous households understand the value of ICTs for their children’s education, even when they do not see any value in ICTs for themselves.

Determining why some Indigenous families with children engaged in ICTs in the home and others did not is difficult. While interviewing an Elder in the community, the question was posed ‘Why is it that some families and not others have computers and the Internet in the home?’ They replied that they believed that only the ‘good’ people who are ‘family oriented’ would in fact have a computer at home whereas those who ‘neglect’ their children would resist owning a computer in the house. This participant stated:
You will probably find that if you go to a house and they are good people and they are working and they are real family oriented you will probably find out that the kids have got computers. Then if you get the others, they don’t give a shit about their kids they wouldn’t bother with a computer because they would say that this something that we don’t need.

(Rural Participant 4)

The interviewee states that ‘family oriented’ people will have computers at home. Family orientation is a difficult and broad concept to understand, but as the interviewee states in the narrative, family orientation is essentially a proxy for employment, and the influence of employment on the Indigenous household ICT adoption process has been discussed above.

Exploring the understanding of household lifecycle effects further, another Elder in her mid 70s, when asked about why she had a computer in the home, stated:

They are a bloody nuisance to me. I am just not interested in computers [but] I think it's good for kids to learn. We have a nine year old [grand] daughter. She is a whiz on the computer and the grandkids they like it. And of course young people today are growing up with that and I'm too old to be going back and doing that sort of stuff now. I see a lot of things for and against computers. I have never had an interest in computers myself. But I've seen our daughter on it and the grandkids on it and I can see the benefits down the track for them.

(Rural Participant 11)

When we examine this statement we can see that even when there is fierce resistance to ICTs by the head of the household, the value of ICTs is not overlooked—often the
benefit is targeted at the next generation. The Elder did not use ICTs herself but ensured her daughter and grandchildren had access to ICTs in the home.

While some like the Elder above resisted using ICTs, it was found that the use of ICTs by children led to ICT use by the family. Moreover, it is the use of ICTs by the school aged children that has helped other members of the family to use ICTs. That is, children using ICTs in the school environment positively influences household ICT adoption.

The strength of household lifecycle effects is highlighted by one family who had six children, and relied totally on welfare for income.

**Q.** Do they use the computer at school?

**A.** Yes, they use computers, and they use video cameras. My kids, when they come home they want to get on the computer.

**Q.** So they use the computer at school, and they want to use it at home then?

**A.** Yes, so they could do their work and print it out, but we were letting them use the calculator on it.

**Q.** What made you buy a computer in the first place?

**A.** My kids.

*(Rural Participant 3)*

3. **Cost flexibility** is a core category that relates directly to the payment method for ICTs in the home. In the context of this study, 3a. **Flexible payment method** refers to a mode of payment that emerged from the data that is more acceptable to the Indigenous community. It is a method of payment that is easily incorporated into a household’s budget, namely payment by instalments.
Many Indigenous people prefer to have flexible payment methods to pay for their ICTs. An instalment plan or flexibility is something that is required for many Indigenous households to adopt ICTs, and operates in conjunction with other core categories like Exposure in environment.

Q. What about the purchase cost of the computer?

A. The laptop costs around about $1200 but I Inrent it (Inrent is a credit company that provides a method of paying off a computer monthly over three years).

(Rural Participant 8)

and another,

Q. How much is it worth?

A. Around $4000

Q. That is expensive.

A. I pay it out of my bank, fortnightly.

(Rural Participant 3)

It was found that having access to a flexible payment method to pay for ICTs in instalments is a motivator to adopting ICTs into the household.

4. Keeping culture is a core category that relates to 4a. Researching Indigenous culture and family history through ICTs, whether that is language, stories, images or family history research. Many Indigenous families use ICTs to research cultural materials, and then use the information from that research to maintain their culture. That is, they use ICTs to research aspects of their own culture that has been lost over the years, and this includes family history, language and cultural practices. This was demonstrated in the follow extracts from two interviewees.

A. I say [it] would be good a thing for Aboriginal kids to get involved in the computers and the Internet because they can go back and learn about
themselves, because if they want to know the culture and find out about the past they can.

Q. So you think you could use information technology to bring back culture?

A. Yes, bring their culture back and the language. I don’t know an Aboriginal person around here that can speak language. But the culture is lost at the moment, in a lot of communities—to me. Many don’t live by their own laws and they won’t live by the white law. They are somewhere in the middle, they don’t know where to go.

(Rural Participant 1)

and another,

Family is important. Go back and have a look at my family history. You only have to go back to mum and grandma and it is all lost, there is nothing there.

(Rural Participant 9)

4.4.5 Summary of the Motivator Domain

The four core categories in the motivator domain: Exposure in environment, Household lifecycle, Cost flexibility, and Keeping culture, have emerged during the theoretical coding process and are considered the core categories that motivate Indigenous households in this rural community to adopt ICTs.

It has emerged from the data that it is important to understand that no one single factor is responsible for an Indigenous household’s adopting ICTs; rather it is a combination of factors that leads to Indigenous household ICT adoption. That is, it is only when two or more motivating factors are combined that Indigenous household adoption of ICTs is realised. Figure 4.2 demonstrates the required interaction of multiple factors enabling
Indigenous household ICT adoption. Moreover, the core categories strengthen use of ICTs in the household as demonstrated in Figure 4.2.

Figure 4.2: MOTIVATOR DOMAIN DIAGRAM

The emergent key aspects of the motivating factors in the Indigenous household ICT adoption process have been discussed above. The Indigenous household ICT adoption process has both motivators and inhibitors, and this is common to adoption theories. The next section will discuss the inhibiting factors that are associated with Indigenous household ICT adoption.
4.4.6 Inhibitors

Inhibitors are the factors that prevent Indigenous household adoption of ICTs. It was discussed previously that the inhibitors domain emerged during analysis. There are four core categories in the inhibitor domain. The four core inhibiting categories and their associated sub-categories or factors are outlined below in Table 4.12.

Table 4.12: INHIBITOR DOMAIN CONCEPTUAL PROPERTIES

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1. **Negative behaviour** is a core category that relates directly to an individual’s behaviour in their environment. There are two aspects of Negative behaviour. 1a.

**Substance abuse** relates to the issue of substance abuse by the decision maker of the household which emerged in this study as the head of the household. The most common form of substance abuse that emerged from the data was excessive alcohol consumption. Alcohol consumption was found to be important to many Indigenous people in this study, and is considered by some as an important part of being Aboriginal. 1b. **Poor financial management** is a factor that relates to the ability of an Indigenous person to manage their finances. Many Indigenous people articulated that they found managing money very challenging and did not budget for larger expenses as they often spent their money as soon as they received it. It emerged from the data that
there is interplay between poor financial management and substance abuse. Moreover, substance abuse emerged as an antecedent of poor financial management.

When asked to comment on the link between income to purchase a computer and the issues of excessive alcohol consumption a participant replied:

*There is a lot of alcohol abuse, on the mission, but in town too. At the end of the day, it's about kids and about the parents. If the two parents have a habit to feed they're going to feed their habit before they do anything about widening their kids' focus on the world. You don't know what they're on; they might be on any sort of drug. Not just alcohol. There is also a big problem with gambling. Right across the board. I can only talk about Aboriginal families. I have nothing against my mob but I need to explain this to you because you talking about these things they need to be explained. They go into the pub. You see them go up and get about $10 worth of groceries, maybe $10 worth of meat and two loaves of bread and $60 worth of alcohol. So it doesn't add up. They have no motivation to do anything all the time. They swear, waiting for 10 a.m. to come along. You see 'em sitting out at the park at 10 o'clock waiting till 10 for the pub to open.*

*(Rural Participant 7)*

and another,

*Q. You think alcohol plays a part?*

*A. Yes, it plays a major part. It creates problems in the family and causes domestic violence. It is a vicious circle. But it is the kids that miss out. I remember and it still happens, when a youth was referred to me through the juvenile justice through the courts. The judge would ask for a full assessment, a full report, to present to the court. My priority was to do home visits. I had to look at all the circumstances relating to that kid. Why he was bored, why he had no money, because he had no food, and things like that. So I had to investigate the financial side of the things that came into the home.*

*(Rural Participant 9)*

and another,
Q. Do you think that alcohol plays a part of not having computers or other infrastructure at home?

A. Yes, well, it is.

Q. For a few or for the majority?

A. There are a lot of people in the community that it affects.

(Rural Participant 10)

The category of Negative behaviour was found to be an inhibiting force on Indigenous household ICT adoption in the rural community.

2. Individual needs is another core category that affects household ICT adoption. For many Indigenous people in the region, face-to-face communication is important and considered a cultural component of an individual’s life. 2a. Preference for face-to-face communication relates to the preferred form of communication for Indigenous individuals in the rural community. Face-to-face communication is a complex concept as it has many aspects that are associated with an individual such as building trust, and is important at least in the first instance. While some would argue that face-to-face communication is a preferable mode of communication throughout all cultures, there is no doubt that face-to-face communication or the preference to communicate face-to-face is an important component of being Indigenous. Moreover, face-to-face communication is considered vital to some Indigenous people and is highlighted below:

Q. Is face-to-face important to you because it is trust? Or do you think it is a cultural thing?

A. It is the way I have been brought up, so has to be a cultural thing.

(Rural Participant 9)

2b. Appropriate ICT training relates to the appropriateness of ICT training for the Indigenous person. It emerged from the data that if the ICT training is appropriate and
relevant, then the student would consider the training to be good. Conversely if the student does not consider the training to be appropriate then an individual can feel disempowered and can be left feeling that the technology is even more complicated than they thought.

Appropriate ICT training is associated with the form of training that is acceptable to Indigenous people as highlighted below in the following narrative:

*I think it is a known fact, that [if you] have dealt with Aboriginal people that Aboriginal people learn best with practical, not theory. Theory is a really boring way for Aboriginal people to learn. Aboriginal people for thousands of years have been taught practical. They go out in the bush; if you spear the fish you get a feed. But if you didn't, you would starve. Every day of the week years ago for Aboriginal people was practice with practical, practical, practical training. Then I would go out as a youth worker and get pipis and do cultural stuff. The Aboriginal kids like that, but the white kids I think they enjoyed it. For the white kids it was a thing to do at that time for Aboriginal kids it was let's go.*

*(Rural Participant 7)*

This participant is explaining that Indigenous children learn better with hands on practical interactive forms of education, which is commonly known across the Australian education system (Harris 1990; Ryan 1992; Schwab and Sutherland 2001; Sutherland 2003). The participant further suggests that the Indigenous children were undertaking this activity to further their understanding of their culture, whereas the non-Indigenous children were undertaking the activity as something to do.

It is accepted that Indigenous people benefit from a particular style of teaching (McConaghy 2000). This is also evident from the number of Indigenous schools throughout Australia (New South Wales Government 2003; Sutherland 2003). Governments across Australia have struggled with Indigenous people completing their
education, trying to improve mathematics and English literacy outcomes and educational participation for many years with limited success (Mellor and Corrigan 2004). It is recognised that part of the issue of low outcomes and low educational attainment by Indigenous Australians is the education system itself as it focuses on cognitive learning styles rather than interactive forms of learning (Harris 1990; Sutherland 2003).

It was found in the rural community that ICT training needs to be specifically targeted to Indigenous people in a way that is practical and relevant. Therefore, the lack of appropriate ICT training, that is, the lack of interactive forms of ICT training, was found to be an inhibitor.

3. Costs relate directly to the initial and ongoing associated cost of ICTs. The term costs is used to be consistent with previous research (Davis 1993; Rogers 1995) 3a. Costs of ICTs is a factor that is associated with the initial investment costs of ICTs, which can be a considerable upfront cost, and it is also associated with ongoing costs of repairs, virus protection, Internet charges, as well as telephone line charges.

It emerged from the data that costs associated with the purchase and the ongoing access to a computer and the Internet in the household pose a problem to many in the rural Indigenous community. A number of participants commented on the large initial outlay of purchasing a computer and the associated costs of Internet access. It has been discussed under the Negative behaviour category that poor financial management is an issue with regard to the adoption of ICTs in the household by Indigenous people. However, the majority of Indigenous people in this study prefer a method of payment of which they are more in control, that is prepayment. Where prepayment was not
available, a number of households purchased a computer on a payment plan or by renting the computer. This aspect was discussed under the motivator domain under the heading Cost flexibility (see Section 4.4.4). One participant stated that costs are important in the decision to adopt a computer into the household as outlined below.

Mainly cost, low income families you are looking at over a couple of thousand dollars for a reasonable computer and you have to update it mainly the costs. If I had two or three thousand dollars to spend I couldn't afford to spend it on a computer.

(Rural Participant 1)

4. **Racism** emerged as a core category that relates to racial issues in the broader environment whether they are perceived or real. Indigenous people have a diverse biological heritage. Moreover, Indigenous Australians have physical features that are distinct from non-Indigenous Australians, such as skin colour (Kohen 1995). These distinct differences were found to have an influence on the Indigenous household ICT adoption process. The term racism is found in labour market research and is used here to be consistent with previous research (Booth et al. 2009; Hunter 2005). The factor 4a. **Facing racism** relates specifically to the perception of Indigenous people of themselves in the context of both the wider Australian society and the labour market. That is, the core category Racism relates directly to and has a strong interrelationship with factor 1b. Employment in the motivator domain (see Section 4.4.4) as racism precludes Indigenous people from gaining employment which has the effect of reducing the exposure to ICTs in the workplace.

Many Indigenous people claim to have experienced racism when seeking employment. Facing racism emerged from the rural data as an important factor in not having employment. When investigating this further, one participant stated:
A. Some of us ask for a job we can’t get it. So we go back onto CDEP [The Community Development Employment Projects (CDEP) is a publicly funded employment program which is designed to address labour market disadvantage for the Indigenous community (Altman and Gray 2000)].

Q. Why is that?

A. Mostly because the people around here are racist, it is a pretty racist town.

(Rural Participant 8)

and another,

A. You don't see many Aboriginals working anywhere in this town...at the moment, we have about 10 Aboriginal people at most working in supermarkets. But there's no Aboriginal person working in any other organisation or business.

Q. And that is because the town doesn't trust Aboriginal people?

A. It is a very racist town.

(Rural Participant 10)

These comments demonstrate that Indigenous people in this rural area believe that they face prejudice when seeking employment. However, this ‘racism’ may be much more widespread in the rural township more generally. The broad issue of racism in this rural context is best summed up by this participant who when discussing issues of race stated:

I went down to the second-hand shop the other day, and the lady behind the counter said the only thing that she doesn't like about the shop is the Aboriginals because they stink. You hear those sorts of comments all the time. Because I look more white than black. So I hear those sorts of comments all the time... We have had parties here and we have had Aboriginal kids out the back and the people at the party have said fuck off you black cunts. I have had to say mate you are forgetting where you are. I would say the reason why the Aboriginal kids are here is because they are associating with my kids and my kids are Aboriginal.

(Rural Participant 1)
While these may be considered isolated incidents, they clearly demonstrate that Indigenous people face racial prejudice throughout this rural community. Racism is an important consideration as employment is a key motivating factor in Indigenous household ICT adoption and racism in the labour market reduces the employment opportunities for Indigenous people. As discussed above (see Section 4.4.4) employment is a key motivating factor that can lead to Indigenous household ICT adoption.

4.4.7 Summary of the Inhibitor Domain

The four categories in the inhibitor domain: Negative behaviour, Individual needs, Costs, and Racism, have emerged during the theoretical coding process and are considered the core categories that inhibit Indigenous households in the rural area from adopting ICTs.

It is important to understand that some inhibitors have a larger impact on the adoption process than others. It emerged from the data that if a household decision maker exhibits aspects of the Negative behaviour, Racism or Costs categories then the Indigenous household is less likely to adopt ICTs. Figure 4.3 demonstrates the impact of the factors that inhibit Indigenous household ICT adoption.
The emergent key aspects of the inhibiting factors in the Indigenous household ICT adoption process have been discussed above. There is interplay between the two domains. This interplay is discussed in the next section.

**4.5 How the Factors Interact: Motivators and Inhibitors**

In each domain, a number of the categories have an effect on other categories. This interplay is both within a single domain and across domains. Some factors impact directly on other factors. At the same time some factors have a larger influence on categories. While not all categories interact with each other, they all play a role in influencing the Indigenous household ICT adoption process. These interactions and influences are discussed below.
It emerged from the data that for Indigenous household ICT adoption to be realised, multiple criteria must be met. That is, there need to exist two or more motivating factors before Indigenous household ICT adoption is achieved. Concurrent with these two or more motivating factors, the likelihood of Indigenous household ICT adoption is reduced if either of the core inhibiting factors of Substance abuse and Facing racism also exists.

4.5.1 Factors and their Interactions and Influences

Interaction between categories is not just at the domain level—it is also at the core category level. The interactions are also interrelated; therefore it is best to see the entire interaction diagrammatically and then provide detail of the interaction (see Figure 4.4).
Figure 4.4: MOTIVATOR AND INHIBITOR DOMAIN INTERACTION

The motivator domain holds the key driving categories for Indigenous ICT household adoption. That is, motivators have a positive effect on Indigenous household ICT adoption.

Four core categories emerged within the motivator domain. Each core category has at least one or more factors which have been combined to produce the core category. It emerged from the data that *Exposure in environment* is a special category, in that it must be combined with at least one other category of either *Keeping culture, Household lifecycle and/or Cost flexibility* before Indigenous household adoption of ICTs is realised (see Figure 4.4).
The inhibitor domain holds the key inhibiting categories that prevent Indigenous household ICT adoption. That is, inhibitors have a negative effect on Indigenous household ICT adoption. It is demonstrated in Figure 4.4 that there is interplay between the motivator and inhibitor domains. The core category of Racism in the inhibitor domain has interplay with the core category of Exposure in environment in the motivator domain. The way these two categories interact with each other is that Racism impacts on Exposure in environment by precluding Indigenous people from employment. Without employment it is less likely that Indigenous household ICT adoption will occur.

There is also interplay between Costs in the inhibitor domain and Cost flexibility in the motivator domain. The way these categories interact is that, where the costs of purchasing ICTs for the household are inhibitive, Indigenous people can access flexible payment methods to overcome these inhibitions. That is, where cost is a consideration, Indigenous people are able to gain access to the capital market to purchase a computer and gain Internet access. The resulting effect of this interaction is that it produces an increase in the likelihood of Indigenous household ICT adoption.

The core motivating and inhibiting categories that have emerged from the data, the interactions between the categories and between the domains, have provided a first look at the Indigenous household ICT adoption process in a rural context. This provides a foundation to work towards the development of the first theoretical framework which is outlined below.
4.6 Towards the First Theoretical Framework

In this section the first theoretical framework of Indigenous household ICT adoption is developed from the factors discussed previously.

4.6.1 Theory Building

Theory building is described by Whetten (1989) as the development of a model that can have empirically testable hypotheses. There are five types of information systems (IS) theory. These five categories of theory are: Theory for analysing, Theory of explaining, Theory for predicting, Theory for simultaneously explaining and predicting and Theory for design and action (Gregor 2006). The research in this thesis is rooted in the Theory of explaining. That is, this research is attempting to explain the how and why of a particular phenomenon; it is not primarily concerned about predictions. This research is in contrast to the majority of information systems research which falls under the theory of predicting (Gregor 2006).

Theory building research can develop an enormous number of factors which are known as the ‘What’ in theory building. If all factors were incorporated in a model it would simply be providing a logical pathway of the phenomena rather than theory building. Therefore, it is important that only emergent core factors are incorporated in a model (Weick 1995; Whetten 1989). Moreover, including large numbers of factors can be an attempt to cover all aspects of a phenomenon. However, an exhaustive lists of factors and causal relationships does not constitute a theory—rather it is classified as a catalogue (Sutton and Staw 1995; Weick 1995). It is also important to remember that the grounded theory methodology which is the research methodology in this research is
an inductive process and the ‘right’ factors will emerge from the data. But as Whetten (1989) states, when first developing a theory, it is much better to include all factors and then refine the theory from there. This is the same with the grounded theory methodology approach in this research where a large set of factors has emerged from the data. It is only through constant comparison and theoretical sorting that the ‘right’ factors have emerged from the data. The next process in theory building is to discuss the factors’ interactions and the theory’s assumptions. This is considered the ‘theoretical glue that welds the model together’ (Whetten 1989, p.491).

4.6.2 Interactions of Categories and the Causal Effects on Indigenous Household ICT Adoption

In this section, the first theoretical framework is developed based on the findings from the rural Indigenous community. In the first instance the theoretical framework will be developed in the same order as the factors appear above.

*Exposure in environment*, which is the use of ICTs in employment and education and also having family and friends with ICTs in their home, is the first step in building the theoretical model. When *Exposure in environment* is broken down, we can see that employment and education are associated with the use of ICTs during employment or being engaged in the pursuit of education. That is, the using of ICTs in daily employment, where one has to use ICTs in the work environment, has a strong influence on Indigenous household ICT adoption. This is similar to education where it is a requirement to use ICTs in the education institution, thus forcing an individual to learn ICT skills and use of ICTs regardless of what that person thinks of them (see Figure 4.5).
The Family and Friends factor in Exposure in environment is associated with the immediate and extended social networks of an individual. Family and friends with ICTs in their home influence Indigenous household ICT adoption in that the use ICTs in the home has become a ‘normal’ everyday routine for an individual’s family and friends, so adopting of ICTs into their home is just a continuance of what is normal to an individual, or at least what has become to be considered normal for the household adopting the technology.

Household lifecycle effects are also important to the Indigenous household ICT adoption process and are the next step in building the theoretical model. The only Household lifecycle effect that emerged from the data relates directly to having school aged children in the home. Children in the household are an important aspect of Indigenous household ICT adoption. This is because children use ICTs at school and
they are also encouraged and sometimes required to use ICTs in the home to undertake or enhance their education. It is through this requirement or desire that the ICTs are adopted into the household. Children in the context of this thesis are new routine formers as they bring their ICT skills that they have learned from being immersed in the education institution, and this in turn shapes the parent’s routine and influences Indigenous household ICT adoption (see Figure 4.6).

Cost flexibility is included in the developing theoretical framework because financial considerations are important to the adoption of ICTs in Indigenous households. Families need to weigh up the options of what is and what is not important. It has emerged from the data that there is an understanding that technology is, in fact, quite important to the family and more specifically the children. However, it also emerged from the data that many consider ICTs to be too expensive. Changing this attitude towards technology has been achieved by some individuals through Cost flexibility. Cost flexibility enables Indigenous households to adopt ICTs through an instalment plan or flexible payment method over a period of time.

Keeping culture is associated with the use of technology or a reason to use the technology in the household. Keeping culture is a result of the adoption process in that it is a key reason not only for adopting ICTs but also for the ongoing use of ICTs. It has
emerged from the data that Keeping culture combined with Household lifecycle, Cost flexibility or Exposure in environment will increase the likelihood of Indigenous household ICT adoption. It also emerged that Indigenous household ICT use strengthens Keeping culture.

The motivator categories have been applied here to inform the theoretical framework and now the inhibitor categories will be considered.

Negative behaviour is a category that needs to be included in the developing theory. Negative behaviour has brought two factors together, namely, Substance abuse and Poor financial management. Excessive alcohol consumption is an antecedent of Poor financial management. The evidence shows that excessive consumption of alcohol impacts on the family unit by directly impacting on the household’s financial position which, in turn, leads to poor financial management. To some, the purchase of alcohol is their top priority and all other expenses or material needs are secondary. This exerts great pressure on the household finances and limits the purchase of items such as ICTs.

This means that if Negative behaviour is present in the Indigenous household it is less likely that the Indigenous household will adopt ICTs. Also Negative behaviour can prevent access to Cost flexibility which will also prevent Indigenous household ICT adoption.

Individual needs has two factors, namely Preference for face-to-face communication and Appropriate ICT Training. Preference for face-to-face communication in the context of this study is associated with an Indigenous person’s preference to engage in communication in a physical sense in the first instance. That is, there is a preference for
Indigenous people to engage in communication face-to-face. The Indigenous social norm of preference for face-to-face communication is vital for the establishment of ongoing dialogue between Indigenous people. Once the communication is established through face-to-face, then it was found in this study there is a general acceptance of communications through ICTs from then on. However, face-to-face is preferred over communications through ICTs for some in the Indigenous community.

*Appropriate ICT Training* is associated with the form of training that is acceptable to Indigenous people. Governments across Australia have struggled with Indigenous people completing their education (Sutherland 2003). It is accepted that Indigenous people benefit from a particular style of teaching. In an attempt to address the poor completion rates and provide an appropriate mode of education to Indigenous people a number of Indigenous schools have been established throughout Australia (New South Wales Government 2003; Sutherland 2003).

Not meeting the Individual needs of the *Preference for face-to-face communication* or *Appropriate ICT Training* of Indigenous people in the rural area reduces the likelihood of the adoption of ICTs in the household. This is because the *Preference for face-to-face communication* and *Appropriate ICT Training* are consider to be important to Indigenous Australians.

*Costs* are important to the Indigenous household ICT adoption process. *Costs* are a consideration in any purchase of expensive equipment and ICTs can be quite expensive. There are two aspects to this category that need to be considered and that is the initial purchase of the equipment and the ongoing costs that are associated with ICTs. While purchasing a computer can be a one-off payment, other aspects like Internet access are
ongoing costs. \textit{Costs} prevents Indigenous household ICT adoption but this can be overcome by Cost flexibility.

\textit{Racism} is associated with how Indigenous people are viewed in the labour market. Many Indigenous people claim to have personally experienced racism when seeking employment. This exclusion is real and something that constrains many Indigenous people (Fernandez and Fernandez-Mateo 2006; Gallie et al. 2003; Hooker 2005; Reynold 1996). The impact of this could be quite devastating and this in fact could lead, or may have already led, to Indigenous people in rural areas facing social exclusion from the economy by not being able to engage in employed work. We can observe that Indigenous people feel they are not considered to be trustworthy. We can also observe the low employment rate of Indigenous people in this rural area which limits the \textit{Exposure in environment} of ICTs (see Table 4.3, page 61).

The core categories and associated factors have been discussed above. When the influence of both the motivator and inhibitor domains are taken into account, the causal relationship diagram outlined below demonstrates the interactions and relationships discussed in this section (see Figure 4.7).
4.6.3 Developing the Propositions

The development of a theoretical model can have empirically testable components (Whetten 1989). This thesis takes the approach of developing testable components of the model through propositions rather than hypothesis as propositions are formed through indicative conditional factors (Denzin and Lincoln 1994). The additional strength of using propositions is the ability to have explanatory notes accompanying the
propositions (Beauchamp 1982; Denzin and Lincoln 1994). Now that there is a developing foundation of theoretical factors associated with the first case study, a set of propositions can be developed. These propositions will be grouped in their respective domains.

The largest impact on the motivational side of the Indigenous household adoption process is using ICTs in everyday life. It has emerged that only after Indigenous people use ICT on a regular basis is household ICT adoption realised. Therefore, the propositions aim to capture this as a major component of the developing model.

The first proposition is associated with the use of ICTs in the normal work environment.

*Proposition A. The use of ICTs in employment increases the likelihood of Indigenous household ICT adoption*

The second proposition is associated with the use of ICTs in the education environment.

*Proposition B. The use of ICTs in education increases the likelihood of Indigenous household ICT adoption*

The third proposition is associated with the influence of family and friends who have already adopted ICTs into their home on the Indigenous household ICT adoption process.

*Proposition C. Having family and friends with ICTs in their home increases the likelihood of Indigenous household ICT adoption*
The fourth proposition is associated with the household lifecycle effects of having children in the home who are undertaking education and who are using ICTs in the educational setting.

*Proposition D. Having school aged children in the household who use ICTs in school increases the likelihood of Indigenous household ICT adoption*

The fifth proposition is associated with the ability to gain access to flexible payment methods to purchase ICTs.

*Proposition E. Gaining access to flexible payment methods can increase the likelihood of Indigenous household ICT adoption*

The sixth proposition is associated with having a reason to use ICTs in the household.

*Proposition F. Wanting to research Indigenous cultures and family histories can increase the likelihood of Indigenous household ICT adoption*

The seventh proposition is associated with an Indigenous person’s negative behaviour.

*Proposition G. Substance abuse by the head of the household reduces the likelihood of Indigenous household ICT adoption*

The eighth proposition is associated with Indigenous people having poor financial management.
Proposition H. Poor financial management can reduce the likelihood of Indigenous household ICT adoption

The ninth proposition is associated with an Indigenous person’s preference for face-to-face communications.

Proposition I. The preference for face-to-face communication can reduce the likelihood of Indigenous household ICT adoption

The tenth proposition is associated with Indigenous people preferring to have appropriate ICT training.

Proposition J. Appropriate ICT training will increase the likelihood of Indigenous household ICT adoption

The eleventh proposition is associated with the high cost of ICTs.

Proposition K. High cost of ICTs can reduce the likelihood of Indigenous household ICT adoption

The twelfth proposition is associated with Indigenous people being denied access to employment due to racism.

Proposition L. Racial discrimination in the labour market can reduce the likelihood of Indigenous household ICT adoption
The motivational and inhibiting factors that have emerged from the rural case study have been captured by the development of the propositions above. Each proposition is grouped under each of the domains (see Table 4.13).

### Table 4.13: EMERGENT PROPOSITION TABLE FROM RURAL CASE STUDY

<table>
<thead>
<tr>
<th>INFLUENCE ON ICT ADOPTION</th>
<th>EMERGENT PROPOSITIONS FROM FIRST CASE STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GROUP 1</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MOTIVATORS OF HOUSEHOLD ICT ADOPTION</strong></td>
<td>Proposition A. The use of ICTs in employment increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition B. The use of ICTs in education increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition C. Having family and friends with ICTs in their home increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition D. Having school aged children in the household who use ICTs in school increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition E. Gaining access to flexible payment methods can increase the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition F. Wanting to research Indigenous cultures and family histories can increase the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition J. Appropriate ICT training will increase the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td><strong>GROUP 2</strong></td>
<td></td>
</tr>
<tr>
<td><strong>INHIBITORS OF HOUSEHOLD ICT ADOPTION</strong></td>
<td>Proposition G. Substance abuse by the head of the household reduces the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition H. Poor financial management can reduce the likelihood of Indigenous household ICT adoption</td>
</tr>
</tbody>
</table>
Proposition I. The preference for face-to-face communication can reduce the likelihood of Indigenous household ICT adoption

Proposition K. High cost of ICTs can reduce the likelihood of Indigenous household ICT adoption

Proposition L. Racial discrimination in the labour market can reduce the likelihood of Indigenous household ICT adoption

4.7 Theoretical Sampling – The Next Case

Grounded theory methodology requires that the researcher conducts theoretical sampling or adds a new slice of data to the case. Theoretical sampling is required to gain a deeper understanding of the analysed case study and facilitates further development and further strengthens the analytic framework that is used to explain the phenomenon being studied (Glaser 1998; Glaser and Strauss 1967).

Glaser and Strauss (1967) recommend that a researcher’s theoretical sample should maximise group differences to develop uniformity of the greatest scope (Glaser and Strauss 1967). That is, the choice of location for theoretical sampling should focus on the same conceptual sample but with group differences to enable the analytic framework to be more generalisable.

The urban Indigenous community is the next case in this thesis. As all Indigenous people have to meet the criteria of the ‘test of Aboriginality’ all Indigenous people regardless of where they live must fulfil the criteria to be officially categorised as Indigenous. Like the rural Indigenous community, the urban Indigenous community also has Indigenous owned services such as the Aboriginal Medical Service, Aboriginal Sports and Recreation Ground, Aboriginal Employment Services, and a number of other
Aboriginal corporations. Therefore, the urban area is conceptually the same as the rural area, in that there exists an Indigenous community. The group differences between the rural and urban Indigenous community are evidenced in the quantitative data provided by the Australian Bureau of Statistics and are discussed in Chapter 6, Section 6.2.

The core categories to be investigated in the urban area, to gain a deeper understanding of the concepts and further develop the theoretical framework, are listed below in Table 4.14.

Table 4.14: CATEGORIES TO BE INVESTIGATED FURTHER

<table>
<thead>
<tr>
<th>MOTIVATORS</th>
<th>INHIBITORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Exposure in environment</td>
<td>1. Negative behaviour</td>
</tr>
<tr>
<td>1a. Education</td>
<td>1a. Substance abuse</td>
</tr>
<tr>
<td>1b. Employment</td>
<td>1b. Poor financial management</td>
</tr>
<tr>
<td>1c. Family and friends with ICTs in their home</td>
<td></td>
</tr>
<tr>
<td>2. Household lifecycle</td>
<td>2. Individual needs</td>
</tr>
<tr>
<td>2a. Children</td>
<td>2a. Preference for face-to-face communication</td>
</tr>
<tr>
<td>3. Cost flexibility</td>
<td>2b. Appropriate ICT training</td>
</tr>
<tr>
<td>3a. Flexible payment method</td>
<td>3. Costs</td>
</tr>
<tr>
<td>4. Keeping culture</td>
<td>3a. Cost of ICTs</td>
</tr>
<tr>
<td>4a. Researching Indigenous culture and family history</td>
<td>4. Racism</td>
</tr>
<tr>
<td>4b. Facing racism</td>
<td></td>
</tr>
</tbody>
</table>

4.8 Conclusion

This chapter has provided the background, context and findings for the first case study. All core categories that have emerged from the foundation case study have been discussed above. It has emerged that for Indigenous household ICT adoption to occur, there is a requirement to fulfil a set of motivating factors while at the same time addressing inhibiting factors that prevent Indigenous household ICT adoption (see Table 4.4).
The most influential aspect of the Indigenous household ICT adoption process in the rural area is the use of ICTs in the normal everyday environment. This was found predominately in employment and education. Concurrently, the social network of family and friends who have adopted ICTs was also found to be important to the Indigenous household ICT adoption process.

Chapter 5 investigates the emergent core categories from the rural community from Table 4.14 in the urban Indigenous community.
Chapter 5  Case Two: The Urban Indigenous Community

5.1 Introduction

This chapter presents the second case study, an urban study based in a large metropolitan area and is an essential component of theoretical sampling as required by the Grounded Theory Methodology (GTM). As stated in Chapter 3, theoretical sampling is the process of data collection for generating a theory where the researcher collects data and decides what data to collect and where to collect it next (Glaser 1998; Glaser and Strauss 1967).

In Chapter 4, Indigenous household Information and Communication Technology (ICT) adoption factors were discussed and analysed from a rural perspective. In this chapter, the household ICT adoption factors in the urban context will be discussed. In accordance with the research ethics protocol, the specific location of this community will be not be mentioned throughout the thesis.

It was explained in Chapter 4 that the concept ‘Indigenous community’ is abstract. In providing background information about this Indigenous community, it will be explained how this Indigenous community is constructed in the urban context. Unlike the previous case study where there was a geographically ‘integrated’ Indigenous community living in the main township and a ‘separate’ Indigenous community living on a nearby old mission, urban Indigenous communities are usually geographically integrated into the broader society. That is, usually there is no one single easily identifiable locality in which Indigenous people will reside in an urban context.
However, there are exceptions to this as one can have clusters of Indigenous people living together in the urban environment in accommodation that is owned and operated by the local Aboriginal Land Council. One of the most prominent examples of this is ‘The Block’ in the suburb of Redfern in Sydney (Aboriginal Housing Company n.d.). While ‘The Block’ has been given as an example here the locality of an urban community this case study is not conducted at ‘The Block’.

The urban community in this chapter is categorised by the Australian Bureau of Statistics (ABS) as a major Australian city. The ABS defines a major city as ‘those areas where geographic distance imposes minimal restriction upon accessibility to the widest range of goods, services and opportunities for social interaction’ (Australian Bureau of Statistics 2004b).

This chapter is structured as follows. Section 5.2 provides the case profile for the research area through the use of Australian Bureau of Statistics Census data. Section 5.3 discusses the data collection methods used in the urban area. Section 5.4 discusses the case differences between the rural and urban Indigenous communities. Section 5.5 discusses the investigation and the testing of the core categories from Chapter 4. Section 5.6 compares the rural case study with the urban case study. Section 5.7 further develops the theoretical framework of Indigenous household ICT adoption and develops the second theoretical framework. Section 5.8 discusses the contribution made by the urban Indigenous community case study. Section 5.9 informs the reader of where further theoretical sampling will be undertaken. Section 5.10 concludes this chapter.

The following section provides information that is important to the understanding of both the context of the Indigenous community being studied and the process of
Indigenous household ICT adoption. To ensure that this area is not easily identified and the research ethics protocols are not compromised, some data are given as approximations.

5.2 Case Profile

In accordance with the GTM and the requirement for additional data for theoretical sampling the urban Indigenous community in this case provides the ‘next slice of data’.

As with the foundation case in Chapter 4, it is important to first profile the Indigenous community being examined in this case study. As stated above, the area in this case study is a major urban city in Australia. This major city has a total population of approximately 300,000+ with an Indigenous population of approximately 3,000+. Indigenous people represent approximately 1.2% of the total population of this area (Australian Bureau of Statistics 2006a).

The following tables outlined below provide context to the second case study or the ‘next slice of data’. The tables provide an overview of the socioeconomic status of the urban Indigenous community as well as educational, employment and Internet connection data. All tables are my calculations based on a number of ABS releases from the 2006 ABS Census data. The ABS has broken up this urban Indigenous community into numerous sections known as Indigenous locations. All data displayed are from the combination of all Indigenous location tables to provide an inclusive overview of the urban Indigenous community being studied.
As with Chapter 4, the tables in the following section were calculated and entered after the analysis of the urban case study. The quantitative data displayed are the data available from the ABS and are what is salient to the next slice of data in this thesis. There are other areas or factors that are important to the process of Indigenous ICT adoption; however, there is no quantitative data available from the ABS in these areas.

### 5.2.1 School Qualifications

The level of school completions for Indigenous people in the urban area is much lower than that of non-Indigenous people (see Table 5.1). In 2006, just 42.6% of Indigenous people had completed high school, in contrast to over 66% of non-Indigenous people. A marginal majority of Indigenous people completed either Year 11 or Year 12 as their highest level of school education at 53%. Just over 47% of the Indigenous population had completed year 10 or below. This is in contrast to non-Indigenous people’s school qualifications of 72.6% completing either Year 11 or Year 12 and 27.4% having completed Year 10 or below. These figures demonstrate a significant gap in educational attainment at school between the Indigenous and non-Indigenous people in the urban area.

Table 5.1: HIGHEST LEVEL OF SCHOOL EDUCATION (Source: ABS 2006)

<table>
<thead>
<tr>
<th>Highest Year of School Completed</th>
<th>Indigenous</th>
<th>Non-Indigenous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 12 or equivalent</td>
<td>42.6</td>
<td>66.4</td>
</tr>
<tr>
<td>Year 11 or equivalent</td>
<td>10.4</td>
<td>6.2</td>
</tr>
<tr>
<td>Year 10 or equivalent</td>
<td>28.8</td>
<td>18.5</td>
</tr>
<tr>
<td>Year 9 or equivalent</td>
<td>10.5</td>
<td>4.8</td>
</tr>
<tr>
<td>Year 8 or below</td>
<td>7.1</td>
<td>3.7</td>
</tr>
<tr>
<td>Did not go to school</td>
<td>0.7</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Number of persons as a percentage of those 15 years and over with qualifications
5.2.2 Non-School Educational Qualifications

The 2006 Australian Census data show that 36.3% of the Indigenous population in the city completed a post-secondary qualification, which is in contrast to the non-Indigenous population at 54.1% having completed post-secondary qualifications. The data also demonstrate that 15.7% of Indigenous people have completed a bachelor degree or above, which is approximately half that of the non-Indigenous population with 31.6% having completed a bachelor degree or above (see Table 5.2).

Table 5.2: LEVEL OF NON-SCHOOL EDUCATIONAL QUALIFICATIONS (Source: ABS 2006)

<table>
<thead>
<tr>
<th>Level of non School Education</th>
<th>Indigenous</th>
<th>Non-Indigenous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postgraduate Degree</td>
<td>2.5</td>
<td>7.2</td>
</tr>
<tr>
<td>Graduate Diploma or Graduate Certificate</td>
<td>2.2</td>
<td>3.7</td>
</tr>
<tr>
<td>Bachelor Degree</td>
<td>11.0</td>
<td>20.7</td>
</tr>
<tr>
<td>Advanced Diploma or Diploma Certificate Level</td>
<td>5.6</td>
<td>8.8</td>
</tr>
<tr>
<td>Certificate Level</td>
<td>15.0</td>
<td>13.7</td>
</tr>
</tbody>
</table>

Number of persons as a percentage of those 15 years and over with qualifications

5.2.3 Labour Force

Table 6.3 displays employment and labour force participation data for the urban community. The Census data show that Indigenous unemployment in the urban area was approximately three times that of the non-Indigenous population at 10.7% and 3.3% respectively. The data also demonstrate that the total percentage of the Indigenous population in employment is 62.7% compared to 70.9% for the non-Indigenous population (see Table 5.3).


Table 5.3: LABOUR FORCE STATUS (Source: ABS 2006)

<table>
<thead>
<tr>
<th>Labour Force Status</th>
<th>Indigenous</th>
<th>Non-Indigenous</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Employment of population (a)</td>
<td>62.7</td>
<td>70.9</td>
</tr>
<tr>
<td>% Labour force participation (b)</td>
<td>70.2</td>
<td>73.3</td>
</tr>
<tr>
<td>% Unemployment (c)</td>
<td>10.7</td>
<td>3.3</td>
</tr>
</tbody>
</table>

a - Number of persons employed as a percentage of those 15 years and over  
b - Number of persons in labour force as a percentage of those 15 years and over  
c - Number of persons unemployed as a percentage of those 15 years and over

5.2.4 Family Status

The demographic data for the households in this urban community assist in providing a fuller contextual framework. The 2006 Census data show that a total of 79.9% of all Indigenous households were family households compared to a total of 72.1% of all non-Indigenous households. The data also show that there was more than twice the percentage of one parent families in Indigenous households at 26.9%, as in non-Indigenous households at 10.4%. The data demonstrate that there were almost twice as many lone person households in the non-Indigenous community 22.5%, as in the Indigenous community 12.9% (see Table 5.4).
Table 5.4: FAMILY STATUS (Source: ABS 2006)

<table>
<thead>
<tr>
<th>Family Status</th>
<th>Indigenous</th>
<th>Non-Indigenous</th>
</tr>
</thead>
<tbody>
<tr>
<td>One family households:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Couple family with no children</td>
<td>15.6</td>
<td>25.3</td>
</tr>
<tr>
<td>Couple family with children</td>
<td>34.1</td>
<td>34.3</td>
</tr>
<tr>
<td>One parent family</td>
<td>26.9</td>
<td>10.4</td>
</tr>
<tr>
<td>Other family</td>
<td>1.6</td>
<td>1.2</td>
</tr>
<tr>
<td>Total</td>
<td>78.2</td>
<td>71.2</td>
</tr>
<tr>
<td>Multiple family households</td>
<td>1.7</td>
<td>0.9</td>
</tr>
<tr>
<td>Total family households</td>
<td>79.9</td>
<td>72.1</td>
</tr>
<tr>
<td>Lone person households</td>
<td>12.9</td>
<td>22.5</td>
</tr>
<tr>
<td>Group households</td>
<td>7.2</td>
<td>5.4</td>
</tr>
</tbody>
</table>

5.2.5 Households with Internet Connection

The 2006 Australian Census data provide a quantitative overview of the level of ICT adoption in households in this urban area (see Table 5.5). The data show the total number of households and the total number of households connected to the Internet as a percentage of the total population. From the data we know that approximately 1,188 Indigenous households from the total number of households had an Internet connection while 86,676 of the total number of non-Indigenous households had an Internet connection.

Table 5.5: NUMBER OF HOUSEHOLDS AND PERCENTAGE WITH INTERNET CONNECTION (Source: ABS 2006)

<table>
<thead>
<tr>
<th>Total number of households</th>
<th>Indigenous</th>
<th>Non-Indigenous</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,000+</td>
<td>100,000+</td>
</tr>
<tr>
<td>% with Internet connection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indigenous</td>
<td></td>
<td>65.6</td>
</tr>
<tr>
<td>Non-Indigenous</td>
<td></td>
<td>75.3</td>
</tr>
</tbody>
</table>
5.2.6 Household Income

The 2006 Australian Census data provide data on mean weekly household incomes. For Indigenous households in the urban community the mean weekly income was $1,534.88. The non-Indigenous household mean weekly income was significantly higher at $1,813.20 (see Table 5.6). This demonstrates the average Indigenous household income of approximately $278 per week or 15.3% lower than non-Indigenous household income.

Table 5.6: MEAN WEEKLY HOUSEHOLD INCOMES (Source: ABS 2006)

<table>
<thead>
<tr>
<th>Mean household income</th>
<th>Indigenous</th>
<th>$1,534.88</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-Indigenous</td>
<td>$1,813.20</td>
</tr>
</tbody>
</table>

5.2.7 Household Size

Figure 5.1 highlights the proportional household size difference between Indigenous and non-Indigenous households in the urban community. The diagram shows that approximately 28% of Indigenous households were two person households in contrast to approximately 34% of non-Indigenous households. At the same time there were approximately 6% of Indigenous households with six or more persons and just 2% of non-Indigenous households with six or more persons. This demonstrates that there was a higher percentage of large Indigenous households than non-Indigenous households.
5.3 Data Collection for the Urban Community

It is important that data collection is consistent with the previous case study and consistent with the research methodology. The process for data collection as outlined in Chapter 4 and Appendix E are also utilised in this case study.

The case study text for the urban area is based on 12 interviews which produced just over 8 hours of interview recording. These interviews produced 229 pages of text when transcribed. The interviews were collected over a period of 17 days. The collection of the data was undertaken in two periods in 2006 and 2007 with a gap over the 2006 Christmas period. The first 8 interviews took 10 days to undertake. The second set of 4 interviews took 7 days to complete. The longest part of collecting the data was the time it took to transcribe each interview and load the transcriptions into Atlas.ti for open and selective coding of the data.
As with the foundation case, interviewees were chosen incidental to opportunity from Aboriginal organisations and by referral from a previous interviewee. There were 6 refusals for interviews. These 6 cited being too busy as the reason that they could not undertake an interview. Interviewees were self selected heads of households or self nominated decision makers in the household. That is, Indigenous people stated they were the head of the household or the decision maker for the purpose of the interview.

The time taken for each interview varied as outlined in the Summary of Interview Data (see Table 5.7). The interviews were conducted at a number of locations including community organisations, homes, workplaces and university campuses. For more detail on data collection in the urban community see Appendix F.

Table 5.7: SUMMARY OF INTERVIEW DATA

<table>
<thead>
<tr>
<th>Participant</th>
<th>Audio File Name</th>
<th>Transcribed .rft File Name</th>
<th>Length of Interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban Participant 1</td>
<td>2006-11-03-1</td>
<td>Urban_1</td>
<td>1:02:12</td>
</tr>
<tr>
<td>Urban Participant 2</td>
<td>2006-11-03-2</td>
<td>Urban_2</td>
<td>59:33</td>
</tr>
<tr>
<td>Urban Participant 3</td>
<td>2006-11-05-1</td>
<td>Urban_3</td>
<td>46:31</td>
</tr>
<tr>
<td>Urban Participant 4</td>
<td>2006-11-08-2</td>
<td>Urban_4</td>
<td>52:21</td>
</tr>
<tr>
<td>Urban Participant 5</td>
<td>2006-11-09-1</td>
<td>Urban_5</td>
<td>47:28</td>
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<tr>
<td>Urban Participant 6</td>
<td>2006-11-11-1</td>
<td>Urban_6</td>
<td>34:29</td>
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<tr>
<td>Urban Participant 7</td>
<td>2006-11-11-2</td>
<td>Urban_7</td>
<td>35:21</td>
</tr>
<tr>
<td>Urban Participant 8</td>
<td>2006-11-13-1</td>
<td>Urban_8</td>
<td>32:32</td>
</tr>
<tr>
<td>Urban Participant 9</td>
<td>2007-1-8-1</td>
<td>Urban_9</td>
<td>26:28</td>
</tr>
<tr>
<td>Urban Participant 10</td>
<td>2007-1-10-1</td>
<td>Urban_10</td>
<td>28:52</td>
</tr>
<tr>
<td>Urban Participant 11</td>
<td>2007-1-10-2</td>
<td>Urban_11</td>
<td>17:32</td>
</tr>
</tbody>
</table>

Each interview in this chapter is sourced by the allocated participant number according to the table above.
5.4 Case Differences and Similarities

It is important first to highlight the differences between this case study, Case Two: The Urban Indigenous Community, and the previous case study, Foundation Case: The Rural Indigenous Community. As discussed above, there is often no easily identifiable Indigenous community in urban areas and this is true in this case study. Therefore, the first difference between the rural and urban Indigenous communities is that the Indigenous population in the urban area is much more dispersed into the wider community.

This dispersion also applies to Aboriginal organisations in the urban area. As with the rural area, this urban area also has a number of Aboriginal organisations. These organisations include the Aboriginal Medical Service, Aboriginal Sports and Recreational ground, Aboriginal Training Organisation, and Aboriginal Youth Corporation. All these organisations fall under the Corporations (Aboriginal and Torres Strait Islander) Act 2006 also known as the CATSI Act 2006 (Australian Government 2005a). However, unlike the rural area where a number of Aboriginal organisations were clustered together, in the urban area Aboriginal organisations are scattered throughout the suburbs. An example of the dispersion is highlighted by the distance between two Aboriginal organisations being approximately 25 kilometres.

The proportional level of Indigenous people as a percentage of the general population is quite different in the urban area compared with the rural area. In the rural case the Indigenous population represented 7.4% of the total population whereas in this urban area the Indigenous population represents just 1.2% of the total population.
There is a striking contrast in Indigenous education levels between the rural area and this urban area. In the rural case 12.5% of Indigenous people completed Year 12. This is in striking contrast to the 42.6% of Indigenous people who completed Year 12 in this urban location. This means that there are over three times as many Indigenous people in the urban area who completed Year 12 compared with the rural area. This disparity also applies to non-school educational qualifications where in the rural area just over 16% of Indigenous people had completed non-school educational qualifications compared to over 36% of Indigenous people in the urban area. The largest single gap in post-secondary education was where 1.5% of Indigenous people completed bachelor degrees in the rural area and 11% of Indigenous people completed bachelor degrees in the urban area.

Employment is also a key indicator that has contrasting differences between the rural and the urban area. The unemployment rate of Indigenous people in the urban area is almost 11% whereas the Indigenous unemployment rate in the rural area is approximately 35%. The total percentage of the Indigenous people employed in the urban area is 62.7%, whereas in the rural area total employment was under half of the urban area at 26.7% of the total Indigenous population aged 15 years and above.

Another difference between the two locations is the number of households with an Internet connection which has been highlighted in the 2006 Australian Census data. In the rural area 31.2% of Indigenous households had the Internet connected to the home while in the urban area there were twice as many Indigenous households connected to the Internet at 65.6%.
While it has been demonstrated that there is a large difference between the level of Indigenous households connected to the Internet between the rural and urban communities—there is also a significant difference in the number of Indigenous households connected to the Internet compared to non-Indigenous households in the rural and urban communities. In the rural area the gap between Indigenous and non-Indigenous households with Internet connection was 14.8% while in the urban area the gap is significantly less at 9.7%.

Some of the other contextual differences in the urban area are at the society level, in that there are multiple government departments and services that are more accessible in the urban area. This urban area also has a number of tertiary institutions within a 100 kilometre radius. The conjectures that could be drawn from these contextual differences are that there is more opportunity to gain employment and to attend post-secondary study in the urban area than in the rural area.

Similarities between the two cases are also important to highlight. The similarities are associated with households, individuals, incomes and the Aboriginal organisations. Overall there is a similar proportional number of Indigenous family households between the rural and urban areas, with the total percentage of urban family households being 79.9% and the total number of family households in the rural area being 81.9%. The mean household income difference between Indigenous and non-Indigenous households in the rural and urban communities is almost the same. In the rural area Indigenous and non-Indigenous mean household income differs by 15.7%. In the urban area Indigenous and non-Indigenous mean household income differs by 15.3%. Identity for Indigenous people is the same in the urban area as in the rural area in that for an Indigenous person
to be officially considered Indigenous they must fulfil what is known as the ‘test of Aboriginality’ as outlined in Chapter 1.

The differences and similarities of both this case and the foundation case in Chapter 4 have been discussed above. It is demonstrated that each community is the same conceptual sample but with group differences. This is a requirement for GTM to enable the analytic framework to be more generalisable. At the same time the unit of analysis, which is Indigenous households, is the same in both the rural and urban areas. This provided a sound basis for the urban area to be the next case in this thesis as it fulfils the requirements of GTM’s theoretical sampling and generalisability.

5.5 Investigation

As indicated in Chapter 1, this thesis attempts to discover the factors that lead to Indigenous household adoption of ICTs, and also examines the factors that prevent Indigenous people from engaging in ICTs in the household. Therefore, during the coding process, each instance of factors that lead to household adoption of ICTs was captured and also factors that prevent Indigenous people from adopting ICTs in the household were also captured. The interviews were coded with reference to the research question via open and selective coding (see Chapter 3). The process of interpreting the data was broken down not only to enable constant comparison of the data but also to provide a chain of evidence to demonstrate the path from interview to theory building. This consisted of firstly identifying the factors in the case study.
As the GTM requires, the core categories from the rural location were transported to the urban area for further investigation and analysis. The core categories that emerged from the rural area are outlined below in Table 5.8.

Table 5.8: CORE CATEGORIES TO BE INVESTIGATED

<table>
<thead>
<tr>
<th>MOTIVATORS</th>
<th>INHIBITORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Exposure in environment</td>
<td>1. Negative behaviour</td>
</tr>
<tr>
<td>1a. Education</td>
<td>1a. Substance abuse</td>
</tr>
<tr>
<td>1b. Employment</td>
<td>1b. Poor financial management</td>
</tr>
<tr>
<td>1c. Family and friends with ICTs in their home</td>
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</tr>
<tr>
<td>2. Household lifecycle</td>
<td>2. Individual needs</td>
</tr>
<tr>
<td>2a. Children</td>
<td>2a. Preference for face-to-face</td>
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<td></td>
<td>communication</td>
</tr>
<tr>
<td></td>
<td>2b. Appropriate ICT training</td>
</tr>
<tr>
<td>3. Cost flexibility</td>
<td>3. Costs</td>
</tr>
<tr>
<td>3a. Flexible payment method</td>
<td>3a. Cost of ICTs</td>
</tr>
<tr>
<td>4. Keeping culture</td>
<td>4. Racism</td>
</tr>
<tr>
<td>4a. Researching Indigenous culture and family history</td>
<td>4a. Facing racism</td>
</tr>
</tbody>
</table>

5.5.1 Case Analysis

Interviews were conducted focusing on the concepts in Table 5.8, but as required by the GTM, there was sufficient scope in the questioning and field discussions to yield new and local factors in this urban setting.

The interview text was coded in two ways. Firstly it was selectively coded, where the instance of a category was confirmed or where the instance of a category was conceptually similar to the instances in the rural case study. At the same time, the text was also open coded where new concepts emerged. Therefore, a mixture of selective coding (confirmed codes) and open coding (discovery of new codes) was undertaken.
During the analysis of the urban interview data it was confirmed that the two domains of ‘motivators’ and ‘inhibitors’ that emerged from the previous case study were also found to exist in the adoption process of ICTs in Indigenous households in the urban context. That is, it was confirmed that there are factors that both motivate Indigenous households to adopt ICTs and factors that inhibit Indigenous households from adopting ICTs.

Each domain and associated factors identified in these two domains will be discussed from an urban Indigenous perspective in further detail below. New factors will be highlighted and factors where the categories are conceptually the same, but require renaming to reflect the conceptualisation, will also be highlighted. The inhibitors are discussed and investigated first in the urban Indigenous context as these are crucial to the non-adoption of ICTs in Indigenous households.

5.5.2 Urban Indigenous Community Inhibitors

This section discusses and investigates the inhibiting factors associated with Indigenous household ICT adoption in the urban Indigenous community. The inhibitor categories to be investigated further are outlined below in Table 5.9. These categories and their factors emerged from the data in the foundation case and form the basis of the urban Indigenous community investigation. Each category and their factors will be discussed individually.
Table 5.9: CORE INHIBITOR CATEGORIES TO BE INVESTIGATED

<table>
<thead>
<tr>
<th>INHIBITORS</th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>1. Negative behaviour</strong></td>
<td></td>
</tr>
<tr>
<td>1a. Substance abuse</td>
<td></td>
</tr>
<tr>
<td>1b. Poor financial management</td>
<td></td>
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<tr>
<td><strong>2. Individual needs</strong></td>
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<tr>
<td>2a. Preference for face-to-face communication</td>
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<tr>
<td>2b. Appropriate ICT training</td>
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<tr>
<td><strong>3. Costs</strong></td>
<td></td>
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<tr>
<td>3a. Cost of ICTs</td>
<td></td>
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<tr>
<td><strong>4. Racism</strong></td>
<td></td>
</tr>
<tr>
<td>4a. Facing racism</td>
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</tbody>
</table>

**Category 1. Negative behaviour**

Substance abuse, especially excessive alcohol consumption, was found to be an inhibitor to household ICT adoption in the urban area as well in the rural area previously discussed (see Chapter 4). The purchase of alcohol is important to many Indigenous people in the urban area. Much of the household budget is directed to the purchase of alcohol. The lack of money then prevents the purchase of items such as ICTs. As in the rural area, the finances are controlled by the decision maker of the household who is also the head of the household.

Alcohol consumption was discussed by participants as if it is a normal everyday occurrence and even when there is recognition of the impact of the excessive consumption of alcohol it is does not seem to be discouraged in the community as one participant stated:

...in terms of finances, other social factors and stuff? I guess I can see that it would. Grog’s definitely a big issue in Aboriginal communities and Aboriginal families.

(Urban Participant 5)

and another,
It’s severely impacted by alcohol and abuse... they are actually committing offences to get into prison ... get away from the alcohol ...
inside they get education and computers, right

(Urban Participant 9)

and another,

I’ve found that there’s a lot of trouble with that [alcohol], but... you just might need to take them away and show them something else or get them away from that environment that they know. So they can’t just walk out the door and go do what they usually do. Take them somewhere that they don’t know so they’re concentrating more on what they’re doing.

(Urban Participant 11)

This aspect of Indigenous ICT adoption is perplexing in that excessive alcohol consumption appears to be very common. However, the narrative above provides a deeper understanding of this core category that inhibits Indigenous ICT adoption. The interviewee suggests that it is the environment that Indigenous people live within that causes excessive alcohol consumption. The interviewee also suggests that if Indigenous people were away from the ‘environment that they know’ their practices would change.

In the urban areas alcohol is just one drug that members of the community use. Other drugs have become easy to obtain in the urban area; as such alcohol is not the only substance that is being abused in the urban Indigenous community. When questioned, one participant stated:

Yes, down here I found they’re more... let’s say... they’re more into bad drugs, then up north they’re more drinking all the time...

(Urban Participant 11)
Poor financial management issues were also significant in the urban setting. Indigenous people in the urban areas also have trouble with managing their household finances. Without being able to budget and save money the purchase of items such as ICTs is quite difficult. Poor financial management appears to be an underlying issue across both the rural and urban Indigenous communities as one participant stated:

[If they have not been shown] financial management techniques by their parents, by their Aunties, by their Uncles, by everyone that’s around them, of course they are going to be in trouble. Definitely, if they’ve, all they’ve seen is, you know living from pay to pay and not being able to live for the future and look long term, then it’s very hard to change your ways.

(Urban Participant 7)

Both Substance abuse and Poor financial management issues were linked in the rural case study with one being a causal effect on the other. This is the same in the urban area where the excessive consumption of alcohol by Indigenous people leads to financial issues. A participant stated:

It comes back to your financial stuff that we were talking about before, but it’s also what you need now, meeting your needs straight up front, what do I want now, I want to hear them, whatever, or I want some grog or whatever, I’m not thinking about 12 months down the track when my child starts school and is going to need a computer or next week when I need to find out something about whatever...

(Urban Participant 7)

Category 2. Individual needs

It was demonstrated in the previous chapter that Preference for face-to-face communication was an inhibitor to communication between Indigenous people and was an inhibiting factor in Indigenous household ICT adoption. Preference for face-to-face
communication was also established as an important communication preference for Indigenous people in the urban location, but to a lesser extent than in the rural area. This is because the use of ICTs by Indigenous people in the urban area is developing new forms of communication within the urban Indigenous community. In the urban Indigenous community face-to-face communication is important to those in the Indigenous community who are older, while the younger generations are taking up using ICTs to more readily communicate. This is evidenced below by one participant’s response:

Q. Do you think face-to-face is important for Aboriginal people?

A. Face-to-face, definitely. But I think that communication is developing with Aboriginal people from, and I’m only talking from the perspectives of you know, where I’ve been, which is sort of more urban sort of area. It’s developing in ways that you have your contacts on email that you email, you have your contacts that you’ll see in meetings, you’ll have them that you liaise within the community, but [email] that’s just another form which has become accepted.

(Urban Participant 7)

Even when Indigenous people are attending university and making extensive use of ICTs in their everyday life they still find the initial face-to-face contact important as it helps them provide context to their communication with the individual. When asked if ICTs for communication were good in a university context they replied:

Yes. Definitely. I like it though I like the face-to-face, plus I like the combination because I can email someone in my class, but I can picture a face while I’m emailing...

(Urban Participant 7)
It emerged from the data that *Appropriate ICT Training* was also found to be important to urban Indigenous people. Just as in the rural area, Indigenous people in the urban area prefer to have hands-on practical training when it comes to ICTs. One participant stated:

> Personally hands on because Indigenous people don’t have... um. We’ve made weapons long before man had a gun... with what... no text book. So if you can show them manually, you know, that’s... like, I’ve shown a lot of people how to press the button, ‘oh yeah, what’s the light for? Well okay that light means it’s powered up. What’s the other light for? That’s where the hard drive’s cutting in.’ So you go step-by-step, even if it’s just the light, they go ‘why is that other light flashing? That’s the hard drive kicking in to boot up the programs.

(Urban Participant 10)

Therefore, *Appropriate ICT Training* is confirmed in the urban Indigenous community as an important factor in the process of Indigenous household ICT adoption.

**Category 3. Costs**

*Costs* associated with the purchase of ICTs were found to be quite important in the urban area. This is despite the 2006 Australian Census data showing that the mean Indigenous household income in the urban area is almost twice that of the rural area (see Table 5.6 and Table 6.5). *Costs* of ICTs are quite important in the urban context as well. This is highlighted by one participant:

> Just all, everything associated, you know, with a computer such as a printer and maybe a scanner, the cost is definitely a factor.

(Urban Participant 3)

and another,

> Probably the cost, that’s one of the big ones.

(Urban Participant 7)

and another,
It’s affordability, it’s an economic issue and that actually factors into the actual household issue of budgeting... electricity blows out, gas blows out... that sort of stuff,...the phone bills they just keep running in different names

(Urban Participant 9)

It emerged from the data and is reinforced in the dialogue above, that some Indigenous households have problems with paying their telephone bills. To retain the use of the telephone when they cannot afford the phone bill they simply get the phone cut off and then have it reinstated under the name of a different family member within the household. The reason this is important to the Indigenous household ICT adoption process is that, with the exception of some satellite technologies, there is a requirement to have the telephone connected to have the Internet connected. This also reinforces the factor Poor financial management in the Negative behaviour category where Indigenous households experience difficulty in managing their finances.

Category 4. Racism

Racism in the labour force featured just as prominently in the urban area as it did in the rural context. While employment was proportionally much higher in the urban than the rural area, many Indigenous people felt that racism was an issue that prevented them from obtaining employment. Furthermore, as in the rural area, racism was a concern more broadly across society. A number of interviewees in the urban area felt that racism impacts on them and as such was evident in the broader community stating that:

Jobs are hard to come by and deal with racism anyway. And a lot of issues that pretty much aren’t seen here from my point of view, but you know there’s still, there’s a lot of racism here...

(Urban Participant 3)

and another,
... it’s a protective thing. It’s a built in protection, because I still do it. I go ‘Oh no’ you know, they think... oh, ok, they’ve already judged me... a black bloke with blue eyes...

(Urban Participant 10)

This section has discussed and investigated the inhibiting factors that affect Indigenous household ICT adoption. The core inhibiting categories have been confirmed in the urban Indigenous community. This is outlined below in Table 5.10 and graphically in Figure 5.2.

Table 5.10: CONFIRMED CORE INHIBITOR CATEGORIES AND ASSOCIATED FACTORS

<table>
<thead>
<tr>
<th>INHIBITORS</th>
<th>ASSOCIATED FACTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Negative behaviour</strong></td>
<td>1a. Substance abuse</td>
</tr>
<tr>
<td></td>
<td>1b. Poor financial management</td>
</tr>
<tr>
<td>2. <strong>Individual needs</strong></td>
<td>2a. Preference for face-to-face communication</td>
</tr>
<tr>
<td></td>
<td>2b. Appropriate ICT training</td>
</tr>
<tr>
<td>3. <strong>Costs</strong></td>
<td>3a. Cost of ICTs</td>
</tr>
<tr>
<td>4. <strong>Racism</strong></td>
<td>4a. Facing racism</td>
</tr>
</tbody>
</table>
Inhibitor Domain

Negative Behaviour

Individual Needs

Costs

Racism

Household ICT Adoption

can inhibit

can inhibit

can inhibit

can inhibit

Figure 5.2: CONFIRMED INHIBITOR DIAGRAM

5.5.3 Urban Indigenous Community Motivators

This section discusses and investigates the motivating aspects of urban Indigenous household ICT adoption. This will consist of investigating the existence of the core categories from the previous case study outlined in Chapter 4 as well as investigating new emergent motivating factors of Indigenous household ICT adoption.

The motivator categories to be investigated further are outlined below in Table 5.11. These categories emerged from the data in the foundation case and form the basis of the urban Indigenous community investigation.
Table 5.11: CORE MOTIVATOR CATEGORIES TO BE INVESTIGATED

<table>
<thead>
<tr>
<th>MOTIVATORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Exposure in environment</td>
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<tr>
<td>1a. Education</td>
</tr>
<tr>
<td>1b. Employment</td>
</tr>
<tr>
<td>1c. Family and friends with ICTs in their home</td>
</tr>
<tr>
<td>2. Household lifecycle</td>
</tr>
<tr>
<td>2a. Children</td>
</tr>
<tr>
<td>3. Cost flexibility</td>
</tr>
<tr>
<td>3a. Flexible payment method</td>
</tr>
<tr>
<td>4. Keeping culture</td>
</tr>
<tr>
<td>4a. Researching Indigenous culture and family history</td>
</tr>
</tbody>
</table>

Category 1. Exposure in environment

As with the rural locality where Exposure in environment emerged as a core category, the concept of Exposure in environment also emerged as a core category in the urban area. The importance of the process of using ICTs in the ‘normal’ everyday environment emerged from the foundation case and was demonstrated in the first theoretical framework in section 4.6 in Chapter 4 as the core concept of this research.

Exposure in environment is confirmed as a core category in the urban Indigenous community and is a key factor in the adoption process for urban Indigenous households. Education is confirmed as a factor for Indigenous household ICT adoption in the urban area. It is the use of ICTs in the educational setting that helps to develop ICT skills of Indigenous people. It emerged from that data that Indigenous people who are engaged in education are usually required to use some form of ICT throughout their educational course, and it is this use within the educational setting that assists in the adoption process of ICTs.
There is stronger evidence in the urban area of how the use of ICTs in the education setting changes the practices of Indigenous people and how this in turn influences Indigenous household ICT adoption. One participant stated:

Yes. I've also got a student email address. I don’t know if I’ve ever sent an email from it. But I use, like if I want to talk to people in my classes at Uni, then I’ll just jump on the WebCT (WebCT is a learning management tool used in some universities)... so that’s one of the things up here [at home] that I would use.

(Urban Participant 7)

It emerged from the data that Indigenous people in the urban area who have ICTs in the home are also always engaged in employment where their employment requires them to use ICTs as outlined by one participant:

A: I use computers to write up some Aboriginal programs I do it as part of my work.

Q. What do you use them for at work?

A. My whole work pretty much evolves around the computer, which at times is a bit frustrating, as you could imagine... emails, I create documents, correspondence, research.

Q. What about home, what do you use it for at home?

A. At home? Cause I’m studying at the moment I would use it, depending on like, which time of the year it was, whether it’s peak time in the middle of a semester, I would do research, I would do word documents.

(Urban Participant 7)

Consistent with the rural area, it emerged from the data that those Indigenous people in the urban area who have employment that does not require the use of ICTs are less likely to have ICTs in the home.
There are more Indigenous people completing both Year 12 and post-secondary study in this urban area, and there is, significantly higher employment in this area than in the rural area. As a consequence, the emergence of the use of ICTs in employment and education as the key driving force of Indigenous household ICT adoption suggests that it is more likely that a larger percentage of the Indigenous population has adopted ICTs into the household in the urban community. If we examine secondary source data like the ABS statistics we can see that this is confirmed (see Tables 4.5 and 5.5).

*Family and Friends* is also an important component to Indigenous household ICT adoption in the urban area. Having family and friends with ICTs in their home is a strong determining factor in the urban areas.

*Q. So your extended family has computers?*

*A. Yes, yes, they all have computers.*

*(Urban Participant 10)*

and another,

*I go to my sisters or go to a friend’s place to go to work and use it.*

*(Urban Participant 1)*

While family and friends in the urban area are important to Indigenous household adoption, the way in which this factor interacts with other factors is slightly different from in the rural location. In the rural location (see Chapter 4) Indigenous people adopting the technology who had family and friends with ICTs in the home adopted it because their family and friends thought that the technology was good. While this is also true in the urban area, the underlying influence of family and friends in the urban region is for the purpose of communication with family and friends. That is, Indigenous household ICT adoption is driven by the way in which urban Indigenous people
communicate with family and friends through the use of email, as demonstrated below by a participant:

Yes, but obviously, I mean, for a lot of blackfella’s, I mean, in terms of communicating with my Mum and Dad and my family, you are dispersed and it’s important to keep in contact and emails are the only way we do that.

(Urban Participant 5)

**Category 2. Household lifecycle**

As with the Indigenous households in the rural community, Indigenous households in the urban community also go through a lifecycle and these lifecycle effects impact positively on Indigenous household ICT adoption. It also emerged from the urban data that Indigenous households with children who use ICTs at school are more likely to have ICTs in the home. As in the rural location, the household effects of ICT adoption are associated with the children’s use of ICTs in their everyday life such as schooling and homework. A participant who was also a parent stated:

My children use it all the time for homework and web searches.

(Urban Participant 6)

and another,

My children learn by the Internet. They do most of their schoolwork via the Internet rather than the old dictionary, you know, the atlas.

(Urban Participant 8)

**Category 3. Cost flexibility**

Being able to have access to a flexible payment method for ICTs is important in the urban area. Having the ability to engage in prepaying for services such as Internet access is attractive to many urban Indigenous people. This is because it provides a way
of budgeting items, such as Internet access, into the normal monthly budget and enables the household budget to be managed more effectively. One participant stated:

We do prepaid, yes. Which works out great and at times when we know we’re going to be busy we get unlimited hours, which is a bit more, I think $35 for 45 days.

(Urban Participant 7)

and,

...because there is no lock-in plan. If I were to have to sign up for two years, who knows whether I’m going to be able to afford to... you know, if my computer breaks down in 12 months and I can’t afford to fix it or I can’t afford a new one, I’ll still be paying, and I don’t like that.

(Urban Participant 7)

Category 4. Keeping culture

It was found in the foundation case (see Chapter 4) that in the rural area Indigenous people needed exposure in the environment of using ICTs in employment or education but also needed a purpose to use ICTs as a reason to adopt ICTs into the household. In the rural area the reason to use ICTs in the home was the category Keeping culture.

Keeping culture is associated with Researching Indigenous culture and family history and these are drivers of ICT use in Indigenous households who have adopted ICTs. However, this concept of Keeping culture arose in only one interview in the urban area, and while Keeping culture is important to the Indigenous household ICT adoption process in the rural area, in the urban area email use at home is much more important to the adoption process. It was demonstrated in section 6.5.2 that communication between Indigenous people is moving from face-to-face to email.

Therefore, email communication is a reason for Indigenous people to use ICTs in the household. If we look at Keeping culture as a purpose to use ICTs in the home then
there is an emergent new factor of **Communication via email** in the urban area that is conceptually the same as the other factors from the foundation case that were identified as being associated with the concept of **Keeping culture**. Communication via email is quite important in the urban Indigenous community and is used to communicate between family and friends.

It emerged from the data that Indigenous people in the urban area use ICTs in a way that was not evident in the rural area. This is most prominent with the new emergent factor of **Electronic commerce**. A number of interviewees used some form of electronic commerce whether that was electronic banking or using eBay to buy or sell products. As one participant outlined:

> *Ebay enables me to access things that I can’t access because I work, you know I work long hours and I don’t get to stores and stuff so eBay’s fun, and it’s a bit of fun you know just looking around, so it’s an entertainment thing as well.*

*(Urban Participant 5)*

and,

> *Because I bank with a bank that’s in [my home town] and I don’t live in [my home town]. I grew up in [my home town] so I joined a local building society and they’ve got Internet banking and it’s easy and quick and no worries.*

*(Urban Participant 5)*

Another new factor that emerged in the urban area that had a motivating force on the process of ICT adoption was **Keeping up-to-date with news**. It emerged from the data that urban Indigenous people want to be informed about current world events and news and feel that if they have ICTs at home they are able to access the news at any time as outlined by one participant:
I need to be informed or up-to-date of certain things that are happening around the world, like news events and breaking stories.

(Urban Participant 3)

These new factors that have emerged from the urban case study are important in the process of Indigenous household ICT adoption and are considered purposes to use ICTs in the household. In the previous case study (see Chapter 5) the reasons to use ICTs in the household were categorised under the category of *Keeping culture* as this reflected the process of what was occurring in the rural area. The reason to use ICTs in the household has expanded in the urban case study to include *Communication via Email*, *Electronic commerce* and *Keeping up-to-date with news*. Therefore, the name of the category needs to be changed to better reflect the additional factors under the category. *Keeping culture* is now changed to a *Purpose to use* in the developing Indigenous household ICT adoption model.

It was found in the previous chapter that rural Indigenous households must avoid inhibitors and fulfil at least two motivational factors to achieve adoption of ICTs. This was confirmed in the urban Indigenous community as well.

This section has discussed and investigated the motivating factors that have an effect on Indigenous household ICT adoption. The core motivating categories from the foundation case have been confirmed in the urban Indigenous community and new factors emerged. This is outlined below in Table 5.13 and graphically in Figure 5.3.
### Table 5.12: CONFIRMED CORE CATEGORIES AND ASSOCIATED FACTORS

<table>
<thead>
<tr>
<th>MOTIVATORS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Exposure in environment</strong></td>
<td></td>
</tr>
<tr>
<td>1a. Education</td>
<td></td>
</tr>
<tr>
<td>1b. Employment</td>
<td></td>
</tr>
<tr>
<td>1c. Family and friends with ICTs in their home</td>
<td></td>
</tr>
<tr>
<td><strong>2. Household lifecycle</strong></td>
<td></td>
</tr>
<tr>
<td>2a. Children</td>
<td></td>
</tr>
<tr>
<td><strong>3. Cost flexibility</strong></td>
<td></td>
</tr>
<tr>
<td>3a. Flexible payment method</td>
<td></td>
</tr>
<tr>
<td><strong>4. Purpose to use</strong></td>
<td></td>
</tr>
<tr>
<td>4a. Researching Indigenous culture and family history</td>
<td></td>
</tr>
<tr>
<td>4b. Communication via email</td>
<td></td>
</tr>
<tr>
<td>4c. Electronic commerce</td>
<td></td>
</tr>
<tr>
<td>4d. Keeping up-to-date with news</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 5.3: CONFIRMED MOTIVATOR DIAGRAM**
5.6 Comparisons between the Rural and Urban Indigenous Communities – Comparing Cases

The focus of this case study was on the exploration of the core categories and associated factors that emerged from the previous case study as required by theoretical sampling (see Chapter 3). The aim of exploring the core categories and factors from the previous case study is to see whether they exist in a different context, and to gain a deeper understanding if they do exist, and at the same time to see if new categories or factors emerge.

All core categories from the foundation case study have been found to exist in the urban context. It was found that the underlying factors that inhibit Indigenous household ICT adoption are just as strong in the urban Indigenous community as they are in the rural Indigenous community. It was found that there are location specific contextual differences with regard to the motivational factors.

The urban case study has yielded a number of salient emergent motivating factors in Indigenous household ICT adoption. These are: Communication via email, Electronic commerce and Keeping up-to-date with news, as discussed is Section 5.5.3.

It was shown that Indigenous people in the rural area use ICTs in the home for researching family history and Indigenous culture. This was not evident in the urban Indigenous community as it is deemed to be not as important to the urban Indigenous community as to the rural Indigenous community. The urban Indigenous community was much more focused on, email, electronic commerce and keeping up-to-date with news. It was found that Indigenous urban households used ICTs in the home to communicate via email and to gain greater access to online shopping and electronic
banking, and also focused on viewing the latest news from around Australia and the world. This finding demonstrates that the urban Indigenous community was much more externally focused on being aware of the world rather than focusing on their culture and family history.

These findings demonstrate that many similarities exist across the Indigenous communities in rural and urban areas that are common to both communities regardless of the socioeconomic status. This suggests that the adoption of ICTs is inhibited by shared common Indigenous values and actions across large distances.

5.7 Further Developing the Theoretical Framework – The Second Case

As required by the Grounded Theory Methodology theoretical saturation of the core categories needs to be achieved. Theoretical saturation occurs when interviews no longer reveal more information about the investigated core category (Glaser 1998; Glaser and Strauss. 1967). This case has yielded a much deeper understanding of the core motivating and inhibiting categories of Indigenous household ICT adoption. At the same time it has provided insights into the contextual differences between rural and urban Indigenous communities. However, surprisingly, the urban case did not reveal new core categories; rather this case enhanced and provided a deeper understanding of current categories. Not discovering new core categories is a surprise but at the same time has provided much more support for the developing model propositions.

The table below demonstrates the new aspects of the motivator and inhibitor domains. The new factors are highlighted in bold italics for distinction (see Table 5.14).
Table 5.13: CONFIRMED MOTIVATOR AND INHIBITOR TABLE WITH NEW PROPERTIES FROM URBAN CASE STUDY

<table>
<thead>
<tr>
<th>MOTIVATORS</th>
<th>INHIBITORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Exposure in environment</td>
<td>1. Negative behaviour</td>
</tr>
<tr>
<td>1a. Education</td>
<td>1a. Substance abuse</td>
</tr>
<tr>
<td>1b. Employment</td>
<td>1b. Poor financial management</td>
</tr>
<tr>
<td>1c. Family and friends with ICTs in their home</td>
<td></td>
</tr>
<tr>
<td>2. Household lifecycle</td>
<td>2. Individual needs</td>
</tr>
<tr>
<td>2a. Children</td>
<td>2a. Preference for face-to-face communication</td>
</tr>
<tr>
<td>3. Cost flexibility</td>
<td>2b. Appropriate ICT training</td>
</tr>
<tr>
<td>3a. Flexible payment method</td>
<td></td>
</tr>
<tr>
<td>4. Purpose to use</td>
<td>3. Costs</td>
</tr>
<tr>
<td>4a. Researching Indigenous culture and family history</td>
<td>3a. Cost of ICTs</td>
</tr>
<tr>
<td>4b. Communication via email</td>
<td></td>
</tr>
<tr>
<td>4c. Electronic commerce</td>
<td></td>
</tr>
<tr>
<td>4d. Keeping up-to-date with news</td>
<td></td>
</tr>
</tbody>
</table>

The core categories and their associated factors have been discussed above. When the influence of both the motivator and inhibitor domains are taken into account, the causal relationship diagram demonstrates the interactions between the categories (see Figure 5.5). The category Purpose to use has been highlighted to reflect its new name and its additional factors.
5.7.1 Further Developing the Propositions

Now that the urban community has been sampled and incorporated in the developing theoretical model, the propositions developed in the foundation case need to be investigated. Therefore, an investigation of the current propositions will be undertaken with regard to the findings in the urban case study. The aim of this process is to test the applicability of the propositions to Indigenous household ICT adoption in the urban
Indigenous community, where appropriate new propositions will be created or existing propositions reworded. The first proposition table that was developed in Chapter 4 is outlined below (see Table 5.15).

Table 5.14: EMERGENT PROPOSITION TABLE FROM RURAL CASE STUDY

<table>
<thead>
<tr>
<th>INFLUENCE ON ICT ADOPTION</th>
<th>EMERGENT PROPOSITIONS FROM FIRST CASE STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GROUP 1</strong></td>
<td></td>
</tr>
<tr>
<td>MOTIVATORS OF HOUSEHOLD ICT ADOPTION</td>
<td>Proposition A. The use of ICTs in employment increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition B. The use of ICTs in education increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition C. Having family and friends with ICTs in their home increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition D. Having school aged children in the household who use ICTs in school increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition E. Gaining access to flexible payment methods can increase the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition F. Wanting to research Indigenous cultures and family histories can increase the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition J. Appropriate ICT training will increase the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td><strong>GROUP 2</strong></td>
<td></td>
</tr>
<tr>
<td>INHIBITORS OF HOUSEHOLD ICT ADOPTION</td>
<td>Proposition G. Substance abuse by the head of the household reduces the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition H. Poor financial management can reduce the likelihood of Indigenous household ICT adoption</td>
</tr>
</tbody>
</table>
Proposition I. The preference for face-to-face communication can reduce the likelihood of Indigenous household ICT adoption

Proposition K. High cost of ICTs can reduce the likelihood of Indigenous household ICT adoption

Proposition L. Racial discrimination in the labour market can reduce the likelihood of Indigenous household ICT adoption

The influence of the use of ICTs within particular contexts has emerged quite strongly from the urban Indigenous community case study. As was found in the foundation case study in Chapter 5, the use of ICTs in employment and education are the primary influential forces on Indigenous household ICT adoption (see Figure 5.4).

The ABS data demonstrate that there are proportionally more than twice as many Indigenous people employed in the urban area than in the rural area (see Table 4.3 and Table 5.3). This means that urban Indigenous people potentially have more opportunity of being exposed to ICTs in the workplace than Indigenous people in the rural area. This is conceptually the same for education where more urban Indigenous people have potentially been exposed to ICTs in education than those in the rural Indigenous community (see Tables 4.1, 5.1 and 4.2, 5.2).

Therefore, it could be argued that urban Indigenous people, by being more aware of what the Internet can provide, are changing the way Indigenous people use ICTs. This is evident with those Indigenous people who are working and using ICTs in the workplace, as well as those Indigenous people who are using ICTs in education, as they are transporting what they are learning about using ICTs outside the home into the home environment. This suggests that the use of ICTs in the workplace and educational
institutions is strongly influencing the process of Indigenous household ICT adoption (see Figure 5.5).

Figure 5.5: MOST INFLUENTIAL FORCES ON THE INDIGENOUS HOUSEHOLD ICT ADOPTION PROCESS

Proposition A. The use of ICTs in employment increases the likelihood of Indigenous household ICT adoption

Just as in the rural community, urban Indigenous people with employment who use ICTs in the workplace provide a strong driving force for Indigenous household ICT adoption. Therefore, this case has provided strength for both the existence of proposition A and has provided a deeper understanding of proposition A as it relates to Indigenous household ICT adoption.
Proposition B. The use of ICTs in education increases the likelihood of Indigenous household ICT adoption

Proposition B has also been confirmed in the urban area. Just as in the rural community, the use of ICTs in education provided a motivating factor to adopt ICTs in Indigenous households.

Proposition C. Having family and friends with ICTs in their home increases the likelihood of Indigenous household ICT adoption

Having family and friends with ICTs in their home in the urban area has confirmed Proposition C. There are slight urban contextual differences with this factor as discussed in Section 5.5.3; however the urban case has provided insight into how a factor can be conceptually the same in both the rural and urban areas while having contextual differences.

Proposition D. Having school aged children in the household who use ICTs in school increases the likelihood of Indigenous household ICT adoption

The household life cycle effects on Indigenous household ICT adoption are just as important in the urban area as they are in the rural area. Having children who use ICTs in education is influencing parents to adopt ICTs for their children’s education. This confirms Proposition D (see Figure 5.6).
Proposition E. Gaining access to flexible payment methods can increase the likelihood of Indigenous household ICT adoption

Having access to flexible payment methods is important in the urban area and can influence Indigenous household ICT adoption. A number of participants prepaid for their Internet access. Proposition E is confirmed in the urban area.

Proposition F. Wanting to research Indigenous cultures and family histories can increase the likelihood of Indigenous household ICT adoption

As discussed above, urban Indigenous people use ICTs in different ways to rural Indigenous people. It was found that researching family history was not as important to the urban Indigenous community as they used ICTs in the home for other purposes that were more to do with communication, e-commerce and monitoring world news. It is for this reason that Proposition F does not apply to the urban Indigenous community and therefore needs to be revised to capture the process from which it was first formed, that is, as a reason to use ICTs in the household. The proposition now reads:

Proposition F. Having a purpose to use ICTs in the home can increase the likelihood of Indigenous household ICT adoption
Proposition G. Substance abuse by the head of the household reduces the likelihood of Indigenous household ICT adoption

Just as with the rural area, urban Indigenous communities must overcome some entrenched behaviours to realise household ICT adoption. In the rural area it was found that substance abuse had a major impact on the household budget and this was found to be no different in the urban area. Substance abuse is an important factor that prevents the adoption of ICTs in both the urban and rural Indigenous communities. This proposition has been confirmed to exist.

Proposition H. Poor financial management can reduce the likelihood of Indigenous household ICT adoption

This proposition is confirmed as poor financial management has emerged in both the urban and rural Indigenous communities.

Proposition I. The preference for face-to-face communication can reduce the likelihood of Indigenous household ICT adoption

Given that one of the uses of ICTs in urban Indigenous households was to email others, it was perplexing to find that face-to-face communication is important in urban areas. Proposition I exists in the urban area and this case has provided a deeper understanding that face-to-face communication is important to Indigenous people. While face-to-face is important there is evidence that this is becoming less important over time through the use of ICTs.
**Proposition J. Appropriate ICT training will increase the likelihood of Indigenous household ICT adoption**

There was strong evidence that appropriate ICT training is important in the urban Indigenous community. Therefore, proposition J exists also for the urban Indigenous community.

**Proposition K. High cost of ICTs can reduce the likelihood of Indigenous household ICT adoption**

Cost considerations are just as important in the urban Indigenous community as in the rural Indigenous community despite the disparity of the levels of household income between the rural and urban Indigenous communities. Mean urban household income is almost twice that of the rural community. Costs are just as salient to urban Indigenous households confirming Proposition K.

**Proposition L. Racial discrimination in the labour market can reduce the likelihood of Indigenous household ICT adoption**

It was found in the rural Indigenous community that some Indigenous people are discriminated against when seeking employment. This racism was also found in the urban community. The existence of racism confirms Proposition L.

An investigation of the propositions from the foundation case was undertaken and the applicability of the propositions to Indigenous household ICT adoption in the urban
Indigenous community was tested. It was found that only Proposition F required rewording. The second proposition table is outlined below (see Table 5.16).

### Table 5.15: EMERGENT PROPOSITION TABLE FROM RURAL AND URBAN CASE STUDIES

<table>
<thead>
<tr>
<th>INFLUENCE ON ICT ADOPTION</th>
<th>EMERGENT PROPOSITIONS FROM RURAL AND URBAN CASE STUDIES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GROUP 1</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MOTIVATORS OF HOUSEHOLD ICT ADOPTION</strong></td>
<td>Proposition A. The use of ICTs in employment increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition B. The use of ICTs in education increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition C. Having family and friends with ICTs in their home increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition D. Having school aged children in the household who use ICTs in school increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition E. Gaining access to flexible payment methods can increase the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition F. Having a purpose to use ICTs in the home can increase the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition J. Appropriate ICT training will increase the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td><strong>GROUP 2</strong></td>
<td></td>
</tr>
<tr>
<td><strong>INHIBITORS OF HOUSEHOLD ICT ADOPTION</strong></td>
<td>Proposition G. Substance abuse by the head of the household reduces the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition H. Poor financial management can reduce the likelihood of Indigenous household ICT adoption</td>
</tr>
</tbody>
</table>
Proposition I. The preference for face-to-face communication can reduce the likelihood of Indigenous household ICT adoption

Proposition K. High cost of ICTs can reduce the likelihood of Indigenous household ICT adoption

Proposition L. Racial discrimination in the labour market can reduce the likelihood of Indigenous household ICT adoption

5.8 The Contribution of the Urban Indigenous Community

The urban Indigenous community has provided some important insights and has confirmed all motivating and inhibiting categories from the foundation case study. As described above the difference between the two cases is quite large not just in locality but in socioeconomic status. Yet, with the exception of minor contextual differences, the cases have yielded similar results. These findings suggest that a single theoretical model can be developed for the rural and urban Indigenous communities as they have many conceptual commonalities with regard to Indigenous household ICT adoption.

5.9 Theoretical Sampling - The Next Case

As required by Grounded Theory Methodology, theoretical sampling needs to be conducted to provide a deeper understanding of the emergent categories. When selecting cases or the ‘next slice of data’, it is important that the next case study has substantial differences but is conceptually the same. The next slice of data in this thesis is the remote Indigenous community. The remote Indigenous community that has been selected for this thesis is considered a very remote Indigenous community. A very remote Indigenous community is defined as an area those areas where geographic
distance imposes the highest restriction upon accessibility to the widest range of goods, services and opportunities for social interaction (Australian Bureau of Statistics 2004b). Choosing this community fulfils the GTM requirement of maximising differences across comparison groups (Lehmann and Fernandez 2007).

The core categories to be investigated in the remote Indigenous community are listed in the table below (see Table 5.17).

Table 5.16: CATEGORIES TO BE INVESTIGATED FURTHER

<table>
<thead>
<tr>
<th>MOTIVATORS</th>
<th>INHIBITORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Exposure in environment</td>
<td>1. Negative behaviour</td>
</tr>
<tr>
<td>1a. Education</td>
<td>1a. Substance abuse</td>
</tr>
<tr>
<td>1b. Employment</td>
<td>1b. Poor financial management</td>
</tr>
<tr>
<td>1c. Family and friends with ICTs in their home</td>
<td></td>
</tr>
<tr>
<td>2. Household lifecycle</td>
<td>2. Individual needs</td>
</tr>
<tr>
<td>2a. Children</td>
<td>2a. Preference for face-to-face communication</td>
</tr>
<tr>
<td></td>
<td>2b. Appropriate ICT training</td>
</tr>
<tr>
<td>3. Cost flexibility</td>
<td>3. Costs</td>
</tr>
<tr>
<td>3a. Flexible payment method</td>
<td>3a. Cost of ICTs</td>
</tr>
<tr>
<td>4. Purpose to use</td>
<td>4. Racism</td>
</tr>
<tr>
<td>4a. Researching Indigenous culture and family history</td>
<td>4a. Facing racism</td>
</tr>
<tr>
<td>4b. Communication via email</td>
<td></td>
</tr>
<tr>
<td>4c. Electronic commerce</td>
<td></td>
</tr>
<tr>
<td>4d. Keeping up-to-date with news</td>
<td></td>
</tr>
</tbody>
</table>

5.10 Conclusion

This chapter has provided the background, context and findings for the urban case study. All core categories from the foundation case study have been investigated and have been found to exist in the urban Indigenous community. Similarly to the rural findings, the findings in this case study demonstrate that for Indigenous household ICT adoption to be realised, there is a requirement both to both fulfil a set of motivating
factors and while at the same time to mitigate inhibiting factors that prevent Indigenous household ICT adoption.

It has emerged that just as in the rural case study the most influential aspect of the Indigenous household ICT adoption process in the urban Indigenous community is the use of ICTs in employment and education. At the same time a social network of ICT adopters is also important to the Indigenous household ICT adoption process in the urban context.

It has become apparent that Indigenous households in the urban area must actively avoid the factors that inhibit Indigenous household ICT adoption, in particular substance abuse which is the key inhibiting factor.

Chapter 6 investigates each proposition from Table 5.16 following the GTM requirement of adding more slices of data. A combination of selective coding (confirming existing codes) and open coding (the discovery of new codes) will be utilised (see Chapter 3). Each proposition is tested in the urban area to discover if the concept exists in the remote Indigenous household context.
6.1 Introduction

The previous two chapters provided the case overview and findings for the rural Indigenous community and the urban Indigenous community respectively. This chapter discusses and analyses the third and final case study in this thesis, namely the remote Indigenous community.

The grounded theory methodology requires that theoretical sampling will continue until category ‘saturation’ is achieved (see Chapter 4). Therefore, the remote Indigenous community represents the next ‘slice of data’ towards category ‘saturation’ (see Chapter 3). As with the other Indigenous communities in this thesis, and in accordance with the research ethics protocols, the specific location of this community will not be disclosed.

This chapter represents the final case study in the development of a grounded theory of Indigenous household Information and Communication Technology (ICT) adoption. It examines issues of Indigenous household ICT adoption in a remote, discrete Indigenous community of Australia. It was explained in Chapters 1 and 4 that the concept of an ‘Indigenous community’ is abstract. However, for this case study the concept of an ‘Indigenous community’ is rather less abstract because this community is considered a discrete remote Indigenous community as categorised by the Australian Bureau of Statistics (ABS) (Australian Bureau of Statistics 2004b).
A discrete remote Indigenous community is defined as ‘a geographic location, bounded by physical or cadastral boundaries, and inhabited predominantly by Aboriginal and Torres Strait Islander people’ (Australian Bureau of Statistics 2007, p.3). This community is a very remote community, which is defined by the ABS as those areas where geographic distance imposes the highest restriction upon accessibility to the widest range of goods, services and opportunities for social interaction (Australian Bureau of Statistics 2004b).

Therefore, this community is quite different from those analysed in the previous two communities in that the majority of people living in this locality are Indigenous; and the community is considered both a discrete Indigenous community and a very remote community.

To ensure that the specific location and name of this Indigenous community is protected, as required by the research ethics protocols, the reported data in this chapter are aggregated where necessary. However, all percentages are accurate.

Consistent with the previous two case studies in Chapter 5 and Chapter 6, section 6.2 below provides the quantitative data that have been found to be important to the Indigenous household ICT adoption process. As discussed in previous chapters, Census data is collected for limited aspects of the Indigenous household ICT adoption process.

This chapter is structured as follows. This section provides the introduction to the chapter. Section 6.2 provides the case profile for the research area through the use of Australian Bureau of Statistics Census data. Section 6.3 discusses the data collection methods used in the remote Indigenous community. Section 6.4 discusses the case
differences between the remote, rural and urban Indigenous communities. Section 6.5 discusses the investigation and the testing of the core categories from Chapter 6. Section 6.6 compares the remote case study with both the rural and urban case studies. Section 6.7 further develops the theoretical framework of Indigenous household ICT adoption and develops the third theoretical framework. Section 6.8 discusses the contribution made by the remote Indigenous community case study. Section 6.9 concludes this chapter.

6.2 Case Profile

The remote Indigenous community in this case study was specifically chosen as it provided a rich description of the ICT adoption process from a discrete remote Indigenous perspective.

As with the previous case studies, it is important to outline and profile the Indigenous community being examined. The remote Indigenous community in this research had a total population in 2006 of 283 people with the Indigenous population representing 76.7% of the total population (Australian Bureau of Statistics 2006a).

The following tables outlined below provide context to the final case study. The tables provide an overview of the socioeconomic status of the urban Indigenous community as well as educational, employment and Internet connection data. All tables are my calculations based on a number of ABS releases from the 2006 ABS Census data.

As with the chapters about the rural and urban case studies the tables in the following section were calculated and entered after the analysis of the remote case study. The
quantitative data displayed are the data available from the ABS and are what is salient to the next slice of data in this thesis. There are other areas of factors that are important to the process of Indigenous ICT adoption; however, there is no quantitative data available from the ABS in these areas.

6.2.1 School Qualifications

School qualifications of Indigenous people in this very remote Indigenous community are quite low. The Census data shows that in 2006 just 5.5% of the Indigenous population completed Year 12. This is in contrast to the non-Indigenous population in the community with 57.4% having completed Year 12. Also, just 5.5% of the Indigenous population completed either Year 11 or Year 12 compared to 78.7% of the non-Indigenous population. Moreover, the data reveal that 94.3% of the Indigenous population had completed Year 10 or below in contrast to 21.3% of the non-Indigenous population (see Table 6.1). These figures demonstrate a significant gap in school qualification attainment between the Indigenous and non-Indigenous community in the remote area and show that ten times fewer Indigenous people complete Year 11 or Year 12 education.

Table 6.1: HIGHEST LEVEL OF SCHOOL EDUCATION (Source: ABS 2006)

<table>
<thead>
<tr>
<th>Highest Year of School Completed</th>
<th>Indigenous</th>
<th>Non-Indigenous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 12 or equivalent</td>
<td>5.5</td>
<td>57.4</td>
</tr>
<tr>
<td>Year 11 or equivalent</td>
<td>0.0</td>
<td>21.3</td>
</tr>
<tr>
<td>Year 10 or equivalent</td>
<td>13.0</td>
<td>8.5</td>
</tr>
<tr>
<td>Year 9 or equivalent</td>
<td>14.4</td>
<td>6.4</td>
</tr>
<tr>
<td>Year 8 or below</td>
<td>62.3</td>
<td>6.4</td>
</tr>
<tr>
<td>Did not go to school</td>
<td>4.6</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Number of persons as a percentage of those 15 years and over
6.2.2 Non-School Educational Qualifications

Non-school educational qualifications were equally low in this very remote Indigenous community. Table 6.2 shows that just 9.2% of the Indigenous population had completed some form of post-secondary qualification which is in contrast to 74.5% of the non-Indigenous population having completed post-secondary qualifications. The 2006 Australian Census data demonstrate that, in fact, none of the Indigenous population had a bachelor degree or above in contrast to 40.4% of the non-Indigenous population having a bachelor degree or above (see Table 6.2).

Table 6.2: LEVEL OF NON-SCHOOL EDUCATIONAL QUALIFICATIONS (Source: ABS 2006)

<table>
<thead>
<tr>
<th>Level of non School Education</th>
<th>Indigenous</th>
<th>Non-Indigenous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postgraduate Degree</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Graduate Diploma or Graduate Certificate</td>
<td>0.0</td>
<td>6.4</td>
</tr>
<tr>
<td>Bachelor Degree</td>
<td>0.0</td>
<td>34.0</td>
</tr>
<tr>
<td>Advanced Diploma or Diploma</td>
<td>2.0</td>
<td>12.8</td>
</tr>
<tr>
<td>Certificate Level</td>
<td>7.2</td>
<td>21.3</td>
</tr>
</tbody>
</table>

Number of persons as a percentage of those 15 years and over with qualifications

6.2.3 Labour Force

Employment and labour force participation data for this very remote Indigenous community is displayed in Table 6.3. The Census data show that Indigenous unemployment in this community was 9.7% compared to zero for the non-Indigenous population. The data also demonstrates that there is just 18.9% Indigenous employment in this community in contrast 100% of the non-Indigenous community had employment (see Table 6.3).
Table 6.3: LABOUR FORCE STATUS (Source: ABS 2006)

<table>
<thead>
<tr>
<th>Labour Force Status</th>
<th>Indigenous</th>
<th>Non-Indigenous</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Employment of population (a)</td>
<td>18.9</td>
<td>100.0</td>
</tr>
<tr>
<td>% Labour force participation (b)</td>
<td>20.9</td>
<td>100.0</td>
</tr>
<tr>
<td>% Unemployment (c)</td>
<td>9.7</td>
<td>0.0</td>
</tr>
</tbody>
</table>

a - Number of persons employed as a percentage of those 15 years and over  
b - Number of persons in labour force as a percentage of those 15 years and over  
c - Number of persons unemployed as a percentage of those 15 years and over

6.2.4 Family Status

The demographic data of the household in the very remote Indigenous community assists in providing a fuller contextual framework. Census data show that 100% of Indigenous households in this locality were family households compared to 61.9% of non-Indigenous households. The data also demonstrate that 20.5% of Indigenous households were multiple family households compared to zero multiple family households in the non-Indigenous community. Data also show that there were three times the number of non-Indigenous family households with no children compared with Indigenous households; and there were twice as many Indigenous households with children compared with non-Indigenous households (see Table 6.4).
Table 6.4: FAMILY STATUS (Source: ABS 2006)

<table>
<thead>
<tr>
<th>Family Status</th>
<th>Indigenous</th>
<th>Non-Indigenous</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Family Households:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Couple family with no children</td>
<td>18.0</td>
<td>47.6</td>
</tr>
<tr>
<td>Couple family with children</td>
<td>28.2</td>
<td>14.3</td>
</tr>
<tr>
<td>One parent family</td>
<td>25.6</td>
<td>0.0</td>
</tr>
<tr>
<td>Other family</td>
<td>7.7</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>79.5</td>
<td>61.9</td>
</tr>
<tr>
<td>Multiple family households</td>
<td>20.5</td>
<td>0.0</td>
</tr>
<tr>
<td>Total family households</td>
<td>100.0</td>
<td>61.9</td>
</tr>
<tr>
<td>Lone person households</td>
<td>0.0</td>
<td>38.1</td>
</tr>
<tr>
<td>Group households</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

6.2.5 Households with Internet Connection

The 2006 Australian Census data provide a quantitative overview of the level of ICT adoption in households in this very remote Indigenous community. Table 6.5 shows the total number of households and the total number of households connected to the Internet as a percentage of the total population. From the data we can extrapolate that approximately 3 Indigenous households had an Internet connection while 15 non-Indigenous households had an Internet connection.

Table 6.5: NUMBER OF HOUSEHOLDS AND PERCENTAGE WITH INTERNET CONNECTION (Source: ABS 2006)

<table>
<thead>
<tr>
<th></th>
<th>Indigenous</th>
<th>Non-Indigenous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of households</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>40+</td>
<td>20+</td>
</tr>
<tr>
<td>% with Internet connection</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.3</td>
<td>71.4</td>
</tr>
</tbody>
</table>
6.2.6 Household Income

The 2006 Australian Census provides data on mean weekly household income. Table 6.6 shows that Indigenous households in the remote case study had a mean weekly income of $961.63. The non-Indigenous household mean weekly income was significantly higher at $1,497.37 (see Table 6.6). This demonstrates a difference between the average Indigenous and non-Indigenous household incomes of approximately $536 per week or 35.8%.

Table 6.6: MEAN WEEKLY HOUSEHOLD INCOMES (Source: ABS 2006)

<table>
<thead>
<tr>
<th>Mean household income</th>
<th>Indigenous</th>
<th>Non-Indigenous</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$961.63</td>
<td>$1,497.37</td>
</tr>
</tbody>
</table>

6.2.7 Household Size

Figure 6.1 highlights the proportional household size difference between Indigenous and non-Indigenous households in the very remote Indigenous community. The diagram shows that there were zero per cent of single person Indigenous households in contrast to approximately 38% of single person non-Indigenous households. At the other end of the scale there were approximately 42% of Indigenous households with six or more persons while none of the non-Indigenous households had six or more persons.
6.3 Data Collection for the Remote Community

This case study text is based on 11 interviews which produced just over 5 hours of interview recording. When these interviews were transcribed they produced 69 pages of text. These interviews were collected over a period of 61 days.

Just as in the previous 2 case studies, interviewees were chosen at random where opportunity permitted, but were also by referrals from the previous interviewee. There were a number of refusals in this locality due to community members being busy, not being interested in participating in the research, or being suspicious of me.

The time taken for each interview varied as outlined in the Summary of Interview Data (see Table 6.7), but were on average for a considerably shorter duration than the rural and urban community interviews (see Chapters 4 and 5). The interviews were conducted at a number of locations including community organisations, in the desert, and in homes. Some participants spoke English quite well, while others spoke a form of
Aboriginal English. The Aboriginal English was difficult to understand at times but overall it was spoken well enough to collect data in interviews. For more detail on data collection in the remote community see Appendix G.

Table 6.7: SUMMARY OF INTERVIEW DATA

<table>
<thead>
<tr>
<th>Participant</th>
<th>Recording File Name</th>
<th>Transcribed .rtf File Name</th>
<th>Length of Interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote Participant 1</td>
<td>2007-9-23-1</td>
<td>Remote_1</td>
<td>1:04:45</td>
</tr>
<tr>
<td>Remote Participant 3</td>
<td>2007-9-24-1</td>
<td>Remote_3</td>
<td>34:54</td>
</tr>
<tr>
<td>Remote Participant 4</td>
<td>2007-9-30-1</td>
<td>Remote_4</td>
<td>15:26</td>
</tr>
<tr>
<td>Remote Participant 5</td>
<td>2007-9-30-2</td>
<td>Remote_5</td>
<td>14:35</td>
</tr>
<tr>
<td>Remote Participant 6</td>
<td>2007-10-2-1</td>
<td>Remote_6</td>
<td>13:12</td>
</tr>
<tr>
<td>Remote Participant 7</td>
<td>2007-10-3-1</td>
<td>Remote_7</td>
<td>28:46</td>
</tr>
<tr>
<td>Remote Participant 8</td>
<td>2007-10-10-1</td>
<td>Remote_8</td>
<td>10:21</td>
</tr>
<tr>
<td>Remote Participant 9</td>
<td>2007-10-16-1</td>
<td>Remote_9</td>
<td>24:23</td>
</tr>
<tr>
<td>Remote Participant 10</td>
<td>2007-10-19-1</td>
<td>Remote_10</td>
<td>17:48</td>
</tr>
<tr>
<td>Remote Participant 11</td>
<td>2007-10-26-1</td>
<td>Remote_11</td>
<td>19:29</td>
</tr>
</tbody>
</table>

Each interview in this chapter is sourced by the allocated participant number according to the table above.

6.4 Case Differences and Similarities

It is important to highlight the differences between this case, Case Three (the Remote Indigenous Community), and the Foundation Case (the Rural Indigenous Community), and Case Two (the Urban Community case). The foundation case in Chapter 4 and the second case in Chapter 5 highlighted the issue of identifying the Indigenous community in the rural and urban areas of Australia. Indigenous people in rural and urban areas are more or less ‘integrated’ into the wider Australian society. This is in contrast to remote Indigenous communities, such as the one in this case study, where the Indigenous community is easily identifiable. Therefore, the first difference between this case study and the previous case studies is that the Indigenous population is easily identifiable by a
casual observer. The dynamics of this community are such that it is quite isolated and there are limited interactions with the broader regional area.

As with the rural and urban areas, the remote community also has a number of Aboriginal organisations. These organisations include the Aboriginal Medical Service which is divided into men’s clinic and women’s clinics, Aboriginal Education and Training, and the Aboriginal Land Council. As with the other case studies all these organisations fall under the Corporations (Aboriginal and Torres Strait Islander) Act 2006 also known as the CATSI Act 2006 (Australian Government 2005a).

Unlike the rural area where a number of Aboriginal organisations were clustered together and the urban area where Aboriginal organisations were scattered throughout the suburbs—Aboriginal organisations within this remote Indigenous community are at the centre of the community. Indeed in this remote Indigenous community the Aboriginal organisations are located at the physical centre of the community allowing people to travel to a central point to access all services. The physical size of the entire community is approximately one kilometre long and eight hundred metres wide.

Unlike both the rural and urban areas where Indigenous people are the minority, in this remote Indigenous community non-Indigenous people are the minority. In the rural case the Indigenous population represented 7.4% of the total population and in the urban area the Indigenous population represented just 1.2% of the total population. In this remote community the Indigenous population represents 72.5% of the total population.

There is a striking contrast in education levels between this remote Indigenous community and the rural and urban Indigenous communities. In the rural area 12.5% of
Indigenous people completed Year 12 and in the urban area 42.6% of Indigenous people completed Year 12. In this remote community only 5.5% of Indigenous people completed Year 12. This large disparity also applies to non-school educational qualifications where in the rural area just over 16% of Indigenous people had completed non-school educational qualifications and in the urban area just over 36% of Indigenous people had completed non-school educational qualifications. These figures are in striking contrast to the remote Indigenous community where only 9.2% of Indigenous people had completed a non-school educational qualification. The largest gap in post-secondary education is in university qualifications. In the rural area 1.5% of Indigenous people completed a bachelor degree and just over 11% of Indigenous people completed bachelor degrees in the urban area. In contrast there were no Indigenous people in the remote Indigenous community who had completed a university qualification at all.

Employment is also a key indicator that has contrasting differences between the rural, urban and remote areas. The unemployment rate for Indigenous people in the rural area was nearly 35% and for the urban area it was 11%. Surprisingly Indigenous unemployment for the remote area was the lowest of the three areas at 9.7%. However, this unemployment percentage by itself does not reflect the level of employment in the remote area; it only demonstrates the percentage of Indigenous individuals who are classed as unemployed. The total percentage of the Indigenous population employed in the remote area is just 18% which is in contrast to the rural area at 26.7% and the urban area at 62.7% of the Indigenous population aged 15 years and above in the three localities.

One of the most startling differences between the remote Indigenous area and the Indigenous rural and urban areas is the number of households with an Internet
connection. In the rural area 31.2% of Indigenous houses had the Internet connected to the house, while in the urban area there were twice as many Indigenous households connected to the Internet at 65.6%. This is in stark contrast to the remote area with just 7.3% of Indigenous households with an Internet connection.

It has been demonstrated that there is a large difference between the level of Indigenous households connected to the Internet between the remote, rural and urban Indigenous communities. There is also a significant gap in Internet connections between Indigenous and non-Indigenous households in the remote Indigenous community. In the rural community the gap between Indigenous and non-Indigenous household Internet connections was 14.8% and in the urban community the gap was 9.7%. In contrast the gap between Indigenous and non-Indigenous households connected to the Internet in the remote Indigenous community was 64.1%. This gap is the largest of all three localities.

One of the other contextual differences in this case study at the society level is that this is a remote Indigenous community which by definition has limited services (see Section 6.1). Limited services means amongst other things, that there are limited opportunities for individuals to gain employment. While there are professional positions within the Aboriginal Medical Service, the Aboriginal Land Council and the Adult Education Centre, the positions require skilled staff and are often filled by non-Indigenous people. Limited services also applies to educational facilities. There is no school located in this remote Indigenous community; however, there is a larger township approximately 40 kilometres away where a primary school and high school are located and a school bus service runs to and from the community daily. There is no commuter service between the two locations other than the school bus, thus limiting employment opportunities.
The limited post-secondary qualifications for Indigenous people in this remote Indigenous community are probably due to lack of opportunity. The nearest post-secondary institution is over 450 kilometres away from the community. There is a regular flight between the remote Indigenous community and the township where the post-secondary institution is located, however cost of travel and accommodation prevents many Indigenous people from attending.

The total number of family households between the rural, urban and remote Indigenous communities is another difference between the three localities. In the rural area the total percentage of family households was 81.9%, in the urban area the total number of family households was 79.9%. In the remote area 100% of the households were family households (see Table 6.4).

Data showed in the previous case studies that the mean household income differences between Indigenous and non-Indigenous households in the rural Indigenous community was 16% and was 15% in the urban Indigenous community. These are in contrast to the remote Indigenous community where the mean household income for Indigenous households is 36% less than that of the non-Indigenous households.

The differences between the three localities have been discussed and it is important now to discuss the similarities for the three localities. The similarities between the rural, remote and urban locations are limited due to location, historical and cultural factors. The way Indigenous people are identified as Indigenous in the remote Indigenous community is consistent with the rural and urban communities. That is, individuals identifying as being Indigenous must still meet the ‘test of Aboriginality’ to be officially considered Aboriginal. The definition of Aboriginal was outlined in Chapter 1.
The differences and similarities of all three case studies have been discussed. All socio-economic status and remoteness indicators demonstrate that the remote Indigenous community is the most disadvantaged location in this study. Each community is a conceptually similar sample in broad terms, but all have group differences. This is a requirement for GTM to enable the analytic framework to be more generalisable. Each of the three case studies has identified and investigated the research problem through interviewing Aboriginal people from the three localities. The similarities and differences of the three localities are also demonstrated through the ABS data in that the data demonstrate that Indigenous households are larger, less educated, have less income and have less employment than their non-Indigenous counterparts in all localities. At the same time, the unit of analysis, which is Indigenous households, is the same in the rural, urban and remote areas. This provides a sound basis for the remote area to be the final case in this thesis as it fulfils the requirements of theoretical sampling—that of maintaining the same unit of analysis with differences between cases.

6.5 Investigation

As indicated previously, this study attempts to discover what factors lead to Indigenous household adoption of ICTs and examines the factors that prevent Indigenous household ICT adoption. Therefore, during the coding process each instance of factors that lead to household ICT adoption were captured and also factors that prevent Indigenous household ICT adoption were captured. The interviews were coded with reference to the research question. The process of interpreting the data was broken down not only to enable constant comparison of the data but also to provide a chain of evidence to demonstrate the path from interview to theory building.
As the GTM requires, the confirmed core categories with emergent factors from the urban case study have been transported to the remote area for further investigation and analysis. The core categories that were investigated in the urban case study are located below in Table 6.8.

Table 6.8: CORE CATEGORIES TO BE INVESTIGATED

<table>
<thead>
<tr>
<th>MOTIVATORS</th>
<th>INHIBITORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Exposure in environment</td>
<td>1. Negative behaviour</td>
</tr>
<tr>
<td>1a. Education</td>
<td>1a. Substance abuse</td>
</tr>
<tr>
<td>1b. Employment</td>
<td>1b. Poor financial management</td>
</tr>
<tr>
<td>1c. Family and friends with ICTs in their home</td>
<td></td>
</tr>
<tr>
<td>2. Household lifecycle</td>
<td>2. Individual needs</td>
</tr>
<tr>
<td>2a. Children</td>
<td>2a. Preference for face-to-face communication</td>
</tr>
<tr>
<td>2b. Appropriate ICT training</td>
<td>2b. Appropriate ICT training</td>
</tr>
<tr>
<td>3. Cost flexibility</td>
<td>3. Costs</td>
</tr>
<tr>
<td>3a. Flexible payment method</td>
<td>3a. Cost of ICTs</td>
</tr>
<tr>
<td>4. Purpose to use</td>
<td>4. Racism</td>
</tr>
<tr>
<td>4a. Researching Indigenous culture and family history</td>
<td>4a. Facing racism</td>
</tr>
<tr>
<td>4b. Communication via email</td>
<td></td>
</tr>
<tr>
<td>4c. Electronic commerce</td>
<td></td>
</tr>
<tr>
<td>4d. Keeping up-to-date with news</td>
<td></td>
</tr>
</tbody>
</table>

6.5.1 Case Analysis

Interviews were conducted focusing on the concepts in Table 6.8, but as required by the GTM, there was sufficient scope in the questioning and interview discussions to yield new and local factors in this remote Indigenous community setting.

The interview text was coded in two different ways. Firstly it was selective coded where the instance of a category was confirmed or where the instance of a category was conceptually similar to the instances in the previous case studies. At the same time the text was also open coded where new concepts emerged from the data. Therefore, a
mixture of selective coding (confirmed codes) and open coding (discovery of new codes) was undertaken during case analysis.

During the analysis of the remote Indigenous community interview data it was confirmed that there are two domains that interact with each other in the adoption of ICT in Indigenous households in remote Indigenous communities. It has been confirmed that there are factors that both motivate and inhibit Indigenous households to adopt ICTs.

Each domain and their associated factors identified in these two domains will be discussed from a remote Indigenous perspective. New factors will be highlighted and other factors where the categories are conceptually the same, but require renaming to reflect the conceptualisation, will also be highlighted.

As with the urban case study, the inhibitors of Indigenous household ICT adoption are discussed first as these are the key to non-adoption of ICTs in Indigenous households in the remote Indigenous community.

6.5.2 Remote Indigenous Community Inhibitors

This section investigates the factors that inhibit Indigenous household ICT adoption in the remote Indigenous community.

The inhibitor categories to be investigated further are outlined below in Table 6.9. These categories emerged from the data in the foundation case and were found to be congruent in the second case study and now form the basis of the remote Indigenous community investigation.
Table 6.9: CORE INHIBITOR CATEGORIES TO BE INVESTIGATED

<table>
<thead>
<tr>
<th>INHIBITORS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Negative behaviour</strong></td>
<td>1a. Substance abuse</td>
</tr>
<tr>
<td></td>
<td>1b. Poor financial management</td>
</tr>
<tr>
<td><strong>2. Individual needs</strong></td>
<td>2a. Preference for face-to-face communication</td>
</tr>
<tr>
<td></td>
<td>2b. Appropriate ICT training</td>
</tr>
<tr>
<td><strong>3. Costs</strong></td>
<td>3a. Cost of ICTs</td>
</tr>
<tr>
<td><strong>4. Racsim</strong></td>
<td>4a. Facing racism</td>
</tr>
</tbody>
</table>

**Category 1. Negative behaviour**

In the previous case studies, *Substance abuse* and *Poor financial management* were found to be associated with the *Negative behaviour* category of the Inhibitor domain and these will be investigated for the remote community.

It was found in the rural and urban areas that substance abuse is a major inhibitor to having ICTs in Indigenous households. *Substance abuse* also emerged from the data in the remote area as an inhibitor to Indigenous household ICT adoption. It was found in the previous case studies that alcohol abuse was a major element in substance abuse. Alcohol abuse in previous chapters was discussed by the interviewee as if it were an everyday part of life for Indigenous people. It also emerged from this case study. Substance abuse plays a role in not having ICTs in the household of Indigenous people in remote localities as the following narrative demonstrates.

*Q. So do you think grog or drinking plays a part in not having a technology at home?*

*A. Yes, I think there are a few distractions in the community, alcohol, drugs, misuse of drugs play big role.*

*Q. Grog would be expensive out here wouldn't it?*
A. Most would go to [town]. [Town] is about four and a half hours drive. Difficult to do the whole trip on one-day. Then they do the grog run.

(Remote Participant 2)

and another,

... This is a dry community, but grog still gets in. We have grog runners, we have drug runners. Petrol sniffer runners and people who sell stuff to the kids. It is terrible hey.

(Remote Participant 1)

The acquisition and consumption of drugs is also a factor in remote Indigenous households not having ICTs. The drug dependency of one generation has a flow-on effect to the next generation as outlined below.

Q. Are drugs in the community?
A. Mainly marijuana. They were dealing ecstasy out here as well. So these old folk with kids are spending their money on everything other than food. And these kids are starving, that is why they sniff petrol. Because they are hungry, and the petrol sniffing stops the hunger.

(Remote Participant 1)

Given these statements and the evidence from the data, the category Substance abuse is a confirmed category in the remote Indigenous community and is therefore a confirmed category for all three localities.

It also emerged from the remote Indigenous community that gambling is a major issue. Problem gambling has the same impact on the household as substance abuse does in that it limits the finances available to purchase ICTs as outlined below.

Q. So they gamble there all day?
A. Yes, when the police come that is when they put the money under the blanket. The police tell them they have to move and they get up and go on, and soon as the police are gone they’re back again.

(Remote Participant 3)

Given that problem gambling has the same conceptual impact on the Indigenous household as Substance abuse in that is restricts the purchase of items such as ICTs, it is classified as Negative behaviour. Problem gambling is now added as a factor under the core category of Negative behaviour.

Poor financial management was another important factor to be investigated in the remote Indigenous community. It was found in the previous two case studies that poor financial management was a key factor in preventing ICT adoption in Indigenous households. It emerged in the remote Indigenous community, that many people felt that poor financial management did play a part in not having ICTs in the household, while others alluded to having financial issues without specifically mentioning that they did, as is expressed below.

Q. Why don’t you have the Internet at home?
A. Because I haven't paid my Telstra bill.

(Remote Participant 3)

and another,

Q. You have the telephone on at home?
A. No I got it cut off. It was a little bit expensive...Gee, that's more grog money and that's petrol money.

(Remote Participant 6)

and another,
Yes, certain people within those families. The priority of the people giving the money is not education and health. It’s a waste of a lot of money, its not getting spent in the right way.

(Remote Participant 5)

It was also discovered that poor financial management was linked to substance abuse in the rural and urban case studies. The link between poor financial management and substance abuse was found in the remote Indigenous community as well as demonstrated in the following narrative.

...I don't think Aboriginal people know how to save. I don't think they know how to manage it and again, substance abuse comes into this. If you're the head of a family and you are getting all this money to pay for your kids and stuff and you're an alcoholic or you're a petrol sniffer your dependants are going to suffer.

(Remote Participant 4)

The emergence of this link between substance abuse and poor financial management in the remote Indigenous community confirms that there is a consistent link between the two factors across all three case studies. This confirms poor financial management as a factor that inhibits ICT adoption in remote Indigenous households and is causally linked to substance abuse.

**Category 2. Individual needs**

It was discovered in the previous case studies that face-to-face communication is important to Indigenous people at least in the initial or early stages of interpersonal communication. In the remote Indigenous community it was found that face-to-face communication is also important as outlined below.
Q. Do you think it's important that Aboriginal people meet face-to-face rather than via email or the Internet?

A. Yes, it is important because of the trust thing. It is no use emailing when you can't put a face to it.

(Remote Participant 2)

and another,

Yeah, if you [are] there face-to-face that is the proper way that is the ancient stone age way. You have to be there. So you consider body language to see what's going on and check him right out.

(Remote Participant 6)

This evidence from the data has confirmed that the factor *Face-to-Face communication* is an individual preference for Indigenous people in the remote Indigenous community.

It was discovered in the previous case studies that Indigenous people thought that they required appropriate ICT training to engage in ICTs, even though they already regularly used ICTs. Indigenous people in this remote Indigenous community also believe that appropriate ICT training is important as outlined below.

Q. So do you think that technology is complex or difficult to understand?

A. It isn't once it is explained to you or someone guiding you. Like an old man, showing me through the desert. If I sat down with someone with knowledge and they could relate that to me at their free will. And I suppose you feel a little bit better. When we got someone there that you feel safe with where you might go the wrong way. And they say that is okay just come back here and follow this track. You know its just like someone guiding you through a minefield. And I suppose it's all in your head, like Aboriginal people are really visual people….

(Remote Participant 4)
The discovery of this factor in this locality confirms the factor Appropriate ICT training as relevant in the remote Indigenous community.

It emerged from the data that there is a remote contextual difference to the rural and urban communities. In this remote Indigenous community Aboriginal Law is still practised. A part of this law includes ceremonies. During one type of ceremony Indigenous men are put in charge of an aspect of the community. One participant stated that technology was not a part of Aboriginal Law and as such did not rank high on importance to the community.

A. In [the city] you got computers and you all the time being out here men have to go through ceremony. There's no computer in ceremony that is the difference I think. Half the year we have a Western technology and the other half we have cultural technology.

Q. Is that because ceremony doesn't have technology that excludes Aboriginal people or men go through the ceremony away from technology?

A. Yes, the only thing we take to the ceremony is a satellite phone, just in case someone gets hurt.

(Remote Participant 2)

The statement above is perplexing as the interviewee argues that the reason why very few Indigenous people in this remote Indigenous community do not have ICTs in the household is because there is no provision for such technology in Aboriginal Law. Clearly there has been an adoption of technology into the Aboriginal Law, that of the satellite phone. This suggests that if ICTs were more portable and able to be operated in very remote locations, ICTs may in fact be a part of Aboriginal Law, or at least part of the ceremonial process like the satellite phone is now.
This emergent factor of Aboriginal Law is salient to the remote Indigenous community. Given that attending an Aboriginal Law ceremony is an individual need, it is important to reflect this in the developing model. Therefore, the factor *Aboriginal Law* is added to the list of factors under this category as an inhibitor.

**Category 3. Costs**

The costs of ICTs emerged as a major inhibiting factor in accessing ICTs in the home in both the rural and urban Indigenous communities. It is therefore surprising to discover that while the cost of ICTs is a factor in remote Indigenous households, it is not a factor to the same extent as in the other localities. There is a strong relationship between employment and income see Tables 4.3, 5.3, 6.3 and Tables 4.6, 5.6, 6.6. That is, the higher the employment rate the higher the household income. Therefore, this finding in the remote case study is surprising. It has been discussed above that employment opportunities for Indigenous people in this remote Indigenous community are very limited with just under 19% of Indigenous people being employed in this area.

**Category 4. Racism**

*Racism* played a role in not gaining employment in both the rural and urban Indigenous communities and this impacts the opportunity to use ICTs in everyday employment. It was striking to see that racism did not feature prominently in the remote locality. That is not to say that racism does not exist but it operates at a different level to that found in the rural and urban case studies as outlined below.

*Q. Are there many jobs in the community?*

*A. Only the ones who work in the office and they are half-caste people, not for black people.*

*(Remote Participant 2)*
Note: Racism is a complex notion in the remote Indigenous context as Aboriginal people of mixed descent are no less Aboriginal than those who are not of mixed descent. The term ‘half-caste’ used by the interviewee is a term that refers to Indigenous people of Indigenous and mixed descent. Remembering the three components of the ‘test of Aboriginality’, Aboriginal people of mixed descent are only officially considered Aboriginal if they are accepted as such in the community in which they reside. This ‘rule’ also applies to full descent Aboriginal people as well. Therefore, the category of racism is confirmed in the remote Indigenous community at the conceptual level.

This section has discussed and investigated the inhibiting factors that affect Indigenous household ICT adoption in the remote Indigenous community. All core inhibiting categories and their factors have been confirmed to exist in the remote Indigenous community and new factors have emerged from the data. This is outlined below in Table 6.12 and graphically in Figure 6.2.

Table 6.10: CONFIRMED CORE INHIBITOR CATEGORIES AND ASSOCIATED FACTORS

<table>
<thead>
<tr>
<th>Inhibitors</th>
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<tbody>
<tr>
<td>1. Negative behaviour</td>
<td></td>
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<tr>
<td>1a. Substance abuse</td>
<td></td>
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<tr>
<td>1b. Poor financial management</td>
<td></td>
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<tr>
<td>1c. Problem gambling</td>
<td></td>
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<tr>
<td>2. Individual and cultural needs</td>
<td></td>
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<tr>
<td>2a. Preference for face-to-face communication</td>
<td></td>
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<tr>
<td>2b. Appropriate ICT training</td>
<td></td>
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<tr>
<td>2c. Aboriginal Law</td>
<td></td>
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<tr>
<td>3. Costs</td>
<td></td>
</tr>
<tr>
<td>3a. Cost of ICTs</td>
<td></td>
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<tr>
<td>4. Racism</td>
<td></td>
</tr>
<tr>
<td>4a. Facing racism</td>
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</tbody>
</table>
6.5.3 Remote Indigenous Community Motivators

This section discusses and investigates the motivating aspects of remote Indigenous household ICT adoption. This consists of investigating the existence of the core categories from the previous case studies as outlined in Chapter 4 and Chapter 5, as well as investigating new emergent motivating factors of Indigenous household ICT adoption.

The motivator categories to be investigated in the remote area are outlined below in Table 6.13.
Table 6.11: CORE MOTIVATOR CATEGORIES TO BE INVESTIGATED

|--------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|------------------|---------------|---------------|-----------------------------------------------|---------------|-------------------------------|---------------------------------|---------------------------------|------------------------|---------------------------------|

**Category 1. Exposure in environment**

It was discovered in Chapter 4 and Chapter 5 that Exposure in environment is a core motivator to Indigenous household ICT adoption. Once again, it has emerged that this is true in the remote Indigenous community. Exposure in the environment has featured prominently in that if you use ICTs in normal everyday activities outside the home, then the use of ICTs increases inside the home. It was found in the previous case studies that there are three factors that provide exposure to ICTs in the immediate environment of Indigenous people, namely *Education, Employment, and Family and friends with ICTs* in their home, as outlined in Table 6.13 above.

As this remote Indigenous community is over 450 kilometres from the nearest post-secondary institution, one of the most economically viable ways to study is through distance education with the assistance of ICTs. The use of ICTs to undertake distance education is considered the same as using ICTs for education in the other case studies. That is, the use of ICTs for distance education has the same influence on the Indigenous household ICT adoption process as does the use of ICTs in education in both the rural
and urban Indigenous communities. At the same time, having a computer in the household provides the opportunity to undertake distance education as outlined in the example below.

A. ... I'm doing my horticultural certificate four.
Q. Who are you doing that through?
A. TAFE. I get homework and I look at trees and that sort of thing online.

(Remote Participant 10)

While there are a limited number of Indigenous households with ICTs in this remote Indigenous community, it emerged that the ones who have ICTs are engaged in some form of education. Therefore, education is considered to be a confirmed factor in the adoption of ICTs in remote Indigenous households.

It was found in the previous two case studies that along with education, employment is a major factor in Indigenous household adoption of ICTs. While employment is very limited in the remote Indigenous community, 19% of the Indigenous population has employment. It emerged that most of the employed Indigenous people use ICTs in the workplace as outlined below.

Q. Do you use it at work or at home?
A. I use it at work.

(Remote Participant 1)

This same participant also has a computer at home and uses the technology at home.

Q. So, you only use it at work then?
A. I do here (at home) as well, because I am writing a book
Another participant who is employed commented:

Q. You don’t have a computer at home?
A. I do but it is not hooked up to the Internet.
Q. So you don’t use the one at home?
A. Yes I use it for my own personal stuff.

The strongest evidence of how employment and Indigenous household adoption of ICTs go together is with a statement from a senior Elder in the remote Indigenous community, who said that only the people who work in the office had a computer at home as outlined below.

Q. So, does anyone in the community own a computer at home?
A. Only the people in the office.

Family and friends with ICTs in their home is another motivating factor that was found in both the rural and urban areas. This factor goes to the point of having ICTs built into everyday situations for Indigenous people. By having other family and friends with ICTs Indigenous people are able to communicate any distance, as outlined below.

Q. Do you have other family members that have a computer?
A. Yes, my son, my sister; my three sisters.
Q. So you use it for family contact too.
A. Yes, but I do that at work as well...yeah, we keep in contact for birthdays and things like that.

and another,
Q. What about other family members do you have other family members, that have a computer at home?
A. Yes, my brother has a computer for his girls.

(Remote Participant 2)

and another,

Q. Do any of your family have a computer?
A. Yes, my brother.

(Remote Participant 7)

and another,

Q. Any of your family have a computer at home?
A. Yes, my sister has a computer at home on the station. But she needs a satellite dish, but she has the telephone on. And the fax, she can send emails but she needs to improve it with a satellite dish.

(Remote Participant 6)

Those who did not have a computer at home in the remote locality tended not have family or friends in their immediate circle with a computer at home either.

Q. Where do you use them?
A. Pretty much around work doing reports looking at rosters future works programs and budgeting, and emails.

Q. Do you have any other family members that have computers?
A. No. My brothers and sisters use computers at work.

(Remote Participant 4)

This is a very familiar pattern that exists in the rural and urban communities and now has emerged in the remote Indigenous community. This confirms the factor Family and friends with ICTs in their home as a motivating factor in the process of Indigenous households to adopt ICTs.
Category 2. Household lifecycle

The next core category to be examined from a remote Indigenous perspective is Household lifecycle or more specifically having children in the home. It was found that having children in the home was a motivating factor in the adoption of ICTs in Indigenous households in the rural and urban communities. After analysing the data for the remote Indigenous community this factor has also come to prominence, in that children do play a motivating role in the ICT adoption process in remote Indigenous households as outlined below.

Q. You have kids at school?
A. Yes

Q. Do they use computers at school?
A. Yes, they use computers at school.
(Remote Participant 2)

and another,

Q. So what do you think the main reasons are for owning a computer then?
A. Mainly for the kids are better off I suppose.

Q. Do they get to use computers at school?
A. Yes, we had to sign a form for her, the youngest one does not because she is in first-class.
(Remote Participant 3)

and,

Q. So your daughters taught you how to use it [computer]? (Referring to her two daughters aged 5 and 11)
A. Yes.
(Remote Participant 3)
More evidence of the household lifecycle effect came from Indigenous households which did not have a computer at the time of interview but did have one when their children were of school age, as outlined below.

Q. You don’t have a computer at home then?
A. We had one early to help them (speaking about her children) with their assignments

(Remote Participant 7)

and another,

Q. When the kids lived here did they have a computer at home?
A. They did but only for a little while, just for school work. For homework and maths and stuff like that.

(Remote Participant 8)

The evidence above has demonstrated that Household lifecycle effects do have a motivating influence on remote Indigenous households when it comes to Indigenous household ICT adoption. Therefore, Household lifecycle is confirmed as a factor in the remote Indigenous community.

Category 3. Cost flexibility
It has emerged from the data that the cost of ICTs is an issue for Indigenous people across all three locations in this thesis. To mitigate this, some Indigenous households prefer to have prepaid Internet access rather than a monthly plan. In the remote community however, only one household who had the Internet connected used the prepaid option, as explained below.

Q. What about the Internet, is that prepaid or on a plan?
A. It’s prepaid, but that is fucking dear... prepaid is good because you don’t get a big bill
(Remote Participant 6)

and another,

Q. If you had the Internet at home would that be prepaid or on a plan?
A. Prepaid.

Q. Is that because is easier to budget?
A. Yes

(Remote Participant 7)

Many Indigenous households preferred prepaid Internet access because they understood the concept from the way they pay for mobile phone services. Many Indigenous people in the remote Indigenous community use the prepaid option for mobile phone communication. Examples of the reasons Indigenous people in the remote Indigenous community use prepaid options for their mobile phone are outlined below.

Q. And you prefer prepaid do you think?
A. Yes I like prepaid because I don't get a bill every month. And I know my limit.

(Remote Participant 2)

and another,

Q. Is that prepaid?
A. Yes prepaid.

Q. Why do you like prepaid, you prefer prepaid?
A. Yes, I prefer prepaid.

Q. Why is that do you think?
A. So I don't get a big bill every three months. At least you know what you're putting in and what you are using.

(Remote Participant 6)
There is strong evidence that the factor Flexible payment method is an important consideration in the process of remote Indigenous household ICT adoption and therefore the factor is confirmed in the remote Indigenous community.

**Category 4. Purpose to use**

As discussed in Chapter 6, a purpose to use ICTs is a reason to adopt ICTs into the Indigenous household. It was found in the previous case studies that there were four primary purposes for Indigenous households to use ICTs in the home. These are: Researching Indigenous culture and family history, Communication via email, Electronic commerce, and Keeping up-to-date with news. It has emerged that this is the same for the remote Indigenous community. The Indigenous household adopting ICTs needs to have a purpose to use the ICTs, not just after the adoption but as part of the adoption process. The purposes for using ICTs in remote Indigenous households are outlined below.

The first factor in the category of Purpose to use to be investigated is Researching Indigenous culture and family history. It was found in the remote Indigenous community that there were a number of cultural heritage projects that were being undertaken by government departments on behalf of, or in consultation with, the remote Indigenous community, which made some households quite excited. One Indigenous householder who had a computer at home but no Internet access stated that they were involved in developing a database for the community and National Park, as outlined below.

*Q. So you are developing this database for all the National Park to learn about culture here but also for the community to learn about culture as well?*
A. Yes, like the stories and family pictures of communities, are put in that archive so it will never disappear.

(Remote Participant 2)

It also emerged from the data that Indigenous households in the remote Indigenous community used ICTs for reasons very similar to the rural and urban Indigenous communities, as outlined below.

Only for a few simple things, private study, because [I] am not connected outside [Internet]. on the computer at home I have images. I would like to do a website for my Aboriginal art.

(Remote Participant 4)

and another,

Q. What sort of book are you writing?
A. Its not an autobiography because I am not writing everything. It's called the ironic woman. And it's all about the events that happened in my life.

(Remote Participant 1)

It emerged in this case study that household based ICT use in the remote Indigenous community is conceptually the same as that of the rural and urban Indigenous communities. There is a contextual difference for the remote Indigenous community in that there is much more contribution to the creation of digital history materials rather than just researching Indigenous culture and family history. Therefore, the factor Researching Indigenous culture and family history needs to be modified to reflect this difference. This factor has now become Recording and researching Indigenous culture and family history.
The next factor to be investigated in the category of *Purpose to use is Communication via email*. It was found in the urban Indigenous community that communication via email was a primary purpose to use ICTs in Indigenous households. Email communication featured prominently in the work environment in the remote Indigenous community, but not so much in the Indigenous households, rather Internet chat was something that emerged as more prominent in remote Indigenous households. One participant said that they used chat to communicate with others around the world, as outlined below.

*I would get on the chat lines and talk to other people all around the world.*

(Remote Participant 1)

Another interviewee, who did not have a computer or Internet at home, stated that chat lines would be a major reason for investing in ICTs in the household.

... *I suppose, living in a remote community, I’d probably get in to the chat-lines.*

(Remote Participant 6)

Given the evidence above, the factor Communication via email is now generalised to capture all forms of ICT Communication which includes email and instant messaging, to *Communication via ICTs*.

*Electronic commerce* is the next factor to be investigated in the remote community. *Electronic commerce* was found to be a Purpose to use factor in the urban case study in Chapter 6. Given the remoteness of this Indigenous community and the low levels of household ICT adoption, it was surprising to find that electronic commerce emerged as
a significant purpose to use ICTs in remote Indigenous households. Interviewees with ICTs in their households were asked what they used ICTs for. The following demonstrates that electronic commerce is one of the main purposes.

*Buying stuff off the Internet*...

*(Remote Participant 1)*

and another,

*I do a lot of banking e-commerce and that sort of thing, because I can't just go down to the shop and to look because the closest shop is 500 kilometres away. So I do a hell of a lot of shopping on the Internet and in terms of finances I do a lot of banking.*

*(Remote Participant 5)*

Given the statements above, *Electronic commerce* has emerged as an important factor of the ICTs adoption process in the remote Indigenous community. Therefore, *Electronic commerce* is confirmed as a factor in the remote Indigenous community.

The final factor in the *Purpose to use* category to be investigated is *Keeping up to date with news*. This factor was found in the urban case study in Chapter 6. It emerged that the factor *Keeping up to date with news* was present in the remote Indigenous community with those who had ICTs in the home, albeit with a slight contextual difference. The Indigenous community in the urban case study wanted to ensure that they did not fall behind in terms of keeping up with national and international news and events. However, in the remote Indigenous community, Indigenous people are more concerned about keeping up with the latest social trends in the major cities. As one participant stated:

*A.... It's important that we move forward and not be left in the Stone Age.*

*Q. Do you think communities are left in the Stone Age?*
A. Yes, I think a lot of communities are left in the Stone Age.

(Remote Participant 3)

and another,

Q. What do you think the main reasons are for having a computer at home?

A. I think, moving forward with the rest of the world.

(Remote Participant 3)

Therefore, the factor Keeping up to date with news needs to be modified to reflect this contextual difference. This factor has now become **Keeping informed with Global Society**.

The contextual differences in the Purpose to use category that have emerged from the remote case study are important to include in the process of Indigenous household ICT adoption. The reason to use ICTs in the Indigenous household has expanded in this case study to include **Recording and researching Indigenous culture and family history**, **Communication via ICTs**, and **Keeping informed of global society**.

This section has investigated and discussed the motivating factors that affect Indigenous household ICT adoption in the remote Indigenous community. All core motivating factors have been confirmed to exist in the remote Indigenous community as outlined in Table 6.15 and graphically in Figure 6.3.
Table 6.12: CONFIRMED CORE CATEGORIES AND ASSOCIATED FACTORS

<table>
<thead>
<tr>
<th>MOTIVATORS</th>
<th>Purpose to Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Exposure in environment</strong></td>
<td>1a. Education</td>
</tr>
<tr>
<td></td>
<td>1b. Employment</td>
</tr>
<tr>
<td></td>
<td>1c. Family and friends with ICTs in their home</td>
</tr>
<tr>
<td>2. <strong>Household lifecycle</strong></td>
<td>2a. Children</td>
</tr>
<tr>
<td>3. <strong>Cost flexibility</strong></td>
<td>3a. Flexible payment method</td>
</tr>
<tr>
<td>4. <strong>Purpose to use</strong></td>
<td>4a. <em>Recording and researching Indigenous culture and family history</em></td>
</tr>
<tr>
<td></td>
<td>4b. <em>Communication via ICTs</em></td>
</tr>
<tr>
<td></td>
<td>4c. Electronic commerce</td>
</tr>
<tr>
<td></td>
<td>4d. <em>Keeping informed of global society</em></td>
</tr>
</tbody>
</table>

Figure 6.3: CONFIRMED MOTIVATOR DIAGRAM
6.6 Comparisons Between the Rural, Urban and Remote Indigenous Communities – Comparing Cases

The focus of the third case study was on the exploration of the emergent core categories and associated factors from the previous case studies of the rural and urban Indigenous communities. This is required by the theoretical sampling component of the GTM. The remote Indigenous community data has confirmed all core categories and their associated factors and has enhanced the existing factors. As discussed above new factors have emerged.

It was found that the underlying factors that inhibit Indigenous household ICT adoption are just as strong in the remote Indigenous community as they are in the rural and urban Indigenous communities. It was found that there are location specific contextual differences with regard to both the motivating and inhibiting factors across the three localities.

The remote Indigenous community case study has yielded two new salient emergent inhibiting factors to the Indigenous household ICT adoption process. These factors are *Problem gambling* and *Aboriginal Law*. The remote Indigenous community case study also informed three existing motivating factors. These are *Recording and researching Indigenous culture and family history*, *Communication via ICTs* and *Keeping informed of global society*. 


Just as in the urban Indigenous community where Indigenous people felt the need to use ICTs to keep up to date with news, remote Indigenous people feel the same, in that they use ICTs in the home to stay up with the latest social trends of the larger cities.

It was shown that Indigenous people in the rural area use ICTs in the home for researching family history and Indigenous culture, but was not found to be evident in the urban Indigenous community. However, researching family history and Indigenous culture was found to be evident in the remote Indigenous community with the contextual difference of recording Indigenous culture and family history. This is because the remote community has a cultural database which allows the Indigenous community members to both contribute to and research family histories and Indigenous culture.

There are slight contextual differences with regard to the motivational factors to the adoption of ICTs in the remote Indigenous Community which are outlined in the developing model. However, and surprisingly, the underlying factors that inhibit Indigenous household ICT adoption that emerged from the previous case studies have emerged in the remote Indigenous community as well. This suggests that the adoption of ICTs in Indigenous households in general is inhibited by shared common factors. This finding demonstrates that there are commonalities within the Indigenous community that are common to the Indigenous community regardless of geographic location and socioeconomic status.

It was found that in the rural and urban Indigenous communities there needs to exist two or more of the motivating factors to achieve Indigenous household ICT adoption. The same requirements have been found in the remote Indigenous community. That is, for
remote Indigenous households to adopt ICTs there needs to exist more than one of the motivational factors. It was also found in the rural and urban Indigenous communities that there is a need to avoid inhibiting factors to realise Indigenous household ICT adoption. This too has been found in the remote Indigenous community. These shared findings reflect the complexity of the Indigenous household ICT adoption process.

6.7 Further Developing the Theoretical Framework – The Final Case

As required by the Grounded Theory Methodology, theoretical saturation of the core categories needs to be achieved. This case study has provided the data to sufficiently saturate all core categories and their associated factors. The final case study has provided a deeper understanding of how the use of ICTs in everyday life such as in employment and educational pursuits positively influences the Indigenous household ICT adoption process.

This case study has also provided some minor contextual differences between the rural, urban and remote Indigenous communities. However, the similarities across all three localities are startling. The fact that no new core categories emerged from this case study provides a solid foundation for the developing Indigenous household ICT adoption model.

The table below demonstrates the emergent aspects of the motivator and inhibitor domains. The new factors and renamed categories are italicised and bold for distinction (see Table 6.16).
Table 6.13: CONFIRMED MOTIVATOR AND INHIBITOR TABLE WITH NEW PROPERTIES FROM REMOTE CASE STUDY

<table>
<thead>
<tr>
<th>MOTIVATORS</th>
<th>INHIBITORS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Exposure in environment</strong></td>
<td><strong>1. Negative behaviour</strong></td>
</tr>
<tr>
<td>1a. Education</td>
<td>1a. Substance abuse</td>
</tr>
<tr>
<td>1b. Employment</td>
<td>1b. Poor financial management</td>
</tr>
<tr>
<td>1c. Family and friends with ICTs in their home</td>
<td>1c. Problem gambling</td>
</tr>
<tr>
<td><strong>2. Household lifecycle</strong></td>
<td><strong>2. Individual and cultural needs</strong></td>
</tr>
<tr>
<td>2a. Children</td>
<td>2a. Preference for face-to-face communication</td>
</tr>
<tr>
<td></td>
<td>2b. Appropriate ICT training</td>
</tr>
<tr>
<td></td>
<td>2c. Aboriginal Law</td>
</tr>
<tr>
<td><strong>3. Cost flexibility</strong></td>
<td><strong>3. Costs</strong></td>
</tr>
<tr>
<td>3a. Flexible payment method</td>
<td>3a. Cost of ICTs</td>
</tr>
<tr>
<td><strong>4. Purpose to use</strong></td>
<td><strong>4. Racism</strong></td>
</tr>
<tr>
<td>4a. Recording and researching Indigenous culture and family history</td>
<td>4a. Facing racism</td>
</tr>
<tr>
<td>4b. Communication via ICTs</td>
<td></td>
</tr>
<tr>
<td>4c. Electronic commerce</td>
<td></td>
</tr>
<tr>
<td>4d. Keeping informed of global society</td>
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</tbody>
</table>

The core categories and their associated factors were discussed above. When the influence of all categories is taken into account the interactions are demonstrated in the causal relationship diagram below (see Figure 6.4).
Figure 6.4: INTERACTIONS OF CATEGORIES AND THE CAUSAL EFFECTS ON INDIGNEOUS HOUSEHOLD ICT ADOPTION
6.7.1 Further Developing the Propositions

Now that the remote Indigenous community has provided theoretical saturation of the core categories, an investigation of the propositions will be undertaken. The aim of this process is to test the propositions in the remote Indigenous community context. Where appropriate, new propositions will be created or existing propositions reworded. The second proposition table that was developed in Chapter 6 is outlined below (see Table 6.17).

Table 6.14: EMERGENT PROPOSITION TABLE FROM RURAL AND URBAN CASE STUDIES

<table>
<thead>
<tr>
<th>INFLUENCE ON ICT ADOPTION</th>
<th>EMERGENT PROPOSITIONS FROM RURAL AND URBAN CASE STUDIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP 1 - MOTIVATORS OF HOUSEHOLD ICT ADOPTION</td>
<td>Proposition A. The use of ICTs in employment increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition B. The use of ICTs in education increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition C. Having family and friends with ICTs in their home increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition D. Having school aged children in the household who use ICTs in school increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition E. Gaining access to flexible payment methods can increase the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition F. Having a purpose to use ICTs in the home can increase the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition J. Appropriate ICT training will increase the likelihood of Indigenous household ICT adoption</td>
</tr>
</tbody>
</table>
A discussion of each proposition as it applies to the remote Indigenous community case study will be undertaken below.

The influence of the use of ICTs within certain contexts emerged from the previous two case studies and has also strongly emerged in this case study. As in the previous two case studies, the two most influential forces on the Indigenous household ICT adoption process are the use of ICTs in the workplace and in educational institutions (see Figure 6.5).

The ABS data show that the proportional Indigenous employment rate in the remote Indigenous community is just 18.9% where in the rural Indigenous community the employment rate was 26.7% and in the urban Indigenous community the employment rate was 62.7% (see Tables 4.3, 5.3 and 6.3). The statistical data combined with the case study evidence demonstrates that Indigenous people in the remote Indigenous community are potentially around three times less likely than urban Indigenous people
to be exposed to ICTs in the workplace. This is the same at the conceptual level for education where less remote Indigenous people have potentially been exposed to ICTs in the educational environment (see Tables 5.1, 6.1 and 5.2, 6.2)

![Diagram](image)

**Figure 6.5: MOST INFLUENTIAL FORCES ON THE INDIGENOUS HOUSEHOLD ICT ADOPTION PROCESS**

*Proposition A. The use of ICTs in employment increases the likelihood of Indigenous household ICT adoption*

Just as in the rural and urban Indigenous communities, the regular use of ICT within the employment activities of the Indigenous people in the remote Indigenous community provides a strong driving force for remote Indigenous household ICT adoption. Therefore, this case has further strengthened the existence of Proposition A and has provided a deeper understanding of Proposition A as it relates to the process of Indigenous household ICT adoption.
Proposition B. The use of ICTs in education increases the likelihood of Indigenous household ICT adoption

Proposition B has also been confirmed in the remote Indigenous community. Just as in the previous case studies in Chapter 4 and Chapter 5, using ICTs in education provides a motivation to adopt ICTs in remote Indigenous households.

Proposition C. Having family and friends with ICTs in their home increases the likelihood of Indigenous household ICT adoption

Indigenous people in the remote Indigenous community communicate with family and friends with ICTs in their home through the use of ICTs, and this influences the Indigenous household ICT adoption process. This confirms the existence of Proposition C.

Proposition D. Having school aged children in the household who use ICTs in school increases the likelihood of Indigenous household ICT adoption

The household life cycle effects on remote Indigenous household ICT adoption are just as important in the remote Indigenous community as in the previous two case studies. The influential force of ICTs in educational institutions is also connected to the household lifecycle effects. That is, Indigenous children who use ICTs in education exert a motivational force on the Indigenous household ICT adoption process.
Figure 6.6: INTERGENERATIONAL INFLUENCE OF USING ICT IN CHILDREN’S EDUCATION

Proposition E. Gaining access to flexible payment methods can increase the likelihood of Indigenous household ICT adoption

Proposition E is confirmed at the conceptual level in that Indigenous people in the remote Indigenous community would prefer to prepay for services. While one Indigenous household in the remote Indigenous community used prepaid Internet, it was clear that a prepaid option would suit more Indigenous households if they had the Internet connected. This preference for prepayment of ICTs is conceptually the same as cost flexibility.

Proposition F. Having a purpose to use ICTs in the home can increase the likelihood of Indigenous household ICT adoption

It emerged that the purpose to use ICTs in the remote Indigenous community was a combination of what was found in both the rural and urban Indigenous communities and contextual differences which enhanced the emergent factors. The Proposition F is confirmed in the remote Indigenous community.

Proposition G. Substance abuse by the head of the household reduces the likelihood of Indigenous household ICT adoption
As in the rural and urban Indigenous communities, Indigenous households in the remote Indigenous community must also overcome the Negative behaviour of Substance abuse to realise household ICT adoption. This confirms Proposition G.

The remote Indigenous community added the factor of Problem gambling to the core category of Negative behaviour. This requires the creation of a new proposition to ensure that this factor is captured in the next theoretical framework. Therefore, the new proposition reads:

Proposition N. Problem gambling by the head of the household reduces the likelihood of Indigenous household ICT adoption

Proposition H. Poor financial management can reduce the likelihood of Indigenous household ICT adoption

Poor financial management was again found to be present in the remote Indigenous community. This confirms Proposition H.

Proposition I. The preference for face-to-face communication can reduce the likelihood of Indigenous household ICT adoption

Face-to-face communication in the remote Indigenous community is quite important as it is still a preference for many, providing contextual information to the people communicating. This confirms Proposition I. As with the urban Indigenous community, there is evidence that face-to-face communication is becoming less important with the use of ICTs for communication.
Proposition J. Appropriate ICT training will increase the likelihood of Indigenous household ICT adoption

Indigenous people in the remote Indigenous community believe that appropriate ICT training is essential. This confirms Proposition J. However, some Indigenous people in the remote Indigenous community use ICTs in employment and education without appropriate ICT training.

Proposition K. High cost of ICTs can reduce the likelihood of Indigenous household ICT adoption

The costs of ICTs are a consideration in the remote Indigenous community but to a lesser extent than in the rural and urban Indigenous communities. Therefore, Proposition K exists in the remote Indigenous community.

Proposition L. Racial discrimination in the labour market can reduce the likelihood of Indigenous household ICT adoption

Racism was found to exist in the remote Indigenous community but was less commented on in the interviews than in the rural and urban Indigenous communities. The fact that racism exists confirms Proposition L.

The propositions from the previous case studies have been found to exist in this case study as well. As required by the GTM the researcher needs to stay open to emergent new factors. New factors have emerged from the remote case study and new propositions need to be created to capture these aspects in the emerging model. Several
new factors from this study have informed existing propositions and have been incorporated into the propositions above. However, one emergent factor requires the development of a new proposition as outlined below:

The thirteenth proposition is associated with Indigenous people being involved in Aboriginal Law.

*Proposition M. Practising Traditional Aboriginal Law can reduce the likelihood of Indigenous household ICT adoption*

A discussion of each proposition as it applies to the remote Indigenous community case study has been undertaken above. It was found that Proposition G required rewording and a new proposition, Proposition M was developed. This has informed the third theoretical framework (see Table 6.18).

Table 6.15: EMERGENT PROPOSITION TABLE FROM RURAL, URBAN AND REMOTE CASE STUDIES

<table>
<thead>
<tr>
<th>INFLUENCE ON ICT ADOPTION</th>
<th>EMERGENT PROPOSITIONS FROM RURAL, URBAN AND REMOTE CASE STUDIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP 1 MOTIVATORS OF HOUSEHOLD ICT ADOPTION</td>
<td>Proposition A. The use of ICTs in employment increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition B. The use of ICTs in education increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition C. Having family and friends with ICTs in their home increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition D. Having school aged children in the household who use ICTs in school increases the likelihood of Indigenous household ICT adoption</td>
</tr>
</tbody>
</table>
Proposition E. Gaining access to flexible payment methods can increase the likelihood of Indigenous household ICT adoption

Proposition F. Having a purpose to use ICTs in the home can increase the likelihood of Indigenous household ICT adoption

Proposition J. Appropriate ICT training will increase the likelihood of Indigenous household ICT adoption

**GROUP 2
INHIBITORS OF HOUSEHOLD ICT ADOPTION**

Proposition G. Substance abuse by the head of the household reduces the likelihood of Indigenous household ICT adoption

Proposition H. Poor financial management can reduce the likelihood of Indigenous household ICT adoption

Proposition I. The preference for face-to-face communication can reduce the likelihood of Indigenous household ICT adoption

Proposition K. High cost of ICTs can reduce the likelihood of Indigenous household ICT adoption

Proposition L. Racial discrimination in the labour market can reduce the likelihood of Indigenous household ICT adoption

Proposition M. Practising Traditional Aboriginal Law can reduce the likelihood of Indigenous household ICT adoption

Proposition N. Problem gambling by the head of the household reduces the likelihood of Indigenous household ICT adoption

The table below demonstrates the saturated core categories and associated factors of the motivator and inhibitor domains.
Table 6.16: CONFIRMED MOTIVATOR AND INHIBITOR TABLE

<table>
<thead>
<tr>
<th>MOTIVATORS</th>
<th>INHIBITORS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Exposure in environment</strong></td>
<td><strong>1. Negative behaviour</strong></td>
</tr>
<tr>
<td>1a. Education</td>
<td>1a. Substance abuse</td>
</tr>
<tr>
<td>1b. Employment</td>
<td>1b. Poor financial management</td>
</tr>
<tr>
<td>1c. Family and friends with ICTs in their home</td>
<td>1c. Problem gambling</td>
</tr>
<tr>
<td><strong>2. Household lifecycle</strong></td>
<td><strong>2. Individual and cultural needs</strong></td>
</tr>
<tr>
<td>2a. Children</td>
<td>2a. Preference for face-to-face communication</td>
</tr>
<tr>
<td></td>
<td>2b. Appropriate ICT training</td>
</tr>
<tr>
<td></td>
<td>2c. Aboriginal Law</td>
</tr>
<tr>
<td><strong>3. Cost flexibility</strong></td>
<td><strong>3. Costs</strong></td>
</tr>
<tr>
<td>3a. Flexible payment method</td>
<td>3a. Cost of ICTs</td>
</tr>
<tr>
<td><strong>4. Purpose to use</strong></td>
<td><strong>4. Racism</strong></td>
</tr>
<tr>
<td>4a. Recording and researching</td>
<td>4a. Facing racism</td>
</tr>
<tr>
<td>Indigenous culture and family history</td>
<td></td>
</tr>
<tr>
<td>4b. Communication via ICTs</td>
<td></td>
</tr>
<tr>
<td>4c. Electronic commerce</td>
<td></td>
</tr>
<tr>
<td>4d. Keeping informed of global society</td>
<td></td>
</tr>
</tbody>
</table>

6.8 The Contribution of the Remote Indigenous Community

The remote Indigenous community has provided great insights into the Indigenous household ICT adoption process and has strengthened the developing Indigenous household ICT adoption model. All motivating and inhibiting categories from the foundation case study and the second study have been confirmed in the remote Indigenous community.

The differences between the three Indigenous communities have been discussed in section 6.4. There are large differences in employment, education and household income, yet with the exception of geographic contextual differences, very similar results have emerged from the remote Indigenous community case study when compared with the rural and urban Indigenous communities.
These findings demonstrate that there are many similarities across the rural, urban and remote Indigenous communities with regard to Indigenous household ICT adoption. This further strengthens the findings from the previous case studies that a single theoretical model of Indigenous household ICT adoption is able to be created.

6.9 Conclusion

This chapter has provided the background, context and findings for the remote Indigenous community case study. All core categories from the second case study have been investigated and have been found to exist in the remote Indigenous community. Just as in the previous two case studies in the rural and urban areas, the findings in this case study demonstrate that, for Indigenous household ICT adoption to be realised, there is a requirement to both fulfil a set of motivating factors and mitigate inhibiting factors that prevent Indigenous household ICT adoption.

It has emerged that just as in the rural and urban case studies, the most influential aspect of the Indigenous household ICT adoption process in the remote Indigenous community is the use of ICTs in employment and education. At the same time, a social network of ICT adopters is also an important influence on the Indigenous household ICT adoption process in the remote Indigenous community context.

It has become well established that Indigenous households in the remote Indigenous community must actively avoid the factors that inhibit Indigenous household ICT adoption, in particular substance abuse and problem gambling which are the key inhibiting factors.
Chapter 7 now develops the substantive theory of Indigenous household ICT adoption. The development of the theory is a multi-stage process. Firstly the propositions are reduced to the salient aspects of the developing theory through a process of delimiting the propositions. Secondly, each proposition is considered against each of the diffusion theories from Chapter 2. Finally, a substantive theory of Indigenous household ICT adoption is developed.
Chapter 7  Further Developing the Substantive Theory  
– a Review of the Emergent Propositions

7.1 Introduction

This chapter further develops the substantive theory and discusses its foundations. It also discusses how the theory is reduced to provide a general theory of Indigenous household ICT adoption.

The emergent group of propositions from Chapter 6 forms the foundation for the development of the substantive theory of Indigenous household information and communication technology (ICT) adoption. Using the Grounded Theory Methodology (GTM), it is an important step to apply the preliminary proposition table to the theory building process of developing a theoretical construct (Glaser and Strauss 1967).

The emergent group of propositions needs to undergo analysis (Glaser and Strauss 1967; Whetten 1989). The aim of reviewing the emergent group of propositions is to densify the theoretical concepts (see Figure 3.2), to increase the final theory’s parsimony and work towards developing a more generalisable theory (Glaser and Strauss 1967). This process will produce a general ‘substantive theory’ with the claim of having validity for the area of Indigenous household ICT adoption.

It was discussed briefly in Chapter 4 that theory building is a process of analysis where the salient aspects of the model are reduced from a large set of factors to those factors and interactions that are essential to the developing theory. It is important to understand that the substantive theory being developed in this chapter is a combination of the
discussion of the salient aspects of the theory which are grounded in the case studies, the factors and their interactions and the visual diagrams. The diagrams provide a visual representation of the concepts to offer clarity to the reader (Whetten 1989).

This chapter proceeds as follows. This section provides an overview of how the substantive theory will be developed. Section 7.2 initiates the discussion of the developing theory. An examination of the emergent group of propositions is undertaken followed by discussion of their impact on the Indigenous household ICT adoption process. The propositions then undergo delimitation to ensure parsimony of the final theory and to keep the focus on the salient aspects of Indigenous household ICT adoption. Section 7.3 concludes this chapter.

### 7.2 Review and Delimitation of the Propositions

This section begins to develop the final substantive theory of Indigenous household ICT adoption. Firstly, a review of the emergent group of propositions will be undertaken; secondly a discussion of emergent properties of Indigenous household ICT adopters will be undertaken; third a discussion of the emergent properties of Indigenous household ICT non-adopters will be undertaken. Delimitation of the propositions will be carried out during the discussion. This section concludes by providing the final theoretical construct which will form the substantive theory of Indigenous household ICT adoption.

#### 7.2.1 Review of the Emergent Group of Propositions

The emergent group of propositions provides the foundation for the developing substantive theory. It should be noted that in the emergent group of propositions there
are two main aspects to the Indigenous household ICT adoption process, namely motivating and inhibiting forces. These two forces are now categorised as emergent properties of adopters (motivating forces) and emergent properties of non-adopters (inhibiting forces). This categorisation has been undertaken as it emerged from the analysis process that motivating forces were exhibited by adopters, hence emergent properties of adopters, and those who had not adopted ICTs were constrained by inhibiting forces, hence emergent properties of non-adopters. Overall there are fourteen propositions that will be discussed and analysed as outlined below (see Table 7.1).

Table 7.1: EMERGENT PROPOSITION TABLE FROM RURAL, URBAN AND REMOTE CASE STUDIES

<table>
<thead>
<tr>
<th>INFLUENCE ON ICT ADOPTION</th>
<th>EMERGENT PROPOSITIONS FROM RURAL, URBAN AND REMOTE CASE STUDIES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GROUP 1</strong></td>
<td><strong>EMERGENT PROPERTIES OF ADOPTERS</strong></td>
</tr>
<tr>
<td>Proposition A.</td>
<td>The use of ICTs in employment increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td>Proposition B.</td>
<td>The use of ICTs in education increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td>Proposition C.</td>
<td>Having family and friends with ICTs in their home increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td>Proposition D.</td>
<td>Having school aged children in the household who use ICTs in school increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td>Proposition E.</td>
<td>Gaining access to flexible payment methods can increase the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td>Proposition F.</td>
<td>Having a purpose to use ICTs in the home can increase the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td>Proposition J.</td>
<td>Appropriate ICT training will increase the likelihood of Indigenous household ICT adoption</td>
</tr>
</tbody>
</table>
GROUP 2
EMERGENT PROPERTIES OF NON-ADOPTERS

<table>
<thead>
<tr>
<th>Proposition G.</th>
<th>Substance abuse by the head of the household reduces the likelihood of Indigenous household ICT adoption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposition H.</td>
<td>Poor financial management can reduce the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td>Proposition I.</td>
<td>The preference for face-to-face communication can reduce the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td>Proposition K.</td>
<td>High cost of ICTs can reduce the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td>Proposition L.</td>
<td>Racial discrimination in the labour market can reduce the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td>Proposition M.</td>
<td>Practicing Traditional Aboriginal Law can reduce the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td>Proposition N.</td>
<td>Problem Gambling by the head of the household reduces the likelihood of Indigenous household ICT adoption</td>
</tr>
</tbody>
</table>

It is known from Chapter 4 that theory building research can generate a large number of factors, variables and concepts. If all factors were included in a theory model then this would present only the logical steps in a particular process or observed phenomenon which is not considered to be theory building. Rather theory building is the process of including the ‘right’ or salient factors or concepts, the ones that are salient to a substantive theory. The salient factors to be included in a theory are those that provide a conceptual understanding of a phenomenon, and this understanding then leads to the development of a substantive theory (Whetten 1989).

The emergent proposition table from rural, urban and remote case studies (see Table 7.1) was created through using the GTM process of densifying (see Figure 3.2). The
emergent proposition table captures the salient aspects of the Indigenous household ICT adoption process that have emerged from the three case studies and are the emergent aspects of the developing theory. To develop a theory from these propositions, further analysis needs to be undertaken. That is, the emergent proposition table will need to be delimited to those propositions that are salient to the emergent developing theory.

A discussion of each proposition from the two groups in Table 7.1 will now be undertaken. This process is undertaken to ensure parsimony of the substantive theory and to ensure that complexities are removed while retaining linkages between the salient factors. To ensure that the final model focuses on Indigenous household ICT adoption, all propositions will be analysed and any redundant propositions will be removed where appropriate. The proposition reduction process will provide the ‘Final Theoretical Construct’.

This section has provided an overview of the process of the development of the final substantive theory of Indigenous household ICT adoption and has explained the processes necessary for theory building. The next section will discuss and analyse each salient aspect of the Indigenous household ICT adopters and will provide the first aspects of the bridge between the final theoretical construct to a substantive theory of Indigenous household ICT adoption.

7.2.2 Emergent Properties of Adopters

It has been discussed previously that there are motivating forces that exert a positive force on the Indigenous household to adopt ICTs. Some forces are more influential than others. A discussion of each proposition and how it affects the Indigenous household
ICT adoption process will now be undertaken. Each proposition will be considered for inclusion in the final theory or delimited out, or removed as required during analysis. Each proposition will be presented before the discussion on the proposition’s influence on the Indigenous household ICT adoption process.

It emerged throughout the case studies, and has been repeatedly confirmed through theoretical sampling, that there are two primary motivating forces in the Indigenous household ICT adoption process. These have emerged from the empirical data and have become prominent through the process of memo sorting, which is the theory generation component of the GTM (see Chapter 3). The two most influential forces are the use of ICTs in employment and the use of ICTs in educational settings. The first proposition to be discussed is Proposition A, employment.

*Proposition A. The use of ICTs in employment increases the likelihood of Indigenous household ICT adoption*

The use of ICTs in normal everyday activities in the workplace has a powerful motivating impact on Indigenous household ICT adoption. The way employment positively impacts on Indigenous household ICT adoption is by the forming of ICT skills while undertaking normal work activities. This is a subtle but influential form of ICT training and skill acquisition. Furthermore, this use of ICTs in the workplace as part of everyday work activity creates a sense of normality of using ICTs. This assists both in forming a positive attitude about ICTs and enabling an individual to develop ICT skills which then become a part of their total skill set.
The influence of forming particular practices when using ICTs in the workplace is highlighted in the empirical data which found that those who use ICTs in the workplace are developing a set of ICT skills that they then use in the household. The data demonstrate that those who use ICTs as a word processor at work, tend to use it for the same purpose in the household. Those who use email or the Internet extensively in the workplace tend to utilise the same practices in the household. Moreover, those who use ICTs in the workplace to do Internet banking for the business they are employed with tend to also do Internet banking in the household. Also those who use ICTs in the workplace to order equipment or stationery online tend to undertake the same types of practices in the household by purchasing items through electronic commerce. These learned skills from normal workplace ICT activities become embedded in the individual’s skill set and over time become a regular practice that then become a normal part of everyday life. Proposition A is salient to the developing model and will remain as a core aspect of the final theory.

*Proposition B. The use of ICTs in education increases the likelihood of* Indigenous household ICT adoption

Proposition B has the same impact as the previous proposition; however, it differs in that it refers to using ICTs in the educational setting. As an individual uses ICTs in the education institution they are developing new ICT skills that become an everyday part of their education process. Moreover, the practice of using ICTs in education becomes an important aspect of the individual’s life as ICTs become an essential resource for educational purposes. That is, ICTs are used in the educational setting by individuals to both undertake research for assessments and to produce the assignments required to progress through their education.
It emerged from the case studies that the skills acquired through using ICTs in education were also used in the household. This is because the ICT skills learned while in the educational setting are simply transported into the household and are reapplied in a very similar way. This occurs more frequently the longer an individual uses ICTs in education and as long as the practice is salient to the individual’s education. Examples of the uses of ICTs in the educational setting that are transported to the household are the use of the word-processing programs and Internet searching for educational assessment. Using ICTs in the educational setting is an important aspect of developing the substantive theory, therefore Proposition B will remain in the final theory.

*Proposition C. Having family and friends with ICTs in their home increases the likelihood of Indigenous household ICT adoption*

Firstly, it was found in the case studies that ICT adoption occurs along family lines. That is, there is a strong influence on the Indigenous household ICT adoption process by family members who have already adopted ICTs. This is because adopters have been exposed to ICTs in the homes of other Indigenous family members with ICTs in their households. It was found that all the Indigenous households who had adopted ICTs into the household had other family with ICTs in their household. The influence of having family who have adopted ICTs is highlighted by non-adopters in that those Indigenous households who did not adopt ICTs reported having fewer, if any, other members of their family with ICTs. This demonstrates the importance of family in the Indigenous household ICT adoption process.
Indigenous households who had adopted ICTs reported that they use ICTs to undertake various activities, some of which have been discussed above. A number of households who also had family with ICTs used ICTs to communicate with each other over large distances. This was primarily through the use of email but there was an emergent group using instant messaging as well. However, not all Indigenous households who had family members with ICTs had adopted ICTs. While many non-adopters could see the value in having ICTs and even reported feeling that they could more readily and more regularly stay in contact with their extended family through the use of ICTs, they were not able to adopt ICTs. This is because they have been prevented from doing so as they were constrained by inhibiting factors. The adoption inhibitor factors will be discussed in detail in Section 7.2.3, the Emergent Properties of Non-adopters.

Secondly, having friends with ICTs in their home also provides a motivating influence on Indigenous household ICT adoption. The influence that friends with ICTs in their home exert on the Indigenous household ICT adoption process is conceptually the same as the impact that family with ICTs in their home has on the Indigenous household ICT adoption process. That is, having friends with ICTs in their home provides exposure in the environment for Indigenous people as they visit friends in their homes. At the same time, having friends with ICTs in their home provides a positive feedback loop that says it is all right to adopt the technology. Once again, Indigenous household ICT adopters tended to report more friends with ICTs in their houses than non-adopters. Proposition C is an important aspect of the developing theory and will remain in the final theory.

*Proposition D. Having school aged children in the household who use ICTs in school increases the likelihood of Indigenous household ICT adoption*
Having school aged children in the household who use ICTs in their schooling is an important aspect of the Indigenous household ICT adoption process. This is because some Indigenous parents feel that they need to provide their children with the best educational opportunities available and provide access to ICTs if the children in the household are able to use the ICT. Children who use ICTs in their educational setting that is, at school, form the habit of using ICTs on a regular basis which then becomes a normal aspect of the education practice. This practice of using ICTs becomes a positive exerted force on the Indigenous household to adopt the ICTs.

Another dimension to having school aged children in the household is the influence of the tasks that are required for their educational assessments. School children who use ICTs at school to undertake research for assessment, develop the practice of using ICTs to research and produce assessment materials. In the educational setting all children are required to undertake homework. Homework is an activity that is undertaken after school and usually in the home. The practices undertaken within the school environment are no different for homework, in that ICTs are used in the home in the same manner as they are used in the school environment. Some school children are set specific homework that requires the use of ICTs. An example of this is where teachers provide school children with a research task with a website address to begin their research. Once again, it is only when the school children have the skills to use ICTs, which are first developed in the educational setting, are they able to do their assessment and ICT based homework.

One surprising finding that emerged from the data was that for some Indigenous households the adoption of ICTs is a two stage process that is dependent on the level of schooling that the children in the household are undertaking. That is, some Indigenous
households who have school aged children will adopt a computer in the household, but not the Internet, for the children to prepare assessment tasks and homework. It is only when the children in the household transition from primary school to secondary school do these types of households adopt the Internet as well. This two stage process reflects the salient practices that are undertaken in the school environment in that the practice of using the Internet and its subsequent importance to the educational setting increases with the year that the children are attending at school. Moreover, as children progress through their schooling their ICT knowledge and their skill set increases and the practices of using ICTs becomes a part of normal everyday life.

It could be argued that Indigenous children being engaged in the education setting is conceptually the same as the positive force being exerted by the educational setting as discussed above in Proposition B. However, there is one important contextual difference between children being engaged in ICTs in the educational setting and other Indigenous people being engaged in the educational setting. There are two reasons for this. Firstly, it is because schooling is compulsory for all Australian children aged 6 to 15 whereas any other types of education, as discussed in Proposition B, is voluntary (Department of Education Employment and Workplace Relations 2008; Department of Foreign Affairs and Trade 2008). Second, more and more, school children need ICTs to complete modern schooling. Most school aged children attending school in Australia are exposed to ICTs on a regular basis in schools that have ICTs. Moreover, this exposure to ICTs in school will only increase in the future as the Australian Government has committed significant resources to its ‘Digital Education Revolution’ to ensure students are prepared for the future to ‘live and work in a digital world’ (Australian Government 2008a). This exposure to the ICTs in the children’s educational setting creates a motivating force on the parents to adopt ICTs into the household. Having school aged
children who use ICT in their school is an important and distinct aspect of the developing theory and will remain in the final theory.

**Proposition E. Gaining access to flexible payment methods can increase the likelihood of Indigenous household ICT adoption**

It emerged from the case studies that having access to flexible payment methods to purchase a computer and Internet access provides a positive force on the Indigenous household ICT adoption process. Flexible payment methods include hire purchase, paying by instalments, renting and prepaying for ICTs. It was found that while many of those who had employment used flexible payment methods to adopt ICTs into the household, even those households who did not have full time employment were able to gain access to some form of credit enabling them to adopt ICTs. These types of households would either pay a monthly instalment or would rent the ICT from a retailer. These flexible payment options provided a way for those households who found the upfront costs of ICTs inhibitive to adopt ICTS into the household.

It emerged from the data that there is an interrelationship between Proposition E and Proposition K. Proposition K states: *High cost of ICTs can reduce the likelihood of Indigenous household ICT adoption.* At the same time Proposition E is associated with the mitigation of the costs of ICTs through flexible payment methods. These two propositions refer to the same logical concept opposing each other. The flexible payment option offsets the cost of ICT. That is, if the costs of ICTs are too high for the Indigenous household to purchase ICTs outright, then they are able to gain access to the capital market and pay off the purchase of ICTs either through renting or paying instalments. These two logically opposing propositions, Proposition K and Proposition E, are able to be eliminated from the developing theory because the two propositions are
logically opposing sides of the same concept. Moreover, if there are two equally opposing forces, as what has emerged, then a steady state or equilibrium will be maintained. It is only when other factors are taken into account will this state change (Cartwright 1952). Therefore, Proposition E and Proposition K have been removed from the developing theory.

*Proposition F. Having a purpose to use ICTs in the home can increase the likelihood of Indigenous household ICT adoption*

It emerged that before an Indigenous household adopts ICTs they would require a purpose to use the adopted ICT in the household. All instances of successful adoption in the case studies demonstrated that Indigenous households had a purpose to use the ICT in the home before they adopted ICTs. At the same time every instance of non-adoption in the case studies demonstrated that the non-adopters did not seemingly have a purpose to use the ICTs in the household. There was some evidence from the case studies that having a purpose to use ICTs in the home was part of the driving force in the Indigenous household ICT adoption process. However, a purpose to use in itself is not the most influential force. Rather, it was only when the skill set of individuals within the household that is developed through the practices learned within the educational setting and/or employment setting that household adoption would occur. That is, ICT adoption is caused by a change in the practices of a person in the household. Given that it appears that having a purpose to use the ICT is not a causal effect in the Indigenous household ICT adoption process Proposition F can be eliminated from the developing model of Indigenous household ICT adoption. Rather it is assumed in the developing model that Indigenous households will have a purpose to use ICTs before adopting them.

*Proposition J. Appropriate ICT training will increase the likelihood of Indigenous household ICT adoption*
Proposition J is associated with the concept of Indigenous people having a preference for appropriate ICT training that is different from other Australians. Appropriate ICT training was articulated by interviewees as an important aspect to understanding ICTs. However, evidence from the case studies demonstrates that appropriate ICT training does not have a strong influence on the Indigenous household ICT adoption process. Rather there is strong evidence from the empirical data that those who already use ICTs are able to do so without appropriate ICT training and have developed their ICT skills through their use of ICTs in the employment or educational setting. That is, Indigenous people do not need to undertake appropriate ICT training before Indigenous household ICT adoption occurs. Given that there appears to be no causal effect between appropriate ICT training and Indigenous household ICT adoption Proposition J can be eliminated from the developing model of Indigenous household ICT adoption. This means that appropriate ICT training is not considered a salient aspect of the final developing theory of Indigenous household ICT adoption.

This section has discussed the emergent properties of Indigenous household ICT adopters that were derived from the empirical case studies. This section has also delimited the propositions that motivate ICT adoption to those propositions that are salient to the development of the substantive theory of Indigenous household ICT adoption. The next section discusses and delimits the propositions that are associated with the emergent properties of non-adopters from Table 7.1.

### 7.2.3 Emergent Properties of non-Adopters

The first theoretical construct (see Table 7.1) demonstrated that there are inhibitors to Indigenous household ICT adoption that were emergent properties of non-adopters.
Consistent with Section 7.2.1, this section will now discuss the propositions from Table 7.1 that are emergent properties of non-adopters. Further analysis of the propositions will also be undertaken to delimit the propositions to those propositions that are salient to the Indigenous household ICT adoption process. Each proposition will be listed before a discussion of their impact on the adoption process is undertaken.

*Proposition G. Substance abuse by the head of the household reduces the likelihood of Indigenous household ICT adoption*

*Proposition N. Problem gambling by the head of the household reduces the likelihood of Indigenous household ICT adoption*

Substance abuse and problem gambling emerged as a salient aspect of the developing substantive theory. Substance abuse and problem gambling are associated with the practices of the head of the Indigenous household. The head of the household is the family member who makes the decisions for the family and is the one who has the most influence on how the household income is spent. It emerged that substance abuse and problem gambling have the largest inhibiting impact on the Indigenous household ICT adoption process. That is, substance abuse and problem gambling by the Indigenous head of the household have the potential to derail the adoption process regardless of how much positive force is exerted on the Indigenous household to adopt ICTs. Explicitly, substance abuse and problem gambling negates the positive forces of employment, education, children in the household who use ICTs in their schooling, and family and friends with ICTs in the home.
Substance abuse was found in all three case studies as an inhibitor to Indigenous household ICT adoption. The most common form of substance abuse was found to be excessive alcohol consumption; however, other drugs were referred to in the interviews as well. Many participants discussed excessive alcohol consumption in a way that implied that it was a normal practice, something that is part of everyday life for Indigenous people. Other participants explicitly stated that it was a normal practice for many residents in the community. The way substance abuse inhibits the Indigenous household ICT adoption process is through focusing the allocation of the household income first on the purchase of alcohol and drugs and this in turn limits other household spending.

Problem gambling has the same effect on the household as substance abuse in that the household financial resources are allocated to gambling rather than investing in ICTs. Problem gambling primarily emerged from the remote Indigenous community. Members of this Indigenous community engage in the practice of playing card games for money. Some households allocate their incomes towards gambling which impacts on the household income in a negative way and this limits the purchase of consumer products such as ICTs. Therefore, Proposition G and Proposition N are salient aspects of the developing model and remains in the final theory.

*Proposition H. Poor financial management can reduce the likelihood of Indigenous household ICT adoption*

Poor financial management refers to the way the financial resources are allocated in the Indigenous household. It emerged from the empirical data from the case studies that before poor financial management can exist, substance abuse and/or problem gambling
must also exist. This interrelationship between substance abuse and/or problem gambling with poor financial management is addressed in Proposition G. That is, the underlying cause of poor financial management is predominantly substance abuse and/or problem gambling. Therefore, it is assumed that Indigenous households will have poor financial management if the head of the household engages in substance abuse and/or problem gambling. It could be argued that financial management is a causal mechanism and that substance abuse is just one manifestation. But substance abuse also embodies disruption in Indigenous social processes including those practices that lead to ICT adoption. Given that Proposition H is dependent on Proposition G to exist in the Indigenous household ICT adoption process, Proposition H can be eliminated from the developing model.

Proposition I. The preference for face-to-face communication can reduce the likelihood of Indigenous household ICT adoption

It emerged from the empirical data that face-to-face communication was a preference for some Indigenous people. While the preference for face-to-face communication emerged as an inhibitor to the Indigenous household ICT adoption process, there is evidence that it has little causal influence on the Indigenous household ICT adoption process. Moreover, this face-to-face communication appears to be more of a mode of communication that is convenient for those Indigenous households who have not adopted ICTs. That is, rather than face-to-face communication being a complete inhibitor of Indigenous household ICT adoption, face-to-face communication is the salient and more convenient form of communication for those who have not adopted ICTs. This notion that face-to-face communication is a form that is convenient to ICT non-adopters is strengthened when we examine the communication preferences of those
who have adopted ICTs. It emerged that the Indigenous households that adopted ICTs find that communicating via ICTs is acceptable and something that adopters do on a regular basis. Therefore, rather than face-to-face being a preferential form of communication for Indigenous people, it appears that face-to-face is simply preferred by those who have not adopted ICTs. It is plausible to say that some ICT adopters could also prefer face-to-face communication; however, this did not emerge from the case studies. Given that face-to-face is a convenient form of communications for those who have not adopted ICTs and that there appears to be no causal relationship between the non-adopters’ face-to-face communication and the Indigenous household ICT adoption process Proposition I can be eliminated from the developing model.

*Proposition K. High cost of ICTs can reduce the likelihood of Indigenous household ICT adoption*

It emerged from the empirical data that the costs associated with ICTs were an inhibitor to Indigenous household ICT adoption. This was most notable with the upfront cost of computers but was also noticeable with the ongoing costs of Internet access. At the same time it emerged from the data that Indigenous households could access flexible payment methods to overcome cost issues. That is, where costs were an inhibitor, cost flexibility was used to overcome the costs. As discussed in Section 7.2.1, Proposition E is logically the opposite side of the same concept of Proposition K. Therefore, Proposition E and Proposition K have been removed from the developing theory.

*Proposition L. Racial discrimination in the labour market can reduce the likelihood of Indigenous household ICT adoption*
Proposition L in the first theoretical construct (see Table 7.1) demonstrates the impact that racism in the labour market has on the Indigenous household ICT adoption process. It was found that racial discrimination in the labour market can preclude Indigenous people from being employed. The way that racism in the labour market impacts on the Indigenous household ICT adoption process is directly related to Proposition A (see Table 7.1 and Section 7.2.1). Being excluded from employment prevents Indigenous people from using ICTs in their normal everyday activities, which could be part of their employment activities if they were employed. It was discussed above that the use of ICTs in employment is a salient aspect of the Indigenous household ICT adoption process. It could also be argued that racism reduces the desire and ability to participate in economic activity. However, racism as it is applied in this thesis is associated with racial discrimination in the labour market that prevents Indigenous people from gaining access to employment which prevents their practices from changing, and therefore remains in the final theory as it is a salient aspect of the developing theory.

Proposition M. Practicing Traditional Aboriginal Law can reduce the likelihood of Indigenous household ICT adoption

The final emergent property of non-adopters that is found in the first theoretical construct is Aboriginal Law (see Table 7.1). Aboriginal Law is still practised in some Indigenous communities and is practised in the remote Indigenous community in this study. There are many aspects of Aboriginal Law; however, the emergent aspect of Aboriginal Law that inhibits Indigenous household ICT adoption, is the relevance or the importance of ICTs to the Indigenous community. That is, ICTs are not considered to be important in the practices of Aboriginal Law. The reason for this is to do with one particular aspect of Aboriginal Law. One part of Aboriginal Law is for aspects of the
Indigenous community or landscape to be allocated to specific members of a family from within that Indigenous community\(^3\). This allocation raises its importance not just to that family but the entire community. However, as there is no Aboriginal Law associated with ICTs, ICTs do not get allocated and no one has responsibility for ICTs. Therefore the importance of ICTs from an Aboriginal Law perspective is very low and is not considered a priority for the community.

While ICTs are not given the importance in Aboriginal Law like in the same way as other aspects of the landscape, there is evidence that technology is infiltrating the Aboriginal Law process. It emerged from the data that when the law ceremonies are being undertaken, which can happen many kilometres from the community itself, those who take part in these ceremonies travel with a satellite telephone so they can seek medical assistance if such a need arises. While the satellite telephone is not allocated to an Indigenous person under Aboriginal Law, the satellite telephone has infiltrated the ceremony process and has become an important part of the ceremony. The use of the telephone is an important observation in that it demonstrates that modern technology is being adopted by Indigenous people practising Aboriginal Law, and is utilised during Aboriginal Law ceremonies. The remote case study data demonstrated that for some Indigenous people Aboriginal Law practices did prevent the adoption of ICTs. However, the empirical data also demonstrates that at least one participant who practised Aboriginal Law had adopted a computer into the household but had not adopted the Internet. Moreover, that particular person, in the remote case study, carries the satellite telephone into the Aboriginal Law ceremony. Further investigation into the origins of the satellite telephone and the ability to use it revealed that the satellite

\(^3\) The wishes of the community are that I write this up in a confidential way so that the specifics of Traditional Aboriginal Law for this community remain within the community. Therefore, only the impact of the Aboriginal Law on Indigenous household ICT adoption is portrayed.
telephone was regularly used by the participant in remote areas for purposes associated with their employment. Despite this, Aboriginal Law practices have proved to be an important aspect of the Indigenous household ICT adoption process, particularly in remote Indigenous communities, and therefore is required to remain in the final developing theory.

The emergent properties of non-adopters have been discussed above. One proposition—Proposition K—in Group 2 (see Table 7.1) of the Indigenous household adoption process was eliminated.

While there is a number of inhibitors to the Indigenous household ICT adoption process the empirical data demonstrate that excessive alcohol consumption is common across non-adopters in all three case studies and is the single largest inhibitor of Indigenous household ICT adoption. This is true even when Indigenous people are using ICTs in the workplace or in education, which are the key motivating aspects of Indigenous household ICT adoption. This finding suggests that if excessive alcohol consumption was removed from Indigenous households it would have a major positive impact on increasing Indigenous household ICT adoption.

This section has discussed how the practical use of ICTs in normal everyday life for Indigenous people is vital to the Indigenous household ICT adoption process. This section has also demonstrated that while motivating forces are powerful in the Indigenous household ICT adoption process, inhibitors are more important as inhibitors can prevent Indigenous household ICT adoption.
7.2.4 The Final Theoretical Construct

All aspects of the first theoretical construct have been discussed above. The propositions have undergone a reduction process to ensure parsimony of the substantive theory of Indigenous household ICT adoption. Eliminating propositions from the groups enables the substantive theory to focus more on and enhance the theory of Indigenous household ICT adoption. Undertaking this reduction step provides a focused view of the salient elements of the substantive theory of Indigenous household ICT adoption. Throughout the reduction process, the proposition foundations were discussed in terms of their influence on the process of Indigenous household ICT adoption. This process has assisted further understanding or the developing theory as the discussion now moves from the practical empirical evidence towards a conceptual theoretical model of Indigenous household ICT adoption. As a result of this reduction process, the propositions that are salient to Indigenous household ICT adoption are re-numbered to avoid confusion with the first theoretical construct (see Table 7.2).
Table 7.2: FINAL THEORETICAL CONSTRUCT

<table>
<thead>
<tr>
<th>INFLUENCE ON ICT ADOPTION</th>
<th>PROPOSITIONS FROM FINAL THEORETICAL CONSTRUCT</th>
</tr>
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<tbody>
<tr>
<td><strong>GROUP 1</strong></td>
<td></td>
</tr>
<tr>
<td>MOTIVATORS OF HOUSEHOLD ICT ADOPTION</td>
<td>Proposition 1. The use of ICTs in employment increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td></td>
<td>Proposition 2. The use of ICTs in education increases the likelihood of Indigenous household ICT adoption</td>
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<tr>
<td></td>
<td>Proposition 3. Having family and friends with ICTs in their home increases the likelihood of Indigenous household ICT adoption</td>
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<tr>
<td></td>
<td>Proposition 4. Having school aged children in the household who use ICTs in school increases the likelihood of Indigenous household ICT adoption</td>
</tr>
<tr>
<td><strong>GROUP 2</strong></td>
<td></td>
</tr>
<tr>
<td>INHIBITORS OF HOUSEHOLD ICT ADOPTION</td>
<td>Proposition 5. Substance abuse by the head of the household reduces the likelihood of Indigenous household ICT adoption</td>
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<tr>
<td></td>
<td>Proposition 6. Problem gambling by the head of the household reduces the likelihood of Indigenous household ICT adoption</td>
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<tr>
<td></td>
<td>Proposition 7. Racial discrimination in the labour market can reduce the likelihood of Indigenous household ICT adoption</td>
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<tr>
<td></td>
<td>Proposition 8. Practising Traditional Aboriginal Law can reduce the likelihood of Indigenous household ICT adoption</td>
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</table>

7.2.5 Review of Adoption Theories with Final Theoretical Construct

As the GTM requires, the literature is now engaged to determine the theoretical lens that will be utilised to interpret the findings. Chapter 2 provided an overview of current adoption theories and their position within the research area of ICT adoption. A
discussion of these theories will now be undertaken in the context of the findings of the thesis, namely the final theoretical construct (see Table 7.2).

Diffusion of Innovations theory (DOI) developed by Rogers (1995) is a general theory of diffusion that can be applied in general terms to all innovations. Chapter 2 showed that many studies have provided varying results when applying DOI as the theoretical lens. These varying results come primarily from the problem of DOI focusing on an individual’s belief about the adopted technology and the outcome of using the technology, rather than the adoption of networked technologies such as ICTs (Benbasat and Barki 2007; Compeau et al. 1999; Straub Jr. and Burton-Jones 2007). One strength of the DOI theory is that it does include the influence of social networks with regard to the outcome of the decision to adopt an innovation. The social network was found to be important in the final theoretical construct under the terms family and friends in Proposition 3. Another strength of DOI is the concept of cultural incompatibility. Rogers (1995) argues that some traditional practices are considered incompatible with another culture’s practice. This could be conceptually applied to the way Traditional Aboriginal Law inhibits the Indigenous household ICT adoption process in Proposition 7. At the same time, DOI could also be applied as a theoretical lens to Propositions 1 and 2 under Rogers’ concept of trialability. However, there is little evidence that DOI is able to be applied to the other aspects of the final theoretical construct, particularly the inhibiting factors of substance abuse and problem gambling on the Indigenous household ICT adoption process. At the same time, notwithstanding the non-adopter’s preference for face-to-face communication, there was no evidence to demonstrate that the beliefs about the technology drives the Indigenous household ICT adoption process. Therefore, this leaves DOI as an explainer of a large section of the final theoretical construct but not all of the inhibitors.
The Theory of Reasoned Action (TRA) developed by Fishbein and Ajzen (1975) is a model of the psychological process of the observed relationship between an individual’s behaviour and attitudes. Fishbein and Ajzen (1975) argue that a particular attitude coupled with certain behaviour will lead to a ‘reasoned action’. As discussed in Chapter 2, there are many issues and limitations with TRA. One of the TRA’s biggest limitations is that the model is used for predicting human behaviour but not the outcome of that behaviour. That is, the behavioural components of TRA are only associated with those aspects that fall inside the control of an individual and do not take into account the complexities of human decision making. Moreover, TRA is a poor explainer of human actions. This is because as individuals become more action oriented the subjective norms component of TRA become less predictive. Therefore, TRA is not a good fit with the final theoretical construct as TRA focuses both on actions and human behavioural aspects but not the outcome, which is what the Indigenous household ICT adoption process is dealing with.

Fishbein and Ajzen also acknowledge the limitations of their theory and developed it further into the Theory of Planned Behaviour (TPB) (Ajzen 1991). The TPB is a more flexible TRA which addresses many of the TRA limitations. Ajzen (1991) incorporated ‘Perceived Control’ components into the model to mitigate the control factors in human decision making. This strengthened TPB to become a good predictor of both human behaviour and the behaviour’s subsequent outcome. However, there are limitations with TPB when examining its applicability to the final theoretical construct. The first issue with TPB is that it does not deal with the casual effects of the adoption of household ICTs very well. As Compeau et al. (1999) argue, the causal effect aspect of TPB is unidirectional. This means that TPB misses an important component of the final theoretical construct which is the bi-directional causal effect that exists between the use
of ICTs in employment and education and the use of the skills learned in the workplace and in education that are transported into the household and vice versa. Moreover, the Model of Adoption for The Household (MATH) developed by Venkatesh and Brown (2001) used TPB as the theoretical lens and found that TPB predicted only 43% of intended adopters. They argued that any further research in the area of household ICT adoption should examine ‘unconscious factors’ as TPB was a very poor predictor of household ICT adoption. Therefore, TPB is a poor explainer of the Indigenous household ICT adoption process and can-not be used as the theoretical lens to examine the final theoretical construct.

The Technology Acceptance Model (TAM) developed by Davis (1989) from the work of Fishbien and Ajzen (1975) is used extensively in the area of ICT adoption in the information systems discipline. While TAM is well cited in the information systems literature, the ‘heavy reliance’ on TAM has limited the results from studies, as TAM takes a very narrow view of the user’s interactions with a given system (Benbasat and Barki 2007). There have been many attempts to address the limitations of TAM by the addition of various components; however, TAM still produces ‘dysfunctional outcomes’ (Benbasat and Barki 2007). While TAM is useful in explaining the external stimuli such as using ICTs in the workplace that are causally linked to the behaviour of Indigenous people with regard to Indigenous household ICT adoption, it does not address other aspects of the final theoretical construct such as Propositions 3 and 4 and all Group 2 propositions in Table 7.2. Therefore TAM is rejected as the theoretical lens for this research.

The Unified Theory of Acceptance and Usage of Technology (UTAUT) developed by Venkatesh, Morris, Davis and Davis (2003), is an attempt to consolidate the many
additions to TAM. There is evidence that in some contexts the UTAUT model is valid (AIAwadhi and Morris 2008) while others confirm the validity of some variables and disconfirm their validity in the one study (Marchewka et al. 2007). Others criticise the model for having 8 independent variables for predicting behaviour and 41 independent variables for predicting intentions (Bagozzi 2007). Yet others argue that UTAUT has so many drawbacks that some researchers decide to ‘rely on the more traditional and verified’ models (Raaij and Schepers 2008 p.841). On balance, the UTAUT would have a strong likelihood of explaining very few of the Group 1 propositions and none of the Group 2 propositions. This leaves UTAUT as a poor explainer of the final theoretical construct.

Giddens Structuration Theory (1984) was first applied to information systems adoption theory by Orlikowski (1993). Structuration theory takes a more complex view of human decision making which incorporates the interrelated aspects of human actions with their social setting. Structuration theory has been utilised to examine the interrelationships between the technology and individuals within organisations, and has proven to be a very good predictor of outcomes of human intentions (Jones and Karsten 2008; Orlikowski and Iacono 2001; Schultze and Orlikowski 2004). However, there are aspects of Giddens Structuration Theory that are outside the scope of the final theoretical construct. Kinsella (1993) argues that when applying Giddens Structuration Theory to ICT adoption it is like a ‘dialectical process in which human beings construct technology even as it constructs them’ (p.8). This view could be argued to be too close to technological determinism which is not what was found in the findings of this thesis. Moreover, as outlined in Chapter 2, Pierre Bourdieu, a critic of Giddens’ work, argues that structures in Giddens’ theory only exist in, and through, the systems of dispositions of the agents or individual. Thus the agency of the structures is an oversimplification of
the relationship between agents and the structures (Brubaker 2004b p.43). Therefore, Giddens Structuration Theory cannot be applied to the final theoretical construct because of the weakness in the oversimplification of the relationship between structures and agency and the issues of being too aligned with technological determinism. That is, Giddens argues that structures exist only through the system of dispositions held by an agent or individual. For some parts of the Australian community this may be true; however, it is not true for the Indigenous community. The structures within the Indigenous community are constructed both physically as explained in the case studies, and through government policy as touched on very briefly in the case studies. These structures that make up the Indigenous community are not just a system of dispositions held by an agent, there are also tangible structures that make up the Indigenous community such as Aboriginal Land Councils and Indigenous schools and so on. Therefore, Giddens Structuration Theory is rejected as the theoretical lens for this thesis as it oversimplifies objectification and does not sufficiently take into account of the agency of Indigenous people.

This section has discussed the ICT adoption models that were outlined in Chapter 2 in an attempt to discover their applicability to the final theoretical construct in this thesis. There is a limited number of propositions that can be explained by current theories and there is no one single theory that can be applied to understand the final theoretical construct which has provided an unexpected insight and demonstrates the limitations of current theories. This finding suggests that a novel approach to ICT adoption is required to understand Indigenous household ICT adoption. This discussed in the next chapter.
7.3 Conclusion

The chapter has developed the final theoretical construct through a process of conceptual delimitation of the preliminary propositions. This chapter has also demonstrated the limitations of current adoption theories regarding Indigenous household ICT adoption. That is, the salient aspects of the Indigenous household ICT adoption process that emerged from the case studies are not fully explainable using previous adoption theories. A novel approach to understanding the Indigenous household ICT adoption process is outlined in the next chapter.
Chapter 8   A Practice Perspective of Indigenous Household Information and Communication Technology Adoption

8.1 Introduction

This chapter develops the substantive theory of Indigenous Household ICT adoption. It outlines the approach to the Indigenous Household ICT adoption process that has been derived from the final theoretical construct (see Table 7.2). In developing the substantive theory, the discussion draws on the concepts of Pierre Bourdieu’s theory of Habitus, and through it, Bourdieu’s theory of practice, to argue that Indigenous household ICT adoption if primarily influenced by the seeming normality that is faced by Indigenous people within their normal day-to-day practices.

This chapter is structured as follows. Section 8.2 develops the theoretical lens then applies the lens to the final theoretical construct. Section 8.3 names the final substantive and diagrammatically presents the successful path to Indigenous household ICT adoption. Section 8.4 concludes this chapter.

8.2 Forming the Final Theory

8.2.1 A Theoretical Lens for understanding Indigenous Household ICT Adoption

Pierre Bourdieu’s (2007) theory of Habitus is a sociological concept that has been used to explain human practices and behaviours. The foundations of the concept of habitus are similar to Giddens Structuration Theory, that is, structures and agency (Bourdieu
Habitus is defined as ‘the system of dispositions that mediate between inert structures and the practices through which social life is sustained and structures are reproduced or transformed’ (Brubaker 2004b, p.43). After examining the literature on Pierre Bourdieu it was found that there was significant value in using his Theory of Practice, that is itself derived from his Theory of Habitus as a theoretical lens to interpret the findings of the final theoretical construct for this thesis. Moreover, examining the information systems literature as it relates to the Theory of Practice, it was discovered that Bourdieu’s concepts of habitus have been applied to the area of ICT use in organisations. More specifically, some of the recent information systems literature draws on Bourdieu’s practice theory as a way of understanding complex human practices (Levina and Vaast. 2005). The practices of using ICTs in employment and education are the key driving aspects of the Indigenous household ICT adoption process, and Bourdieu’s Theory of Habitus provides a theoretical foundation to understanding this aspect of the final theoretical construct. The Theory of Habitus also is able to explain many of the motivating and inhibiting forces on the Indigenous household ICT adoption process.

This thesis draws on the social science discipline of sociology in an attempt to understand the process of the forming of practices of using ICTs regularly, which is the most influential aspect of the Indigenous household ICT adoption process. The next section discusses the sociological concepts of habitus which form the theoretical lens for understanding practices, as the forming of practices with regard to using ICTs is salient to the Indigenous household ICT adoption process.
8.2.2 Bourdieu’s Concept of Habitus

Habitus is a sociological concept that has been used to explain human practices and behaviours (Bourdieu 2007). At the foundations of the concept of habitus is the relationship between society and the individual or as Bourdieu (2007) calls them, ‘structures’ and ‘agency’. As previously stated, habitus is defined as ‘the system of dispositions that mediate between inert structures and the practices through which social life is sustained and structures are reproduced or transformed’ (Brubaker 2004b, p.43). That is, habitus is a system of dispositions held by an individual, or agent, that are constructed through their social structures— for example social class, level of education, or even religion, and is realised in an individual’s practices (Bourdieu 2007). Habitus refers to ways of doing and being, through which subjects of a society or ‘agents’ acquire their socialisation. It is through practice that habitus is achieved and at the same time it is habitus that determines practices of an individual (Bourdieu 2007; Fowler 2000). This is a result of habitus being ‘always oriented towards practical functions’ (Bourdieu 1990, p.52).

Bourdieu (2007) argues that the habitus of an agent can be difficult to change. This is due to agents having ‘durable dispositions’. However, habitus can tolerate social changes with individuals moving from one field to another (Bourdieu 2007). Bourdieu’s concept of habitus and its foundations provides a theoretical understanding of how human practices are learned, reproduced and applied in a practical sense. Bourdieu’s theory of habitus argues that any practice involves varying degrees of both ‘embodiment’ and ‘objectification’ (Bourdieu 1990; Bourdieu 2007; Levina and Vaast 2006). These concepts are used by Bourdieu to refer to habitus which regulates modes of practice and the subsequent production of practice (Bourdieu 2007, pp.78-95).
The production of practices with respect to ‘embodiment’ relies quite heavily on a number of elements including community norms, community ties, as well as reciprocity (Levina and Vaast 2006). Each agent or individual draws on ‘memories of their interpersonal interactions and mimics acceptable behaviours, appearances and manners to reproduce existing relations’ (Levina and Vaast 2006, p.16). Therefore, the production and reproduction of practices are undertaken or achieved ‘without overt explication among agents; often agents simply play along’ (Levina and Vaast 2006, p.16).

This section has presented a definition of habitus and has provided an insight into how human practices are regulated within a substantive field. The next section will discuss the abstract concept of ‘field’ as it relates to Bourdieu’s theory of habitus.

8.2.3 Bourdieu’s Concept of Field

Bourdieu’s theory of habitus has been used to explain human practices across social groups or fields where norms within a particular field determine a particular practice in a particular situation (Bourdieu 1990; Bourdieu 2007). A field is defined by Bourdieu as the structure of an individual’s social setting in which their habitus is both formed and operates (Bourdieu and Wacquant 1992). Each field has a boundary that distinguishes it from other fields through objectification or the naming of the objects within that field, for example a workplace would have terms such as, job titles, job description, salutations, work policies, and so on (Bourdieu 2007).

‘Objectification’ or the naming of the objects within a field is vital to the habitus as Bourdieu (2007) argues that objectification needs to be present for interpersonal
relationships to exist beyond a given interaction. The objectification can refer to both tangible and intangible ‘objects’ within a substantive field and are representations of relations through practice. All objects are created in a particular field and these objects can in fact become a commodity within a field providing a method or a way of gauging membership of a field (Bourdieu 2007).

There are numerous fields that create society. As Bourdieu (2007) argues, fields are created through objectification; therefore fields vary in both size and membership. An example of a field is the employment field and within the employment field there could be smaller fields of more specialised areas such as the information technology field and human resources field. While both examples are part of the employment field they are also separate fields in their own right because the information technology field and human resources field have different job titles and roles and policies which are defined by objectification. Other examples of fields include the education field and research field.

This section has introduced the concept of ‘field’ as it relates to habitus. The next section will discuss the abstract concept of ‘field’ as it relates to the Indigenous community.

8.2.4 Indigenous Field

As discussed above in Section 8.2.3, objectification is associated with the creation of a substantive field. This thesis asserts that there exists an ‘Indigenous field’ that is constructed through aspects of Bourdieu’s theory of habitus namely, objectification. In the context of the Indigenous community, the objectification takes many forms and
includes intangible structures such as Indigenous specific state and federal government policies. Examples of these policies include Indigenous education policies, Indigenous employment policies, Indigenous health policies and so on (Arbon 2006; Australian Government 2008b; Brady 2007; Schwab 1995).

The objectification as it is applied to the Indigenous population is extended to the legal and administrative frameworks that govern Indigenous community organisations. All Indigenous registered organisations within Australia have to comply with the Federal Government’s Corporations (Aboriginal and Torres Strait Islander) Act 2006 also known as the CATSI Act 2006 (Australian Government 2005a). That is, for an organisation to officially be considered an Indigenous organisation, it must be registered as an Indigenous organisation consistent with the CATSI Act 2006, as mentioned previously.

There is also tangible objectification or structures within the Australian society that creates the Indigenous field; these include Indigenous schools, Aboriginal Land Councils, Aboriginal Medical Services and other Indigenous organisations (Martin 2003; Martin and Finlayson 1996; Sutherland 2003).

It has been shown that the concept of the Indigenous field exists though objectification with the identification of both tangible and intangible Indigenous structures. This notion of an Indigenous field is supported in anthropological literature where Keen (1994) argues that there exists a distinct Aboriginal domain.
This section has discussed the notion of the Indigenous field using the concepts from Bourdieu’s theory of habitus. The next section introduces the concept of an Indigenous agent.

8.2.5 Indigenous Agent

It was discussed above in Section 8.2.3 that the naming of objects, which is achieved through objectification, is a way of ‘gauging the membership of a field’ (Bourdieu 2007). It has been established that there exists an Indigenous field and inside the Indigenous field is where ‘Indigenous agents’ metaphorically reside. By definition, an Indigenous field can have only Indigenous agents within it. However, a fuller discussion is required to further develop this concept.

Drawing on Bourdieu’s theoretical concepts of habitus, it is argued that the Indigenous agent is constructed through both objectification and embodiment. The Indigenous agent is constructed through objectification by the legal and administrative systems of Australia. This theoretical construction of the Indigenous agent occurs through objectification by the means of the Indigenous identity test or what is known as the ‘test of Aboriginality’. As was discussed in Chapter 1, for Indigenous people to be officially considered Indigenous they must fulfil the ‘test of Aboriginality’. That requires Indigenous people to fulfil three main criteria (Gardiner–Garden 1997):

1. must be a member of the Aboriginal race
2. identifies as an Aboriginal
3. is accepted by the Aboriginal community in which they live.
The embodiment aspect of the creation of the Indigenous agent is in the third criteria of the ‘test of Aboriginality’ which states ‘is accepted by the Aboriginal community in which they live⁴. The embodiment is achieved through the way that other Indigenous people relate to any other Indigenous person who is undergoing the ‘test of Aboriginality’. That is, embodiment is achieved once an Indigenous person is accepted as being Indigenous by the Indigenous community in which they live. Therefore, it is not just the naming of objects that creates the Indigenous agent but also the way in which Indigenous agents interact and identify with each other within the Indigenous field. It is through these mechanisms of the theory of habitus that establishes the existence of the Indigenous agent is established.

Both the ‘Indigenous agent’ and the ‘Indigenous field’ have been defined at the theoretical level using the concepts from Bourdieu’s theory of habitus. Therefore, we can now deduce that within this Indigenous field there exists Indigenous practices. This is because, as Schultz (2000) argues, ‘practice orientation also takes into account not only the objectified social structures within which actions occur, but also the construction of the structures’ (2000, p.4). That is, the practices of an ‘agent’ are governed not only through their habitus but are also governed by the creation of their social setting, including the substantive field that they are immersed in. Stating this more clearly, the practices of an Indigenous agent are not only governed by the Indigenous field but are also governed by the creation of the Indigenous field, which is where Indigenous practices are formed.

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⁴ The Aboriginal community is made up of the other Aboriginal people in the local area. The usual way to prove identity is to have an Aboriginal organisation produce a Certificate of Aboriginality endorsed by the Aboriginal organisation’s board which is made up of members of the local Aboriginal community (Australian Government 2005).
There is strong evidence that an Indigenous field exists and this is where Indigenous agents develop their habitus and where production and reproduction of Indigenous practices are undertaken. This notion is strengthened by Keen (1994) who argues that the ‘Aboriginal domain’ or field is where Aboriginal people or agents reproduce ‘a similar habitus’ (1994, p.13). Furthermore, Walter (2009) and (2010) adds strength to this concept as she argues that Aboriginal people live within ‘the domain of Aboriginality’ (p.2. 2009).

8.2.6 Defining the properties of the Indigenous Field – The Boundary

Now that the Indigenous field and the Indigenous agent have been defined, it is important to discuss what exists in the Indigenous field. That is, it is important to define the boundary of the Indigenous field. This is important because the boundary of the field determines the membership of the field.

Defining the boundary of a field is essential as fields intersect frequently. Each field has agents that reside within it. The Indigenous field is populated with Indigenous people or agents. As discussed previously, Indigenous people are those people who identify as being Aboriginal and/or Torres Strait Islander. It was discussed in Section 8.2.5 that there is an official definition of an Indigenous person. An Indigenous person can apply to an Indigenous organisation to be officially recognised so they can obtain a Certificate of Aboriginality. However, one does not have to hold a Certificate of Aboriginality to be considered an Indigenous person, as the Certificate is only required to be presented when an Indigenous person is applying for or accessing Indigenous specific Australian Government assistance. Cases where a Certificate of Aboriginality would be required is where an Indigenous person is applying for an Indigenous identified position within the
Australian Public Service. Other reasons to obtain a Certificate of Aboriginality is where the person is applying for Indigenous specific financial assistance offered by the Australian Government to address the disadvantage facing Indigenous Australians; such as ABSTUDY (Australian Government n.d.) or subsidised housing loans (Australian Government 2009a). Indigenous people not accessing programs do not require a Certificate of Aboriginality to be considered Indigenous. That is, Indigenous people are no less Aboriginal because they do not possess a Certificate of Aboriginality. The piece of paper merely indicates a willingness to engage with one aspect of the Australian State apparatus.

Another property of the Indigenous field is Indigenous households. There are two primary reasons why Indigenous households reside within the Indigenous field. Firstly, Indigenous agents reside in Indigenous households; secondly, Indigenous households are a property of the Indigenous field. This is because the Australian Government definition of an Indigenous household is constructed through objectification. The Australian Government classifies Indigenous households separately from other households in the Australian Census and provides a definition of an Indigenous household: ‘Indigenous households are defined as those containing at least one Indigenous person, excluding visitors, who identify as being of Aboriginal and/or Torres Strait Islander origin. Households that fall outside this definition are referred to as “other households”’ (Australian Bureau of Statistics 2001a; Australian Bureau of Statistics 2006a; Australian Government 2006a). This definition demonstrates that Indigenous and non-Indigenous communities are considered separately in the Australian Census. The Australian Government examines Indigenous households and contrasts them to other Australian households in more specific Census data such as the National Aboriginal and Torres Strait Islander Social Survey (see Australian Bureau of Statistics

It is vital here to note that there are many interracial households that have both Indigenous and non-Indigenous people who reside within the same household and while the Indigenous people living within the Indigenous household fall within the Indigenous field those non-Indigenous residents of Indigenous households fall outside the Indigenous field. This is because no matter how long they live within the Indigenous household they will never be able to fulfil the test of Aboriginality because they do not have direct Indigenous ancestry and therefore are not a member of the Aboriginal race. However, the children who are born from an interracial marriage are considered Indigenous because the children, even though they have both an Indigenous and non-Indigenous parent, have Indigenous ancestry and are able to fulfil the test of Aboriginality.

Indigenous organisations are also a property of the Indigenous field. It was argued in Section 8.2.4 that Indigenous organisations and the associated government legislation such as the CATSI Act (2006) are essential aspects of the Indigenous field. An Indigenous organisation is any organisation that is incorporated under the CATSI Act (2006) (Australian Government 2006b). It is important to know that under the CATSI Act (2006) Indigenous organisations are able to have non-Indigenous members if that particular Indigenous organisation’s constitution permits. However, even though an Indigenous organisation may have non-Indigenous employees or members, all Indigenous organisations that are incorporated under the CATSI Act (2006) are considered to fall within the Indigenous field. An important point to make here is that
those non-Indigenous people who work within or are members of Indigenous organisations are not a part of the Indigenous field.

This section has provided a boundary for the Indigenous field and demonstrates the membership of the Indigenous field. The following section moves the discussion to theoretical aspects of how the elements of Bourdieu’s theory of habitus, namely practices of an agent, interact within substantive fields.

### 8.2.7 Transformation of the Habitus - Role of Field Intersection

This section draws on Bourdieu’s theory of habitus to provide the key theoretical aspects to the Indigenous household ICT adoption process. To ensure clarity of the concepts and ideas, diagrams will be used where appropriate and will assist the reader in understanding the conceptual findings. Different levels of granularity are utilised to demonstrate both higher level concepts and lower level concepts. Granularity is the breaking down of complexity of the developing theory to assist readers their understanding of the developing theory.

It was discussed above in Section 8.2.2 that an agent’s habitus is the system of dispositions that mediates their practices. As agents are members of a substantive field their practices are undertaken within a field. That is, each agent belongs to a field and their practices are both undertaken and mediated within their field; this is where the key aspect of durable dispositions of an agent’s habitus is created and applied.

While each agent holds durable dispositions which are regulated by their habitus, it does not mean that the habitus of an agent can-not be changed. However, Bourdieu (2007)
argues that the habitus of an agent can be difficult to change. He argues that this is because agents hold durable dispositions. There is evidence in the empirical data from Chapters 4, 5 and 6 to indicate that Indigenous agents have durable dispositions. It is also known intuitively that humans have durable dispositions when we consider the saying ‘humans are creatures of habit’, meaning that humans tend to undertake the same practices that are known to them, which have been previously learnt and have become important to them. While agents have durable dispositions that are regulated by their habitus we can not say that the habitus of an agent never changes. Rather, it is argued that some practices take longer to be transformed than others, as some practices are more salient to an agent’s habitus than others.

The habitus of an agent can be changed in a number of ways. One way is for an agent to be engaged with external fields from where their habitus was originally formed. These external fields provide exposure to practices that may not be immediately recognised by an agent’s habitus but provides the opportunity for the habitus of an agent to be exposed to new practices, which can then transform their practices. At the conceptual level this notion has been confirmed by Levina and Vaast (2005) where they found that practices of an agent can be changed when an agent’s field intersects with an field external to their field. They found that even when there are strongly defined roles and position titles within organisations, which can be classified as an employment field and is created through objectification, the practices of agents are changed as they immerse themselves in external fields to undertake a particular set of tasks. Moreover, the activities within this ‘joint field’ or field intersection, change the practices of an agent. Furthermore, the result of the intersection of the fields produces ‘new kinds of practices in each setting’ (Levina and Vaast 2005, p.350). In addition, each ‘field potentially shapes an agent’s interests and practical competencies’ (Levina and Vaast 2005, p.15). That is, when an
agent enters an external field to undertake a particular task or tasks, the practices produced during the intersection transform the habitus of the agent which also transforms their practices. These new practices produced from the field intersection can be retained by the agent when the field intersection ceases, and these new practices become an emergent property of the field from where the agent’s habitus was originally created (see Figure 8.2). An emergent property of a field is the forming of more complex practices (Bourdieu 2007). It is important to note that because agents hold durable dispositions the habitus is not always transposed immediately nor are their practices. But when their habitus is transposed and their practices transformed, these additional practices then become an emergent property of the field from which the habitus was originally created (Pickel 2005).

![Diagram of field intersection](image)

**Figure 8.1: FIELD INTERSECTION (Source: Adapted from Levina and Vaast 2005)**

This section has demonstrated that field intersection can transpose the practices of an agent. Moreover, without field intersection, practices of an agent will not be transformed, and the longer a practice is undertaken within a particular field the more salient that practice becomes to an agent. The next section will discuss how the concept of field intersection is applied to understanding the Indigenous household ICT adoption process.
8.2.8 Influence of Habitus on Indigenous Household ICT Adoption

In this section the research draws on Bourdieu’s theory of habitus as the theoretical lens to understand how habitus informs Indigenous household ICT adoption and demonstrates explicitly the link between Indigenous practices resulting from field intersection that increases the likelihood of Indigenous household ICT adoption.

As explained above, practices of an individual are derived from the substantive fields that they operate within. It has been established that Indigenous peoples’ habitus is created and operates within an Indigenous substantive field. The final theoretical construct (see Table 7.2) demonstrated that employment and education were the two primary drivers of Indigenous household ICT adoption. These concepts will now be discussed both at a theoretical and practical level.

It has been shown above that the habitus of an agent is durable but adaptive and that when the habitus of an agent encounters a new field, new practices can be formed and that these new practices then become an emergent property of the substantive field from which the agent’s habitus was originally formed. Therefore, it is postulated that an Indigenous agent’s habitus is transposed by the external substantive fields that they are immersed in to undertake particular tasks. That is, there exist factors that motivate Indigenous agents to adopt ICTs into the household that are emergent properties of the field intersection between the Indigenous field and external fields (see Figure 8.2).
- new practices are formed in the shaded zones or intersections

Figure 8.2: INTERSECTION OF EXTERNAL FIELDS WITH THE INDIGENOUS FIELD

This section has introduced the concept of the Indigenous field intersecting with external fields and has foreshadowed how an Indigenous agent’s habitus is influenced by field intersection. The next two sub-sections discuss the habitus of Indigenous household ICT adopters and non-adopters.

**Habitus of Indigenous Household ICT Adopters**

Using Bourdieu’s (2007) principles, the workplace can be known as an employment field. At the theoretical level the employment field is established through objectification. That is, the employment field is established through the objects that are created within that field such as job titles, job descriptions, salutations, work policies and so on. The extant literature also describes the labour market as the employment field. Many studies from various disciplines have acknowledged the existence of, and have referred directly to, the employment field when discussing the labour market (Bashevkin 1994; Harris and Bloomfield 1997; Hutton 1969; Portugali 1989; Vance 1960). While these studies do not construct the employment field in Bourdieuan terms they do discuss the employment field as being separate from other aspects of society.

It was found that the use of ICTs in the workplace has a significant impact on Indigenous household ICT adoption. It is postulated that the use of ICTs in the workplace provides the exposure in the environment which in turn increases the
likelihood of Indigenous household ICT adoption. This is because when the Indigenous field and the employment field intersect, the Indigenous agent’s practice of using ICTs in the employment field introduces Indigenous peoples’ habitus to the practice of using ICTs. By using ICTs in the employment field this introduces the Indigenous agent to ICT skills, thus exposing their habitus to a new practice and hence transforming their habitus. These newly acquired practices, or emergent properties of the Indigenous agent, are then conceptually transported into the ‘Indigenous Field’ (see Figures 8.3 and 8.4). These practices are realised in a practical sense by increasing the likelihood of Indigenous household ICT adoption. The adoption is achieved through the Indigenous agent’s habitus incorporating the ICT skills acquired during field intersection. These learned ICT skills which are emergent properties of the Indigenous field become salient to the agent’s habitus which increases the likelihood of the Indigenous person to adopt ICTs into the Indigenous household.

Figure 8.3: EMPLOYMENT AND INDIGENOUS FIELD INTERSECTION

- I represents Indigenous agents from the Indigenous Field
- t represents ICT tasks in employment field
- It represents the Indigenous agent undertaking ICT tasks in the employment field.
- I represents Indigenous agents from the Indigenous field
- t represents ICT tasks in employment field
- It represents the result of using ICTs in the employment field. ICT skills are added to the Indigenous agent’s habitus. Indigenous agent adds ICT practices to Indigenous Field.

Figure 8.4: EFFECTS OF FIELD INTERSECTION

Equally important to the Indigenous household ICT adoption process is the intersection of the Indigenous field and the education field. Educational institutions such as schools, technical and further education colleges, institutes of technology and universities all fall under the collective name of the education field. The education field is created conceptually through Bourdieu’s concept of objectification. The existence of the education field is acknowledged in the literature from a range of disciplines (see Bashevkin 1994; Fuller et al. 2004; Stephan and Cobb 2003; Warren 1992). While these studies do not create the education field using Bourdieu’s principles, they all acknowledge that there exists an education field that is separate from other aspects of society which enables them to focus on aspects of the education process, such as pedagogy, classroom management, use of ICTs in education and so on.

The existence of an education field is important in understanding the Indigenous household ICT adoption process. Some Indigenous people use ICTs for post-secondary educational purposes; being exposed to and using ICTs regularly in an educational institution generates the new practice of using ICTs. The way the habitus of an Indigenous agent is transformed by using ICTs in the education field is conceptually the
same as in using ICTs in the employment field. That is, when the Indigenous field and the education field intersect the Indigenous person uses ICTs for educational purposes inside the education field, which introduces the Indigenous person to the practice of using ICTs. This in turn introduces the Indigenous agent to new ICT skills. These new ICT skills are exposed to their habitus and new practices are formed. These new practices are transported into the Indigenous field where they become emergent properties of the Indigenous field. These emergent properties are realised in a practical sense by increasing the likelihood of Indigenous household ICT adoption. This happens because it is known that practices of individuals can change when they come in contact with fields that are external to their own. We can see evidence of this in the empirical data in Chapters 4, 5 and 6, where the practices of Indigenous people are changing with regard to the use of ICTs. The practices of those Indigenous people who adopt ICTs into the household are first changed by the engagement in external fields. The most influential external fields that lead to Indigenous household ICT adoption are the employment and education fields (see Figure 8.5).
Figure 8.5: FORCE EXERTED TOWARDS ADOPTION FROM FIELD INTERSECTION

By providing access to the motivating factors through field intersection, the habitus of the Indigenous agent is transposed and the practices are also transformed, and these new practices then become a salient aspect of the Indigenous agent’s habitus, which then motivates Indigenous households to adopt ICTs.

The concept of field intersection and the subsequent transforming of Indigenous practices also applies to Indigenous children who reside within the household. The final theoretical construct (see Table 7.2 and Section 7.2.2) demonstrated that having school aged children in the home increased the likelihood of Indigenous household ICT adoption. As discussed previously schools are considered part of the education field, and schooling is compulsory for all Australian children between the ages of 6 and 15.
years old. Indigenous children who use ICTs in their school are changing their practices and bringing those practices learned in the education field into the Indigenous field. This then exerts a motivating force on the household to adopt ICTs for the children to undertake homework or other after hours educational activities (see Figure 8.6).

Figure 8.6: EFFECTS OF SCHOOL AGED CHILDREN ON INDIGENOUS HOUSEHOLD ICT ADOPTION

It was also found that having family and friends who had ICTs in the home assisted in the Indigenous household ICT adoption process. Having family and friends with ICTs in their home provides feedback to the adopting Indigenous household that the technology is accepted into the social setting, where an agent’s habitus both operates and is generated, and that it is all right for them to adopt the technology. This is consistent with the concepts of habitus in that habitus determines practices in an agent’s social setting. Therefore, using the theoretical components of Bourdieu’s (2007) habitus
it is understandable that an agent’s social network, which makes up an agent’s social setting, provides an influential positive force on the process of Indigenous household ICT adoption. This is because each agent draws on ‘memories of their interpersonal interactions and mimics acceptable behaviours, appearances and manners to reproduce existing relations’ (Levina and Vaast 2006, p.16). Therefore, the production and reproduction of the practice of adopting ICTs are undertaken or achieved ‘without overt explication among agents; often agents simply play along’ (Levina and Vaast 2006, p.16).

The empirical evidence demonstrates that the social network of Indigenous people varies in construction. Some Indigenous people have only other Indigenous people in their social network, whereas other Indigenous people have both Indigenous and non-Indigenous people in their social network. This is displayed diagrammatically below (see Figure 8.7). This can also be known as the peer effect where the behaviour of individuals is affected by another individual’s (peer) agency. This has the effect of creating a bi-directional feedback loop, which in theory could become a recursive relationship.
This section has discussed the influence of the emergent Indigenous practices from field intersections. This has provided a theoretical understanding of how the habitus of an Indigenous agent can be changed and their practices transposed to exert a positive force to increase the likelihood of Indigenous household ICT adoption. The next section discusses the inhibiting aspects of the Indigenous household ICT adoption process using Bourdieu’s theory of habitus.
**Habitus of Indigenous Household ICT non-Adopters**

It was identified in the final theoretical construct (see Table 7.2) that one of the most influential inhibitors to Indigenous household ICT adoption was substance abuse. Substance abuse is a practice undertaken by some Indigenous agents that impacts heavily on the Indigenous household ICT adoption process. Substance abuse leads to more dysfunctional Indigenous communities as discussed in Section 7.2.3.

As substance abuse is a practice that is undertaken by Indigenous agents, we can draw on Bourdieu’s theory of habitus to understand this aspect of the Indigenous household ICT adoption process. It is known from the empirical data that substance abuse was considered quite ‘normal’ to many Indigenous agents, especially the excessive drinking of alcohol. The practice of excessive alcohol consumption is quite entrenched and has existed from early days of colonisation (Brady 1995; Brady 2007). Under the theoretical concept of habitus the more entrenched a practice is, the longer it takes for an agent to change their practices. This is because agents have ‘durable dispositions’ and the longer a practice is reinforced the more that practice becomes salient to an agent and therefore will be more difficult to change (Bourdieu 2007).

Given that excessive alcohol consumption is considered an entrenched practice, it is not surprising to see that so many Indigenous agents partake in excessive alcohol consumption. This is because of the way the Indigenous habitus is regulated and operates within the Indigenous field. Each agent draws on ‘memories of their interpersonal interactions and mimics acceptable behaviours, appearances and manners to reproduce existing relations’ and the practice of excessive alcohol consumption is undertaken ‘without overt explication among agents; often agents simply play along’ (Levina and Vaast 2006, p.16).
The evidence shows that the consequences of excessive consumption of alcohol can lead to other practices, such as poor financial management, and this has a direct impact on the Indigenous household’s financial position. That is, substance abuse exerts great pressure on the household finances and limits the purchase of items such as ICTs. Even when an Indigenous agent has ICT skills that have been acquired from field intersections, because of the ‘durable dispositions’, their practice of substance abuse creates a barrier that overrides the Indigenous household ICT adoption process which results in non-adoption (see Figure 8.8). Moreover, excessive alcohol consumption can lead to workplace issues that may also affect the intersection of the Indigenous field and the employment field. These findings are further strengthened by the Australian Government’s Overcoming Indigenous Disadvantage Report (2009b) where it states ‘Excessive alcohol consumption contributes to workplace problems, child abuse and neglect, financial problems…’ (2009b, p.10.14)

Problem gambling has the potential to severely impact the Indigenous household ICT adoption process in the same way that substance abuse does. That is, problem gambling can cause the household finances to be directed towards the practice of gambling. These findings are supported by the National Aboriginal and Torres Strait Islander Social Survey 2002 which found that gambling problems were a stressor on the Indigenous household for a large number of households (McMillen and Donnelly 2008).

Both substance abuse and problem gambling are salient aspects of some Indigenous people’s habitus and as such can prevent the intersection with external fields and can prevent the Indigenous household from adopting ICTs.
Racial discrimination was found to be a key barrier to the Indigenous household ICT adoption process. Racial discrimination is related specifically to how an Indigenous person is treated and is not directly related to an Indigenous agent’s habitus. However, racial discrimination could influence an Indigenous agent’s practices.

The final theoretical construct (see Table 7.2 and Section 7.2.3) demonstrated that racial discrimination in the labour market plays a vital role in the process of Indigenous household ICT adoption. Racial discrimination in the labour market falls under the concept of social exclusion. There is no one single definition of social exclusion. This is
because it is a multi-dimensional aspect of society (Hunter 2008). Saunders et al. (2007) state that ‘unlike the focus of poverty on a single dimension (lack of resources), exclusion is a multi-dimensional concept, designed to highlight the role of institutional structures and community attitudes in creating the barriers that lead to exclusion’ (Saunders et al. 2007, p.12). Saunders et al. (2007) argue here that institutional structures are a part of what creates social exclusion. This could mean that social exclusion in the labour market could be related to the habitus of the employers. However, this is outside the scope of this thesis but nevertheless should be kept in mind. Hunter (2008) provides the necessary precondition for addressing social exclusion; ‘Ensuring the marginalised and those living in poverty have greater participation in decision making which affects their lives allowing them to improve their living standards and their overall well-being’ (Hunter 2008, p.5).

Racial discrimination in this thesis is associated with how Indigenous people are viewed in the labour market. Indigenous people have been victims of racism when seeking employment. There is strong evidence from the extant literature that demonstrates a link between racial discrimination and exclusion from the labour market (Fernandez and Fernandez-Mateo 2006; Gallie et al. 2003; Hooker 2005; Hunter 2005; Hunter and Gray 2004; Hunter 2003; Hunter et al. 2002; Reynold 1996). Hunter (2008) argues that ‘Indigenous people are among the most socially excluded in Australia’ and demonstrates that Indigenous Australians are excluded from the labour market based on their race (2008, p.4). These findings are consistent with the study conducted by Booth et al. (2009) where they found that Indigenous Australians were less likely to receive a call back from a potential employer after applying for a vacant position, than Anglo-Saxon Australians.
Racial discrimination impacts on the Indigenous household ICT adoption process by preventing Indigenous agents from gaining employment. As highlighted previously, one of the key positive influences on the Indigenous household ICT adoption process is the practice of using ICTs in the workplace. If Indigenous agents are excluded from the labour market based on their race, then this has the potential to severely impact on the Indigenous household ICT adoption process. This is because, without the forming of the practice of using ICTs in the workplace, Indigenous household ICT adoption is less likely to occur.

From a theoretical perspective racial discrimination in the labour market acts like an ‘invisible’ force that can prevent the intersection of the Indigenous field and the employment field (see Figure 8.9).

![Diagram](image)

**Figure 8.9: THE EFFECT OF SOCIAL EXCLUSION IN THE LABOUR MARKET ON FIELD INTERSECTION**

It emerged from the final theoretical construct (see Table 7.2 and Section 7.2.3) that those Indigenous agents who practised Traditional Aboriginal Law are also at risk of not adopting ICTs into the household. Aboriginal Law prevented Indigenous household ICT adoption because ICTs are not important to Aboriginal Law and as such those who practise Aboriginal Law believed that Aboriginal Law was a key inhibitor. It has been
demonstrated how Aboriginal Law impacts on Indigenous household ICT adoption (see Section 7.2.3). It is also important to understand why Aboriginal Law impacts on the adoption process. Using the concepts from Bourdieu’s habitus, the longer a practice has been undertaken the longer it takes for an agent to change their practices regardless of being exposed to external fields. As discussed above, this occurs because agents have ‘durable dispositions’, and the longer a practice is reinforced, the more that practice becomes salient to an agent’s habitus and therefore will be more difficult to change. At the same time Bourdieu (2007) argues that the habitus of an agent will change over time (Bourdieu 1990; Bourdieu 2007). This change in an agent’s habitus is evident in the empirical data in that modern technology has been introduced into Aboriginal Law practices. As outlined in Chapter 6, satellite telephones are now utilised when undertaking Aboriginal Law practices. This demonstrates that Aboriginal Law practices are evolving to incorporate modern technology as the habitus of Indigenous agents is transformed. It emerged that some Indigenous people who practise Aboriginal Law have adopted ICTs in the home. This demonstrates that the practices of some Indigenous agents are changing over time which results in limited ICT household adoption by those who practise Aboriginal Law. Aboriginal Law practices have created a semi-permeable barrier through ‘durable dispositions’ that inhibits the Indigenous household ICT adoption process (see Figure 8.10).
- \( l_p \) represents Indigenous agents from the Indigenous field who practice
  traditional law
- The outer ring is a semi-permeable barrier of an Indigenous agent’s ‘durable
disposition’
- \( l_{pt} \) represents Indigenous agents from the Indigenous field who have ICT
  skills added their habitus from field intersection, who practise traditional law
- The green arrow is desire to adopt ICTs

**Figure 8.10: THE SEMI-PERMEABLE BARRIER OF ABORIGINAL LAW**

This section has discussed the influence of the concept of habitus and practices as they
relate to Indigenous household ICT adoption. There are practices undertaken by
Indigenous agents that both increase the likelihood of Indigenous household ICT
adoption and decrease the likelihood of Indigenous household ICT adoption.

The influence of practices from fields as they relate to Indigenous household ICT
adoption has been discussed. This has provided a theoretical understanding of how the
habitus of an Indigenous agent can be changed and their practices transposed to exert a
positive force to increase the likelihood of Indigenous household ICT adoption. The
next section names the substantive theory that was developed in this section.
8.3 Naming the Final Substantive Theory

The forming of the final substantive theory of Indigenous Household ICT adoption in Section 8.2 has produced the Indigenous Household Adoption Model (IHAM). The successful path to ICT adoption is the goal to be achieved for Indigenous households. Therefore, the successful path to Indigenous household ICT adoption forms the final theory diagram and is known as the successful Indigenous household ICT adoption process (see Figure 8.11). This takes into account the emergent success factors as they relate to the Indigenous household ICT adoption process at a level of granularity appropriate to include all positive factors.

- I represents Indigenous agents from the Indigenous field
- C represents Indigenous school aged children from the Indigenous field
- t represents ICT tasks in employment and education fields
- It and Ct represents result of using ICTs in the employment and/or education fields. ICT practices are added to the Indigenous agent’s habitus. Indigenous agent adds ICT practices to the Indigenous field

Figure 8.11: SUCCESSFUL INDIGENOUS HOUSEHOLD ICT ADOPTION PROCESS
8.4 Conclusion

The formation of the substantive theory of Indigenous household ICT adoption has been detailed in this chapter. The substantive theory of Indigenous Household ICT Adoption has created the Indigenous Household Adoption Model (IHAM) which is based on Bourdieu’s concepts of Habitus and the Theory of Practice. Having discussed and articulated the salient aspects of the process of the IHAM, it has emerged that the overarching and most influential aspect of the Indigenous Household ICT adoption process is the intersection of the Indigenous field with the education field and the employment field. The ICT practices acquired in these external fields are transported to the Indigenous field leading to Indigenous household ICT adoption.

The next chapter will discuss the final substantive theory its contributions and implications for practical applications and research.
Chapter 9  Conclusion

9.1 Introduction

The Indigenous Household Adoption Model (IHAM) developed in the previous chapter makes a contribution to our understanding of the processes of technological adoption in the Indigenous community. The Grounded Theory Methodology can be used to develop a substantive theory that has practical implications for the Indigenous behaviour and policy settings. This chapter explores such issues and identifies some future directions for productive research in this area.

This chapter is structured as follows: The next section discusses the theoretical lens used for the development of the substantive theory, while section 9.3 compares the propositions derived from the final theoretical construct of this thesis with those identified in previous research. The following two sections then discuss the contributions to knowledge as identified through use of the Grounded Theory Methodology. Section 9.6 discusses both the strengths and the limitations of the substantive theory derived in this thesis, while the final two sections discuss future research and the need to test the Indigenous Household Adoption Model empirically.

9.2 Discussion on the Theoretical Lens for the Development of the Substantive Theory

The substantive theory has drawn on Pierre Bourdieu’s concepts of habitus as its underlying foundation, and through these concepts the focus is on the production of practices. That is, habitus is used as a foundation to understand Indigenous practices
with regard to Indigenous household Information and Communication Technology (ICT) adoption.

It should be noted that Indigenous people are not atomistic individuals and hence they must be understood in their social context. While it is true that many Indigenous people operate extensively and quite successfully in non-Indigenous fields, through field intersection, their identity and actions are driven by Indigenous practices from within the Indigenous field and this needs to be understood and accommodated if Indigenous ICT adoption is to occur in any substantive manner.

This section provided a brief overview of the research that has drawn on concepts of habitus and has provided a background of where the concept of habitus is applied in the extant literature. The justification for using habitus as the theoretical lens to examine the factors affecting the adoption of ICTs in Australian Indigenous households has also been discussed. The following section will examine the primary themes from the substantive theory compared to previous research.

9.3 Examination of the Propositions in the context of Previous Research

The substantive theory produced a number of propositions that relate to Indigenous household ICT adoption. These propositions will now be discussed in the context of the existing body of research.

The most influential aspect of the final theory was the practice of the use of ICTs in education and employment. Moreover, this practice was formed during the intersection of the Indigenous field and the employment and education fields.
Examining Proposition 1 and Proposition 2 from the final theoretical construct (see Table 7.2) with previous research demonstrates that the two propositions are consistent with prior ICT adoption research. Previous research demonstrates a strong positive correlation between employment, education and ICT adoption (see Brown and Venkatesh 2005; Brown et al. 2006; Davis et al. 2002; Lloyd and Bill 2004; Lloyd and Hellwig 2000; Radoll 2006; Venkatesh and Brown 2001). While those studies have both qualitative and quantitative aspects, this thesis provides several cogent explanations for such a correlation existing beyond socio-economic status. For example, ICT practices produced in the workplace and/or educational settings are reproduced in the household environment by Indigenous people.

Proposition 3 in the final theoretical construct (see Table 7.2) was associated with the influence of social networks. Social networks have been found to be salient to ICT adoption (see Diaz Andrade and Urquhart 2009; Doolin and Lowe 2002; Rogers 1995; Valente 2005). Social networks are important to the process of technological adoption more generally. Rogers (1995) argues that ‘near-peers’ are an important part of the diffusion network which provide a positive feedback loop about the adoption. The positive influence of extended family on the purchasing of products has been found in consumer research where immediate family has the strongest influence (see Childers and Rao 1992).

Using habitus as a way of understanding why social networks are important to the IHAM is sound because of the way social networks and habitus interact; specifically, the habitus refers to ways of ‘doing’ as practices and ‘being’ as identity, and explains how various subjects of a society acquire their socialisation. The important point is that
a citizen’s socialisation is not undifferentiated and people’s identity is likely to be crucial in determining the behaviour in various spheres of life, including the adoption of ICT. This explains the emphasis on the Indigenous field in this thesis.

It is not a matter of ideological imposition nor is it a matter of conscious learning: rather it is through practice that habitus is achieved (Fowler 2000). The way habitus is applied to Proposition 3 is very similar to how Rogers (1995) views the influence of social networks. That is, this study found that Indigenous households feel that they are able to adopt ICTs because their social networks that have adopted ICTs provide them with positive feedback about their adoption of ICTs. However, the difference between the use of habitus and Rogers (1995) is that while Rogers’ feedback loop can be virtually constructed as well, the feedback loop with habitus is the individual’s unconscious taking in of the rules—what has been called a ‘feel for the rules of the game’ that is the habitus feedback loop, whereas Rogers is more formal within the social system (Webb et al. 2002 p.41). This ‘feel’ is what provides the positive feedback loop from a conceptual habitus perspective. Other research also demonstrates that ICTs tend to diffuse more readily through households that have social networks with ICTs (Smoreda and Thomas 2001). This provides further strength to the importance of having a social network of ICT adopters in the context of Indigenous household ICT adoption.

Having school aged children in the household who use ICTs in schooling was found to be important in the final theoretical construct and is defined by Proposition 4 (see Table 7.2). Having school aged children in the household who use ICTs in school exerts a positive force in the Indigenous household ICT adoption process. The effect of school aged children is quite prominent in the IHAM (see Chapter 4, 5 and 6). Previous research has also found that school aged children in the household influence ICT
adoption. Venkatesh and Brown (2001) contend that the reason for this is for the children to undertake their studies (Brown et al. 2006; Venkatesh and Brown 2001; Venkatesh et al. 2000). This was also found to be true in this thesis as well. However, a new discovery in this research is that the learned ICT practices by the children while they are immersed in schooling are transported into the Indigenous field, which exerts pressure on the Indigenous household to adopt ICTs.

Along with the motivating forces of Indigenous household ICT adoption it was also found that there were inhibiting forces on the Indigenous household ICT adoption process which have the potential to overpower the motivating forces.

Proposition 5 captured the impact substance abuse has on Indigenous household ICT adoption (see Table 7.2). There is a recognition in the extant literature that Indigenous substance abuse, especially alcohol abuse, is a serious issue in the Indigenous community (Australian Government 2009b). Analysis of the case study data demonstrated that substance abuse impacts on the household financially. Saggers and Gray (1998) confirms that for Indigenous households the ‘economic pressure from insistent demands to purchase alcohol can become very onerous’ and limits expenditure on consumer items (1998, p.138). Moreover, during the analysis process it emerged that some Indigenous people consider the excessive consumption of alcohol as a normal practice in their households. This particular notion of ‘normality’ is confirmed in the literature; for example, Gray and Saggers (2002) argue that some Indigenous people consider the excessive consumption of alcohol not only a normal practice but an ‘Aboriginal value’ (p.26). To some, the purchase of alcohol is their top priority and all other expenses or material needs are secondary. Moreover, those Indigenous people who refuse to drink can face claims such as you are acting white and ‘if you don’t fill it
up, you’re no mate of mine’ (Brady 1995, p.16). Excessive alcohol consumption, especially frequent binge drinking episodes, has many health and social implications for the Indigenous community, including domestic violence, hospitalisation and homicides (Australian Government 2009b). These implications are well outside the scope of this thesis but nevertheless should be noted as it is not clear how these aspects of excessive alcohol consumption impact on the Indigenous household ICT adoption process.

Problem gambling in the Indigenous community is also found in the extant literature. Problem gambling has many negative social and health impacts which lead to ‘poor nutrition, health problems and neglected schooling of children’ (McMillen and Donnelly 2008, p.405). Moreover, Brady (2004) reports that there are strong links between alcohol consumption and gambling.

The research in this thesis identifies a link between substance abuse and problem gambling and the effect it has on Indigenous household ICT adoption. Both substance abuse and problem gambling can be characterised as arising from psychological dependencies that lead to outcomes and behaviours that reduce the likelihood of Indigenous household ICT adoption. There have been attempts to address the issue of substance abuse in Indigenous communities in both the policy framework and practice solutions with mixed results (Alexander 1990; Australian Government 1977; Brady 1998; Brady 2004; Race Discrimination Commissioner 1995).

Proposition 6 captured the racial discrimination aspect of final theoretical model in where the Indigenous field and the employment field were prevented from intersecting (see Figure 7.9). It found that racial discrimination was associated with the higher level concept of social exclusion in the extant literature. Social exclusion from the economy based on race is not a new concept. Hunter (2003) demonstrated that, while some argue
that Indigenous employment prospects are poor due to low educational attainment rates
and high incarceration rates, race does play an important role. Hunter (2003) highlights
an international study conducted by Bertrand and Mullainathan (2003) to demonstrate
this. In their study Bertrand and Mullainathan (2003) found that ‘Whites’ were 50%
more likely to be called back by potential employers than ‘Blacks’ (Bertrand and
Mullainathan 2003). Racial discrimination is evident in the United States labour
markets, and it appears that similar forms of racial discrimination exist in Australia as
well. There is a growing body of research that demonstrates a link between race and
exclusion of Indigenous Australians from the labour market (Bertrand and Mullainathan
2003; Fernandez and Fernandez-Mateo 2006; Gallie et al. 2003; Hooker 2005; Hunter

Drawing on the concepts from the IHAM, if an Indigenous agent is excluded from
employment, then they are less likely to be exposed to ICTs, and therefore will not
develop important new practices. The failure to adopt new ICT practices results in non-
adoption. One of the important findings in this research is that racial discrimination in
the labour market can interrupt the Indigenous household ICT adoption process.

Proposition 7 (see Table 7.2) attempts to capture the impact that Traditional Aboriginal
Law has on the Indigenous household ICT adoption process. Aboriginal Law and the
Australian legal system operate side by side in some parts of Australian society. Some
Indigenous groups consider these two laws as contradictory (Williams 1987). There is
no one single universally accepted definition of Aboriginal Law (Law Reform
Commission 2000). This is because Aboriginal Law is very contextual in both how it is
derived and how it is applied. That is, Aboriginal Law is derived from the social setting
of an individual (Parbury 1988). Aboriginal Law governs many aspects of Indigenous
life. This Aboriginal Law is passed down through sacred rituals where boys and girls celebrate their passage to adulthood through initiation (Parbury 1988). However, as Indigenous people move into other fields such as employment and education, their practices change in a way that Aboriginal Law becomes less important, especially in the more settled parts of Australia (Peterson and Taylor 2003).

This thesis identifies that Aboriginal Law practices of Indigenous people can reduce the likelihood of Indigenous household ICT adoption. One explanation for this is that there is no Aboriginal Law associated with computers or the Internet. While Aboriginal Law does not directly constrain the use of ICT, in part of Australia where old customary practices are important, computer-based activities are crowded out by the reproduction of social networks and activities in a prominent Indigenous field.

9.4 Contributions

9.4.1 Contribution to Theory

This thesis has contributed to the information systems adoption literature by developing the Indigenous Household Adoption Model. This model has been derived from the application of the Grounded Theory Methodology, and has drawn on the social science theory of habitus to examine the processes of ICT adoption in Indigenous households. This thesis has identified both ‘structure’ and ‘agency’ as key features of the Indigenous household ICT adoption process especially in the intersection of the fields of employment and education (structures) with the Indigenous field (structure) and Indigenous agents (agency). Using these concepts of structure and agency the theory asserts that the intersection of the Indigenous field and external fields, along with the
interaction between structures and agency, produces new practices by Indigenous agents that leads to Indigenous household ICT adoption.

9.4.2 Contribution to Practice

There are numerous practical implications from this research. In the past two decades the Australian government has established numerous Indigenous ICT programs with tens of millions of dollars being invested. It is recognised by Australian governments that ICTs have the potential to increase the living standards of Australians and this forms the basis of many of the government programs. For example, Federal Government programs that specifically focus on Indigenous Australians include the Telecommunications Action Plan for Remote Indigenous Communities, Networking Indigenous Arts Centres, and the Indigenous Communities Online Project (Alston 2003; Australian Government 2005b; Department of Communications Information Technology and the Arts 2002). The Federal Government also monitors the success of the programs through the collection of statistical data on the level of ICT use by Indigenous people (Australian Bureau of Statistics 2006b; Australian Bureau of Statistics 2008).

More recently the Federal Government is embarking on a community access program for remote Indigenous communities which will see further significant funding allocated to Indigenous ICT programs (Council of Australian Governments 2008; Council of Australian Governments 2009). Programs like these assume that there is value in providing a hub type ICT service similar to the way health services or library services are provided to Indigenous communities.
While there is some value in Indigenous community ICT hubs for delivery of services (see Daly 2005; Daly 2006), it is the use of ICTs in the home where the most value of ICT is realised. Home use of ICTs is important to improving educational outcomes as the household environment can both enhance and extend the students’ educational experiences, which in turn leads to higher performance at school (Wellington 2001). Home use of ICTs also influences the attitudes formed about ICTs by students, which then may impact on the use of ICTs in the educational environment (Selwyn 1998). Home use of ICTs has been demonstrated to be very valuable in the area of chronic disease management with home use of ICTs being utilised in the area of home ICT health care. Chronic disease sufferers are able to better self manage their health at home which includes monitoring of vital signs and replacing nurse visits with video consultations (Cellor et al. 2003). Many Indigenous Australians suffer from chronic diseases, and home use of ICTs has the potential to better manage Indigenous health, particularly in rural and remote regions where journeys to the relevant medical facilities may be long, difficult and costly.

Private philanthropy has also funded a number of Indigenous ICT projects in Australia. These projects have linked libraries with remote Indigenous communities and have undertaken archival programs in communities to preserve language and cultural materials (Bill & Melinda Gates Foundation 2005; Bill & Melinda Gates Foundation 2008). There is considerable potential for new philanthropic and government projects that draw on concepts of the substantive theory of the IHAM model developed in this thesis. For example, projects that are consistent with practice of Indigenous agents in the Indigenous field and reinforce behaviours attained in employment and education fields are the most likely to achieve sustainable and constructive outcomes.
9.5 Discussion of the Methodology

This thesis used the Glaserian Grounded Theory Methodology (GTM) (Glaser and Strauss 1967). Since the creation of the GTM there have been a number of publications that have been produced to assist the researcher in understanding and applying the methodology in a way that will allow a theory to emerge from the data (Denzin and Lincoln 1994; Glaser 1978; Glaser 1992; Glaser 1998; Glaser 2005; Glaser and Kaplan 1996; Glaser and Strauss 1967; Glaser 2004). Moreover, much research has used the GTM or is informed by GTM, and this includes information systems research (Barrett and Walsham 1999; Levina 2005; Orlikowski and Iacono 2001; Rosenbaum 2005; Trauth and Jessup 2000; Walker and Myrick 2006). Other research demonstrates the steps of the GTM which addresses many of the issues that early career researchers have with using a structured and rigid research methodology (Eisenhardt 1989; Urquhart and Fernandez 2006).

There were a number of very difficult stages in the development of the theory in this thesis. The two stages that were the most time intensive were the development of the first theoretical framework, and the development of the final substantive theory. The first theoretical framework took so long to develop because of the GTM requirement of open coding, memo sorting and theoretical coding. The open coding process first generated 172 different categories which were reduced to 77 categories (see Appendix C). To assist in the theoretical coding a large wall chart that measured approximately 1.8 metres high by approximately 1.2 metres wide was produced. Categories that emerged were then transferred to a whiteboard to see the relationships between the factors and how the factors affected Indigenous household ICT adoption (see Appendix D).
The software used for data analysis was Atlas.ti. This software suited the application; however, there were a number of technical issues with the software. Given that three independent case studies were undertaken, and the primary data was uploaded into one ‘Hermeneutic Unit’ in Atlas.ti software, the researcher had to learn the more advanced features of the software. This included learning how to use the primary document manager and how to extract the codes that are associated with each from the three separate case study locations. It took considerable time to discover how to extract the codes from each of the three case studies. Glaser (1967) makes the point that recording the interviews and using software for analysis slows the process down considerably. However, the strengths of using recordings and software is that the researcher is able to leave analysis to undertake other tasks and return to the point where they had left off without losing data. Also the researcher is able to revisit the data for further analysis or clarification.

GTM is a very structured research methodology that requires the researcher to follow very strict guidelines. It also requires the researcher to be able to conceptualise processes. As an early career researcher it was quite challenging to conceptualise abstract theory from very practical empirical data. Determining the categories is a subjective process as it is the researcher that creates the names for the categories. It is also the researcher that determines if one instance of a category is the same as another instance of a category.

While there are some aspects of the GTM that are considered subjective, the final theory is grounded in the data which is the ultimate aim of the GTM. One interesting aspect that emerged from the data, and is present in the final theory, is just how close IHAM is
with the model of adoption for the household (MATH) which was developed by Venkitesh and Brown (2001). The paper by Venkitesh and Brown (2001) had not been seen by the researcher until well after the third theoretical framework was developed.

Like other research methodologies Grounded Theory is not without its critics. Denzin and Lincolin (1994) categorise GTM as a positivist research methodology that simply describes the phenomenon that we experience. However, this view is sometimes espoused by those who have used the methodology categorising GTM as interpretivist, describing it as a post-positivist research methodology that produces research findings that are independent of the researcher’s thinking about the observed phenomenon where objectivity is achieved through theoretical sampling (Hughes and Jones 2003; Urquhart and Fernandez 2006). On balance, while GTM exhibits aspects of positivism, theoretical sampling ensures that GTM remains an interpretivist post-positivist research methodology.

The second primary criticism of GTM is that the two distinct versions of the methodology are not entirely consistent or easy to reconcile. Since Glaser and Strauss (1967) published their book ‘The Discovery of Grounded Theory: Strategies for Qualitative Research’, the two authors independently refined their own versions of GTM. While both varieties of GTM have the same aim, Glaser and Strauss advocate quite different steps in the process of developing theory. Glaser is quite opposed to Strauss’ version of GTM, believing that the Glaserian version enables emergence of theory, whereas Strauss’ version of GTM forces data into a theoretical framework. This argument is forcefully made in his book ‘Gerund Grounded Theory: The Basic Social Process Dissertation’ (Glaser 1996). For early career researchers this debate can be
extremely confusing as much background research on the two versions of GTM needs to be undertaken before deciding on and selecting a version of GTM.

9.6 Discussion of the Limitations and Strengths of the Theory and Evidence

The theory developed in this thesis has a number of limitations and strengths that need to be discussed.

One limitation of this research is that the developed model can only be applied to similar areas from which it was derived. That is, the IHAM model will only be relevant to Indigenous communities that are the minorities within a colonised country with a developed economy and substantial pre-existing telecommunications infrastructure. Other similar countries where the IHAM could apply to include New Zealand, Canada and the United States.

Another limitation of this research is to do with the attitudes of various groups to the accumulation of wealth and assets such as information and communication technologies. Historically, Indigenous people have not placed an emphasis on accumulating material wealth. Some anthropologists believe that during the more ‘traditional’ period, any time additional to primary tasks, was invested in ‘elaborate religious life’ rather than accumulating material ‘wealth’ (Altman and Gray 2000, p.1). This ‘non-accumulation’ of material wealth is in direct contrast to the ‘white’ model of ‘materialist economic attitudes’ (Altman and Gray 2000, p.1). Therefore, the adoption of ICTs in Indigenous communities could be hampered by these competing values. Moreover, the findings in this thesis bring to light the notion that Indigenous people
seem to highlight the role of constructive economic engagement through education and employment.

One of the theoretical limitations of this study is that a theory can only be considered an approximation of a particular phenomenon (Weick 1995). This is because theories are developed and viewed within a particular context and boundary with temporal factors which can be applied only to a particular phenomenon at a particular point in time (Weick 1995).

One strength of the substantive theory developed in this thesis is that the findings are grounded in the data which have been derived from empirical interviews in three Indigenous communities across three jurisdictions of Australia. This means that the substantive theory could be generalisable across a wide range of Australian Indigenous communities.

Another primary strength of the above substantive theory is that the same concepts could be applied to many other areas that require practice or practical training to overcome similar issues. The principles, in theory, could be applied to any practical problem where the production of a practice is identified as an inhibitor or an action. This could be applied to developing countries and other Indigenous communities around the world.

9.7 Future Research

As with any theory, it is crucial that it is empirically testable, and indeed is tested. Theories that have the most relevance to a particular phenomenon are those theories that
are open to scientific evaluation and are both testable and falsifiable (Popper 1959; Popper 1963).

There are a number of ways that the IHAM could be empirically tested. One way is through replication. However, as discussed in Chapter 4, replication of grounded theory research can be difficult as the methodology has many deductive steps. This research was undertaken by an Aboriginal researcher in the Indigenous community. For this study to be replicated it would require an Indigenous researcher to undertake the replication study.

Another way to test the IHAM could be to test the developed propositions through other research approaches such as a survey or questionnaire. The substantive theory of the IHAM can easily be argued to be falsifiable, in that it claims that ICT use will be enhanced by a particular combination of factors which may not effect ICT adoption in the manner predicted. Future research can be undertaken using a survey method to verify quantitatively if the claims made are consistent with the data collected. In this context, the caveat about the Indigenous status of the researcher may be relevant. However, I am confident that the claims of the substantive theory are sufficiently general and robust that they are unlikely to affect the findings of any future research.

9.8 Conclusion

This chapter has discussed the substantive theory and its components with previous research. All aspects of the research are supported by the extant literature. The chapter has also considered the strengths and the limitations of the developed theory. The chapter discussed the practical implications for future Indigenous ICT projects. This
chapter has outlined guidelines for future research and has provided a way to test the final developed theory.

This research has contributed to knowledge in the following ways. First, it examined the factors that affect Indigenous household ICT adoption in a rural Indigenous community, an urban Indigenous community and a remote Indigenous community, to identify differences and commonalities of ICT adoption or non-adoption in diverse cultural and geographical locations across Australia.

Second, this research contributes to knowledge by providing a ‘practice’ perspective of household ICT adoption with the concept of habitus as the foundation. It has demonstrated the concept of structures and agency can be used to understand household ICT adoption.

Third, the research established the existence of the Indigenous field and has defined its boundary. Within the boundary of the Indigenous field are Indigenous agents, Indigenous households and Indigenous organisations.

Fourth, the findings demonstrate that a key aspect of the Indigenous household ICT adoption process is the intersection of the Indigenous field with the employment and/or education fields. This intersection is where new ICT practices are formed, making the practices learned in employment and/or education the key driver of Indigenous household ICT adoption.
Finally, this thesis has developed a theoretical framework of Indigenous household ICT adoption. This is one of the first ICT adoption frameworks developed for the Australian Indigenous community.
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Appendices
Appendix A  Introduction Letter and Consent Forms

Peter Radoll
School of Accounting and Business Information Systems
College of Economics and Commerce
The Australian National University
Canberra ACT 0200

Dear Participant,

I am an Aboriginal PhD student from the College of Economics and Commerce at the Australian National University. I am currently completing a thesis about why Aboriginal and Torres Strait Islander people do not access and use computers and the Internet at home as much as non-Indigenous Australians.

I would like to interview you to further understand what you think of computers and the Internet and what the barriers are to owning, accessing and using this technology. Participation is voluntary and you are free to withdraw at any time. The interview would take approximately 45 minutes and be audio taped where possible and where appropriate and only with your permission.

Information obtained from the interview may be published in my PhD thesis and in journal articles. However, the names of interviewees and community names will not be disclosed. All notes and/or audio recording from interviews will be securely stored on a computer with password protection, to which only I have access, so far as the law allows.

If you have any concerns about the research, you may contact the Human Research Ethics Committee, which has approved this research care of:

Ms Yolanda Shave, Manager
Human Ethics
Research Office
The Australian National University, ACT 0200
Tel: 02 6125 7945
Fax: 02 6125 4807
Email: Human.Ethics.Officer@anu.edu.au

If you have further questions about the research, or would be happy to participate in an interview, please call me reverse charges on (02) 6125 53744, or email me at peter.radoll@anu.edu.au

Yours sincerely,

Peter Radoll
CONSENT FORM

I, .........................................................., agree to be interviewed by Peter Radoll regarding computers and the Internet and the barriers to owning, accessing and using this technology. I have read and understand the information sheet:

1. The interviews will contribute to research about why Aboriginal and Torres Strait Islanders don’t use computers and the Internet as much as the non-Indigenous community.

2. Participation is voluntary and I am free to withdraw at any time.

3. The research will contribute to a PhD thesis and journal articles.

4. My name and my community name will not be disclosed in all published work.

5. All raw data from interviews will be securely stored on password protected computer, which only Peter Radoll has access to, so far as the law allows.

6. Interviews will be audio recorded.

7. Further questions about the research may be directed to:
   Peter Radoll
   School of Accounting and Business Information Systems
   College of Economics and Commerce
   Tel: (02) 6125 3744
   Email: peter.radoll@anu.edu.au

8. Concerns about the research may be directed to the Human Research Ethics Committee, care of:
   Ms Yolanda Shave, Manager
   Human Ethics Research Office
   The Australian National University, ACT 0200
   Tel: 02 6125 7945
   Fax: 02 6125 4807
   Email: Human.Ethics.OFFicer@anu.edu.au

..................................................  ..........................  
Signed                                      Date
Typical Interview Questions

- Who do you identify with or who is your mob?

- Do you use computers?
  - what do you use them for?
  - Where do you use them?

- What is the main issue with owning a computer?

- What is the main issue with having Internet access?

- What do you think the main reasons are to owning a computer?

- What do you think the main reasons are for having internet access?

- What do you think is a good or deadly use of computers and the internet for Aboriginal People?
Dear Participant,

I am an Aboriginal PhD student from the Faculty of Economics and Commerce at the Australian National University. I am currently completing a thesis examining how Aboriginal and Torres Strait Islander peoples use computers and the Internet. I am also interested in how some individuals and communities use computers and the Internet for cultural purposes. This research will lead to a better understanding of how Indigenous communities use and can make use of computers and the Internet for individual community needs.

I would like to interview you to further understand what you think of computers and the Internet. Participation is voluntary and you are free to withdraw at any time. The interview would take approximately 30 minutes and be video taped or audio taped where possible and where appropriate (only with your permission).

Information obtained from the interview may be published in my PhD thesis and in journal articles. However, the names of interviewees and community names will not be disclosed without permission. All notes and tapes from interviews will be securely stored in a locked filing cabinet, to which only I have access and any notes recorded on computer will be protected by computer password.

If you have any concerns about the research, you may contact the Human Research Ethics Committee, which has approved this research care of:

Ms Sylvia Deutsch  
Human Ethics Officer  
Research Services Office  
The Australian National University, ACT 0200  
Tel: 02 6125 2900  
Fax: 02 6125 4807  
Email: Human.Ethics.Officer@anu.edu.au

If you prefer to talk to an Aboriginal person regarding this research prior to contacting the Human Ethics Officer please contact the University’s Aboriginal and Torres Strait Islander Student and Academic Centre, the Jabal Centre, reverse charges on (02) 6125 8945.

If you have further questions about the research, or would be happy to participate in an interview, please call me reverse charges on (02) 6125 9793, or email me at peter.radoll@anu.edu.au

Yours sincerely,

Peter Radoll
Appendix B  Campsite for Remote Fieldwork

This is how I undertook some of the remote fieldwork. A petrol generator (not pictured) provided electricity for the camp fridge, lighting and laptop computer.
Appendix C  Codes used for Analysis

At times throughout the analysis phase I felt as if the PhD process was more like ‘how to use analysis software’ rather then analysing the data. It took considerable time to find out how to print codes from a specific case study. However, it was achieved and the lists below were generated over time for each case study. After the analysis of the final theoretical framework I went through the codes to ensure that I had not missed any components of the model. I shaded the documents as follows: blue shading shows unique instances where they only exist in one location rural, urban or remote, the orange ones are the ones with the biggest difference in instances.

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Motivation - PrePaid
Motivation - Savings
Motivation - SMS
Motivation - Support
Motivation - To learn
Motivation - Use at
Motivation - Business
Motivation - CDEP - IC

CODES-PRIMARY-DOCUMENTS-TABLE (CELL=Q-FREQ)
Report created by Super - 07/10/08 11:29:26 AM
HU: [C:\Documents and Settings\peter\My Documents\Scientific Software\ATLASti\TextBank\phd.hpr5]

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PD-Filter: Primary Doc Family Remote

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Below is an early coding list that was generated before the first theoretical framework was completed. Unfortunately, the original code list was overwritten during the early analysis phase of the first theoretical framework.

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A. In terms of finances, other..
Aboriginal Culture - Adapting to use ICTs
Aboriginal Culture - Face to Face important
Aboriginal Culture - Identity
Aboriginal Culture - Prefer outside
Age - Young more techno
Analog - Prefer Books
CDEP - ICT Courses
Computer Use
Computer Use - at Home
Computer Use - External Push
Computer Use - Length
Computer Use - Outside Home
Computer Use - Work
Effective Use - Aboriginal Bush Tucker
Effective Use - Aboriginal Culture
Effective use - address racism
Effective Use - Business
Effective Use - Chat Rooms
Effective Use - Communicating
Effective Use - Develop Business
Effective Use - Develop Relationship
Effective Use - e-governance
Effective Use - Education / Research
Effective Use - Email
Effective Use - Employment
Effective Use - Family History
Effective Use - Games
Effective Use - Hands on; Self training
Effective Use - Indigenous E-Group
Effective Use - Internet enables long distance purchasing
Effective Use - Intervention
Effective Use - Keep up with rest of world - Fear of being left behind
Effective Use - M'Phone Downloads
Effective Use - Music
Effective Use - News
Effective Use - Occupy Bored Kids
Effective Use - Online Commerce
Effective Use - Online Gambling
Effective Use - Organisation Business
Effective Use - Painting Program
Effective Use - Personal Diary
Effective Use - Porn Sites
Effective Use - Prevent Arguments
Effective Use - Savings through ICTs
Effective Use - SMS
Effective Use - Sport
Effective use - Suicide Prevention
Effective Use - Support Family
Effective Use - Use ICT to find employment
Effective Use - Virtual Community (eg Education)
Email good way to stay in touch
Employed
Employment - CDEP Major Employer
Employment - CDEP outdoor focus
Employment - Retired
Employment Agency - Special Needs
Feeling of loss - Email need to stay in touch
Govt Services- Network Important
ICT Use - Access Motivation to Study
ICT Use - Community Resource
ICT Use - Computer based info more than phone
ICT Use - Convenient
ICT Use - Creating discussion in Families
ICT Use - CTCs not used by Aboriginal People
ICT Use - Digital Camera
ICT Use - Email ok if Know person
ICT Use - FAX
ICT Use - Games Console
ICT Use - hobby
ICT Use - Important tool for communities
ICT Use - Inevitable
ICT Use - Internet
ICT Use - Land Phone
ICT Use - Limit Kids
ICT Use - Many choices
ICT use - Mobile Phones
ICT use - Mobile Technologies
ICT Use - More Independence
ICT use - More Koori Kids with M/Phones than Computers
ICT Use - outside home
ICT Use - Pay TV
ICT use - Replacement of Mobile Phone with Email
ICT Use - Study
ICT Use - Use of ICTs to fill gap in society
ICT Use - Used to watch the world news
Inhibitor - privacy
Inhibitor - Aboriginal Space
Inhibitor - Access to the Technology
Inhibitor - Alcohol, Drugs, Gamble
Inhibitor - Ashamed to Ask for Help
Inhibitor - Awareness
Inhibitor - CDEP Male Dominated
Inhibitor - CDEP outdoor
Inhibitor - Chat rooms
Inhibitor - Comp. Not a part of Traditional Law Ceremony
Inhibitor - Cost of ICTs
Inhibitor - Diabetes
Inhibitor - Dial up Slow
Inhibitor - Empl. Aboriginal People
Inhibitor - Exposure in Environment
Inhibitor - Fear of Dependence on Technology
Inhibitor - Fear of Technology
Inhibitor - Greed and Corruption
Inhibitor - Home Environment
Inhibitor - Household Income
Inhibitor - ICT Design
Inhibitor - ICT Language
Inhibitor - ICT Reliability
Inhibitor - Inappropriate software
Inhibitor - Inappropriate Training
Inhibitor - Intellectual Property Rights
Inhibitor - Lack of Education
Inhibitor - Lack of Employment
Inhibitor - Lack of ICT Training
Inhibitor - Lack of IT Support
Inhibitor - Lack of Motivation
Inhibitor - Lack of Personal Interest
Inhibitor - Lack Technical Knowledge
Inhibitor - Large Family
Inhibitor - Like Faster Computers
Inhibitor - Low income household
Inhibitor - Low Socio-Economic Position
Inhibitor - Mobile Phone Limited Coverage
Inhibitor - Mobile Phones (ICTs) Intrusive
Inhibitor - Mobility of ICTs (Computers)
Inhibitor - Need credit card
Inhibitor - need face to face communications
Inhibitor - Need Home Phone
Inhibitor - Need to feel product
Inhibitor - No Internet
Inhibitor - Number of Children
Inhibitor - Other priorities
Inhibitor - Poor standard of living
Inhibitor - Porn
Inhibitor - Racism
Inhibitor - Security Issues
Inhibitor - Security of Technology
Inhibitor - See Computer as Games Console
Inhibitor - Self Control
Inhibitor - Technology Complexity
Inhibitor - too many choices
Inhibitor - Virus
Inhibitor - Work Restrictions
Intention - to have Internet Access
Internet Availability v’s PayTV Availability
Internet brings a lot of info at fingertips
Internet Use - Access to info that you normally wouldn’t
Internet Use - Addictive sticky
Internet Use - ADSL
Internet Use - Information
Internet Use - Negative Aspects
Internet Use - Prepaid Preferred
Less contact with family without email
Libraries like Chat rooms
Location - Remoteness is isolation
Motivation - Children
Motivation - Comp. work indoor
Motivation - Education
Motivation - Envy
Motivation - Exposure in Environment
Motivation - Family Orientated
Motivation - ICT use Essential no Luxury
Motivation - Not wanting to fall behind
Needing Internet for Research
No other Family members with Computer
Not Regular Computer User
Older Generation Not wanting outside influences
Older Generation resistant to change and Technology
Older People prefer outdoor
Out grown type of Technology
Ownership - Don't Own a Computer
Ownership - Owns a computer
Payment - Instalments
Payment - Monthly Bill
Payment - Prepaid
PayTV and Computer similar cost over time
PayTV individual resource in home
Place of Residence
Prepayment prevents large bills
Realisation that there is a broad International Society
Self motivated to learn computers
Social Impact - community less active due to ICTs
Social Impact - Fear of losing Community
Social Impact - Ghetto; Aboriginal Space
Social Impact - Health Issues
Social Impact - Lose of Culture
Social Impact - Losing book skills
Social Impact - Not leave house
Social Impact - relationships via the Internet
Social Impact - Without ICT no contact
Social Issue - Boredom
Social Issue - Break and Enter Computers
Social Issue - Companion or outlet
Social Issue - CTC destroyed
Social Issue - Drink Syndicates
Social Issue - Financial Management
Social Issue - ICTs addictive
Social Issue - Kids Hungry
Social issue - Less Interaction at the Society Level
Social Issue - Lose Creativity
Social Issue - No Computers on Mission
Social Issue - Online Gambling
Social Issue - Other
Social Issue - Racism
Social Issue - Reliance on Technology
Social Issue - Sporting Activity Important
Social Issue - Tall Poppy
Social Issue - Technology puts all in same basket
Social Issue (ICTs) - chat rooms
Social Issues - Kids on Computers too long = no social skills
Strong Work Ethic
Technical - Technical Knowledge
Telephone STD is expensive
Training ICT
Understanding - Computer will save money

The final code list is outline below. This code list constantly changed right up until the final analysis of the third theoretical framework.

Code-Filter: All

Inhibitor - privacy
Inhibitor - Access to the Technology
Inhibitor - Age - Young more techno
Inhibitor - Alcohol, Drugs, Gamble
Inhibitor - Assets not that important
Inhibitor - Awareness
Inhibitor - CDEP Male Dominated
Inhibitor - CDEP outdoor
Inhibitor - Community less active due to ICTs
Inhibitor - Comp. Not a part of Traditional Law Ceremony
Inhibitor - Computer not relevant
Inhibitor - Computers not important
Inhibitor - Cost of ICTs
Inhibitor - Face to Face important
Inhibitor - Fear of Technology/Technology Dependency
Inhibitor - Financial Management
Inhibitor - Home Environment
Inhibitor - ICT Design
Inhibitor - ICTs addictive
Inhibitor - Internet speed - ADSL
Inhibitor - Lack of / Need Employment
Inhibitor - Lack of Education
Inhibitor - Lack of ICT Training/Inappropriate ICT Training
Inhibitor - Lack of IT Support
Inhibitor - Lack of Motivation
Inhibitor - Lack Technical Knowledge
Inhibitor - Large Family
Inhibitor - Low income household
Inhibitor - Need Aboriginal Space / Aboriginal People
Inhibitor - Need to feel product
Inhibitor - No Home Phone
Inhibitor - No Internet
Inhibitor - Not Traditional Word for Computer - European Only
Inhibitor - Other ICTs - Pay TV
Inhibitor - Other priorities
Inhibitor - PHONE Other people will use it so not have it
Inhibitor - Poor standard of living/Poor Health
Inhibitor - Porn
Inhibitor - Racial / Cultural issues
Inhibitor - Security Issues
Inhibitor - Security of Technology
Inhibitor - Self Control
Inhibitor - Virus
Inhibitor - Prefer outside work
Motivation - Business
Motivation - Aboriginal Culture - Keeping Culture
Motivation - address racism
Motivation - Chat Rooms
Motivation - Children
Motivation - Communicating
Motivation - Develop Business
Motivation - Develop Relationship
Motivation - Education / Research
Motivation - Employment
Motivation - Entertainment - Music, Games etc
Motivation - Envy
Motivation - Exposure in Environment
Motivation - External Push
Motivation - Family History
Motivation - Good to keep kids inside
Motivation - Hands on; Self training
Motivation - Instalments
Motivation - Need Employment
Motivation - News
Motivation - Not wanting to fall behind
Motivation - Occupy Bored Kids
Motivation - Online Commerce
Motivation - Online Gambling / Check lotto
Motivation - Organisation Business
Motivation - Prepaid Convenient
Motivation - Savings through ICTs
Motivation - SMS
Motivation - Support Family
Motivation - To learn English
Motivation - Use at Work
Motivation CDEP - ICT Courses
Motivator - Family Orientation
Appendix D  Analysis Diagrams

This poster was the result of memo sorting and was the foundation of the analysis of the first case study. This poster was created with 48 recycled A4 pages. It provided a great insight into the development of the first theoretical framework.

After the development of the poster, further reduction of the developing model was required. Through the process of theoretical sampling the following diagrams emerged:
The emergence of the core categories from the data took time and lots of analysis. One example is outlined below. Substance abuse leads to poor financial management which affects Indigenous household ICT adoption.
Appendix E  Additional information on rural community data collection

There are two reasons it took 34 days to collect twelve interviews. The first reason is the application of the Glaserian Grounded Theory Methodology (GTM). As discussed in Chapter 3, interviews must be transcribed and coded before the next set of interviews. This process is required to achieve case saturation. The second reason is directly related to the issues of working with Indigenous communities in that it takes time to build a rapport with the community being studied; the better the rapport the more open Indigenous people are to being participants of research. Data collection can be made easier if a researcher undertaking the research has established trust (Denzin and Lincoln 1994). It is only the gaining of trust that ensures the data collected in the interviews provide rich data. The time taken to gain trust varies depending on how well one is known in an Indigenous community and the type of research one is undertaking.

I spent the first eight days in this community establishing trust and building a rapport. This was achieved by visiting Aboriginal community organisations such as the Aboriginal Medical Service, the Aboriginal Radio Station and the Aboriginal Land Council. These Aboriginal organisations then referred me to two Elders. After I visited the Elders they suggested a visit to a number of others in the community to continue to establish trust and to ‘get known’.

After nineteen days of being in the community the first two interviews were undertaken. These interviews were conducted approximately four hours apart on the same day. Once the interviews were recorded they were transcribed. These were then loaded into ATLAS.ti (a Qualitative Software package) where open coding began as well as memoing.
Over the ensuing fifteen days an additional ten interviews using the same process of conducting one or two interviews on the same day, transcribing the interviews, loading them into ATLAS.ti and continuing coding and memoing until case saturation was achieved. The interview process was driven by the need to satisfy the requirement of theoretical sampling (Glaser 1992; Glaser 1998). By the eleventh interview case saturation, which is the aim of GTM, was achieved, but it was not until the twelfth interview that it was totally apparent that enough interviews were completed and thus case saturation had been achieved in the rural area. Case saturation is a term used in GTM case study research which refers to a point in data collection where no new concepts emerge from the interviews data. At this point the interviews can be suspended.

It should be noted here that the first four interviews were undertaken quite quickly; however, after that there was a five day break between interviews. During this time it was quite difficult to find Indigenous people who were willing to be interviewed. There were two reasons for this difficulty at that time. The first reason was that a number of people who had been scheduled for interviews had a family member suddenly pass away and they had to attend to funeral arrangements. A large number of the Indigenous community attended this funeral. Funerals are known as ‘sorry business’ for the Indigenous community and are a way for those surviving to express their grief and mourn. The length of the mourning is quite subjective but can last for a considerable time (Keen 1994; Toussaint 2008). The second reason it was difficult to find willing participants at that time was also probably due in part to how I was perceived by some members of the Indigenous community. While I was known to some in this Indigenous community, to others I was considered a total stranger. One example is highlighted by
an Indigenous male aged in his early 20s. After being referred to him by an Indigenous organisation, I asked him if he would like to participate in the research. He initially agreed, yet when informed of why the research was being undertaken he suddenly changed his mind. This informing process was a part of the ethics protocols and a requirement for each participant. When questioned about his reason not to participate, he said that he believed that I was ‘too educated to be considered black’ and he completely refused to be associated with both me and the research.
Appendix F  Additional information on urban community data collection

As stated in Appendix E, building trust is important to data collection in the Indigenous community. It should be noted here that I was known to some of the people in this region, and this assisted in participant recruitment. However, as required by the research ethics protocols, I had to first approach the local Aboriginal community organisations to seek participants. The Aboriginal Medical Service as well as the Aboriginal Land Council was approached and referred me to other Indigenous people in the local community.

Interviews were conducted in a similar manner as in the foundation case (see section 4.3 in Chapter 4 and Appendix E) in that the first two interviews were undertaken on the same day. Once these interviews were recorded they were then transcribed and loaded into ATLAS.ti (a Qualitative Software package). Once loaded in the ATLAS.ti the transcripts were both open and selectively coded. At the same time as coding was taking place, the GTM requirement of creating memos was also undertaken.

Over the next thirteen days an additional ten interviews were undertaken using the same method of conducting one or two interviews on the same day, transcribing the interviews, loading them into ATLAS.ti and continuing coding and memoing until case saturation was achieved. After analysing the twelfth interview case saturation for the urban Indigenous community was achieved.
Appendix G   Additional information on remote community data collection

It was discussed in Chapter 4 and Chapter 5 that establishing trust and building a rapport in Indigenous communities is vital to data collection and this is most important in remote Indigenous communities. A discrete remote Indigenous community is quite different from the other areas of Australia as these communities are much more aware of any ‘outsiders’ visiting their community. As stated above, remote Indigenous communities are discrete communities that have a majority of Indigenous people living in them and they are usually governed by an Indigenous council (Australian Bureau of Statistics 2001b).

To gain access to these communities one is required to apply for a visitor permit. Any person visiting these communities from outside the local region is required to have a permit. This is also the case for people undertaking research, regardless of whether they are an Aboriginal person or not.

To build trust and to better understand the landscape I undertook a reconnaissance visit about twelve months prior to the planned data collection. This visit provided valuable information about the process of data collection in remote Indigenous communities. The visit involved visiting two potential data collection sites. In the first community that was visited, it was found that there was a great resistance by the local Indigenous community to the idea of collecting data in this locality, with a number of community members complaining about the excessive number of researchers who had come before, albeit for different types of research. Due to this resistance, I decided to visit another potential data collection site. The second community was approximately nine hours drive from the original location. I had met members of this second community.
previously at a conference and had established a rapport with them. There were only four days left of the reconnaissance trip to travel to and establish trust in the second community.

On arrival in the second remote Indigenous community, I met with the Indigenous community members that I had met at the conference about twelve months before. I was welcomed and set about explaining that I would like to undertake data collection in their community. This second remote Indigenous community was a back up location for the remote Indigenous community case study should there be any issues with the original community when it came time to collect the data, which was scheduled for approximately twelve months time.

Twelve months later as scheduled, I returned to the original remote Indigenous community and was informed that the Indigenous Council had given me just six days to conduct the fieldwork. This was clearly not enough time as I had learned from the data collection experience in the rural area (see Chapter 4) that even when I was known in the community it still took sixteen days to undertake twelve interviews.

After four days of unsuccessful negotiations to extend the six days offered by the Indigenous Council, I decided to abandon the original plans and head to the second data collection site. On arrival at the second remote Indigenous community I had to contact the local Indigenous Council to obtain a research permit. This permit took five days to be processed. At the same time I contacted the university to have the research ethics protocols changed and approved for the new data collection site. This process took two days. The total time from arrival at the original data collection site, to being able to commence data collection in the second remote Indigenous community was eleven
days. All references to the remote Indigenous community from this point onwards refer only to the second remote Indigenous community. In this thesis all quantitative data provided in Section 6.2 Case Profile pertains only to the second remote Indigenous community.

While waiting for the research permit and university ethics protocols approval, I started trying to build a rapport and trust with the Indigenous community. I visited the Aboriginal Medical Service and found that this community has two medical services, one for men and one for women. This reflects the traditional culture of men’s and women’s business being kept separate in this remote Indigenous community. I was referred to the men’s medical service, and then on to the medical service’s administration area which is a shared facility for both services. I was advised that the mobile dental truck would be in town in a few days and that would be a good place to ‘hang out’ to be ‘seen’ which would increase the engagement with the local community. I visited the community medical service on the days that the mobile dental truck was in the community, but only a few Indigenous community members actually visited the dental truck.

Data collection commenced on day twenty. This is because it was very difficult to recruit participants. By this stage I was beginning to be better known in the community, and had also adapted my physical appearance in that I altered my beard to a style similar to other men of my age in the community. I believed this helped with building rapport with Indigenous community members.