Chapter 3 Reflections on the Research Process

> *To understand it all he first needed to find out the other stories … It wouldn't be easy, I told him, because … there are never any clear boundaries. Everything is dependent on everything else and one thing is superimposed on top of another. It all ends up as a complicated intertextual game, like a hall of mirrors or those Russian Dolls.*
>
> Arturo Perez-Reverte, *The Dumas Club*

In Chapter One, I gave a broad overview of the research reported in this thesis. Of course, any researcher begins their research with some idea of the questions that they would like answered (Creswell 1998; Leedy 1997; Patton 1990; Williamson 2000). In this chapter, I will discuss my initial research questions, and how these mutated during the process of data collection and subsequent analysis. I will also describe the procedures used for the data collection and analysis.

A chapter such as this appearing in another thesis would usually be titled **Method** or maybe **Methodology** and would more than likely have a section that examines the methodologies available for use in a particular discipline and then describe the method undertaken to collect the research data. I have chosen to call this one **Reflections on the Research Process**. This was a deliberate decision, taken because I wanted to show how I settled for the particular techniques that I did.

The Concise Oxford (Allen 1990) defines **methodology** as the science of method or a body of methods used in a particular branch of the activity whilst **method** is defined as a special form of procedure especially in any branch of mental activity. One of my major learning experiences whilst undertaking this

project was trying to find the particular method to use or more truthfully, to try and pigeon-hole the data collection process I went through in phase one (See section 1.3) into one of the accepted methods that are used in Information Systems. For you see, this project started in a very hasty manner.

It was the start of the 1997 academic year and I had just completed my study of VICNET when it was suggested that I might want to enrol in a PhD. Fresh from the joys of having completed that thesis and excited at the prospect of continuing my research into libraries and the Internet, I did just that. At the end of 1997 I was then granted some study leave by my employer and having obtained ethics approval and permission from the 'gatekeepers' at the SLV to conduct the interviews and demographic data collection I set out to do just that. I will at this stage, confess that the niceties and considerations of methodology took rather a back seat in the desire to make the best of the six months leave that I had just obtained.

We all know that the textbooks say that research should be planned and that supervisors and dissertation committees exist to help and provide advice on that process, especially in the early days of a doctoral project. But in real life, and especially in *this* real life, it did not happen. The only plan that did exist was to use the six months leave to complete as much of the data collection as possible. For once that window was closed it would be back to full-time employment, part–time research and sharing the responsibilities of running a home. There was even a degree of uncertainty as to how many libraries I should involve in the data collection.[29]

Thus, this chapter is a reflection on the overall process of how the data collection process was conducted, my understanding of methodology and the selection of the methods that provided a best fit for that data collection. It describes (and here I borrow the Concise Oxford's (Allen 1990) definition of process) the progress or course of something, in this research project.

[29] See Appendix A for details of the early days of this project.

Perhaps unsurprisingly, given that in my previous research project I had studied VICNET as an Internet information and service provider established as a new organization (information system?) attached to the State Library of Victoria (see Chapter 4 for background information on VICNET) my initial research question was this:

What role does the Internet play in the provision of information in libraries?

This question was framed after a good deal of deliberation, reading, investigation and discussion with others both within and without the library.

Whilst it could be argued that carrying out a survey of libraries would enable the question outlined above to be assessed, this would be more or less duplicating the work of Bertot and McClure who found amongst other things that there was a need for longitudinal studies that treat networks as a multi-dimensional entity that includes: technical infrastructure, information content, information services, support and management (1998). They also recommend that data be collected using new measures such as: extensiveness, efficiency, effectiveness, service quality, impact, usefulness and adoption issues (Bertot and McClure 1998, pp. 33-34). These are laudable aims but still do not supply the depth and detail that would help to explain the evolution of the open system under investigation. So what methods could be used?

One thing that I should immediately state, although the theoretical reasons underlying my choice will only become clear later on in the chapter, I had an aspiration to explore in-depth the role the Internet played in the lives of library staff and users, to ascertain peoples' stories of the Internet, libraries and change. In short, I had a preference for qualitative research rather than quantitative. During the research for my Masters dissertation (Wenn 1996c) I

had gained some experience in using qualitative interpretive research and quite frankly, whilst pleased with the results I felt I needed more experience. What better way than adopting a similar approach for this project? Although I came across IS researcher Eileen Trauth's (2001) work much later on I found myself in concordance with her views when she says "[f]or these individuals the lack of skill and experience with qualitative methods may well function as a barrier to employing this research approach" (p. 9).

I was determined to overcome this shortcoming in my own skills.

One of my interests was to look beyond the media hype surrounding the Internet, I wanted to know how the Internet was being used. As discussed in the introduction to this thesis, Victorian libraries and in particular, the SLV, were eager to embrace Internet technologies. I have previously described how VICNET was seen as an integral part of the libraries' moves towards introducing these technologies (Wenn 1996a; Wenn 1996c) I now wished to move into the use and adoption of the Internet within libraries themselves.

A little later in this chapter, I will illustrate how my major research question was broken down into a number of sub-questions that allowed some of the various aspects of the adoption of the Internet by libraries to be explored in more detail. However, I will firstly discuss the rhetorical format to be used in the remainder of the chapter.

3.1 The Methodological Spiral

Creswell has characterised the analysis that qualitative researchers do as a spiral—a data analysis spiral:

> the researcher engages in a process of moving in analytical circles rather than using a fixed linear approach. One enters [this spiral] with the data of text or images ... and exits with an account or a narrative. (Creswell 1998, p. 142)

Thus the process is an iterative one where the questions one asks, the data one collects and the themes that emerge are part of an evolving process of becoming sensitised to the research situation and what one finds really interesting. Strauss and Corbin refer to research as being a "flow of work" (1998, p. 29 emphasis in original) whereby choices about data collection methods, analytical procedures, and interpretation, for example, evolve over the life of the project. Denzin and Lincoln also view the task of producing a work of research as fluid in that it draws on new tools and techniques as the need arises. The most successful researcher will be self-reflexive (see next section), thinking all the time about the task on hand and the methodologies being used and pragmatically add to, or adapt, the research methodology as the need arises (Denzin and Lincoln 1998). Concepts and design must be allowed to emerge during the research process (Strauss and Corbin 1998).

In a similar manner, the account described here will spiral through the initial thoughts I had, pursuing some intermediate themes, questions and ideas on data collection. We will exit with a final set of themes that are explored in detail in the remainder of the thesis.

The Reflective Process - admitting the researcher into the picture

Before moving on however there is one important point that must be made. Above I implied that even the questions a researcher asks and the preconceptions they bring to a project shape the 'end product' of the report. The section that

follows harnesses the power of confessional ethnography (Ellis and Bochner 1996; Schultze 2000; Van Maanen 1988) to allow my own experiences of libraries and Internet technologies to emerge as a powerful tool for self-reflection about the research process. Ulrike Schultze says about the confessional style of reporting:

> Confessional writing requires the ethnographer [researcher] to give a self-revealing and self-reflexive account of the research process. The ethnographer designs such an autobiographical exposition to draw the readers into the text so that the assumptions and practices of the foreign culture serve as a mirror in which the reader's own assumptions and practices are reflected. (Schultze 2000, p. 4)

Qualitative research is a subjective practice. The researcher brings to the data collection, the analysis and the report writing some of themselves (Agar 1986; Bochner and Ellis 1996; Darke and Shanks 2000). A researcher comes to a project with certain biases and preconceptions in the form of beliefs, knowledge, experiences, values and prior assumptions[30]. As Van Maanen (1983b) reminds us the qualitative researcher defines both spatially and temporally the domain they wish to explore, bracketing it using some preconceived scheme, gathering data which are then read and interpreted by the researcher. Recognising this, I feel, like Schultze (2000), that it is important to be forthright about these issues.

No researcher comes to a project as a *tabla rasa*—a clean slate. There is, I believe, a degree of responsibility and ethical commitment on the part of said researcher to reveal what preconceptions they hold and how they shaped the design of the investigation. Adopting the confessional style will allow you the reader to reflect

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[30] I have already admitted to some of these in the reflection on page 100.

on how my background and the things I experienced as a researcher, influenced the results obtained and hence the story told here.

The approach adopted here is one that the confessional ethnographer (Van Maanen 1988) would use whereby the researcher becomes self-revealing and self-reflexive when giving an account of their experience in undertaking the project. I have adopted this confessional style for the purpose of relating my experiences as I explored and defined in detail what it was I wanted to research and how. This does not preclude the use of another method for the collection and analysis of the data. It thus "presents the ethnographer's role as a research instrument and exposes the ethnographer rendering [their] actions, failings, motivations and assumptions open to public scrutiny and critique" (Schultze 2000, p. 5).

In a confessional ethnography the researcher interlaces self-reflexive and autobiographical material with the actual ethnographic material thus challenging the reader to "constantly examine their own practices and assumptions whilst they are learning about the practices and assumptions of others" (Schultze 2000, p. 5).

Authors discuss their pre-understandings of the studied situation, their own interests in that setting, how they gained access to it, what form their presence and participation took and their exit procedures. Also of importance in this type of reporting is the reaction of the informants to the researcher's presence and conversely the researcher's reaction to the informants who will be of necessity from a variety of categories. Issues such as how the data was collected, stored and analysed should also be discussed (Van Maanen 1988). What was the involvement of the researcher in all this? Possibly as the research continues and more data are collected, the researcher, if he is following good qualitative practice,

will be analyzing the data also and hence will be developing a better understanding of the setting and practices therein. Where possible, these developing understandings should also be reported so that the reader can better understand the study.

Now, in what follows, it is important to notice the role that my motivations and experiences have in the formation of the research questions and the subsequent development of the research. For this reason, my reflections are boxed and formatted using a Helvetica Neue 11 point font, so that you, the reader, can clearly see what my thoughts were as the project moved through the research spiral.[31]

3.2 The First Iteration

My earliest set of questions and aims (dating from late 1997) reveal that my main focus was on VICNET with libraries and the Internet to be investigated as to their role as an actor in the VICNET network.[32] Given that I had just completed a research report on the development of VICNET this was hardly surprising (Wenn 1996c). The questions I felt it was important to ask and seek answers to were:

3. How distributed is VICNET?
4. How do the public libraries and VICNET interact?
5. How do Victorians gain access to the Internet using VICNET?
6. Are there people who are missing out?

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[31] Of course, you have already encountered this rhetorical device in the previous chapters. Now you have some insight into why I chose to write in this way.

[32] Although VICNET as information technology is a network I use the term network to refer to a sociotechnical network. Refer to the discussion in Chapter 2.

7. How is the information being published on VICNET?
8. What is it being used for?
9. How has VICNET changed the ideas about access to information from the librarian's perspective?

Creswell (1998) states that, if the research questions ask *how* or *what*, that is, they are seeking descriptions of what is going on, then one should employ qualitative research. If the research questions are seeking to quantify things or are seeking straight forward factual information asking things such as *how many*, *who*, *how much*, *where*, or *when* then they are more suited to quantitative enquiry (Williamson 2000). A careful reading of the research questions above shows that many are asking *how* or *what*. This combined with the interest in culture, people and roles means that some form qualitative enquiry could be employed. Given these initial questions I was in a position to contemplate possible qualitative methods that could be used. In the following section, justification, based on theory, for the selection of a qualitative method is provided; this is followed by the second round of research questions which then leads to a consideration of the research site and an examination of the particular choice of qualitative research tradition.

3.3 Towards a Research Method

There have been long and often acrimonious debates about what is the 'correct' research method, the one that yields the most accurate picture of reality and for that matter even what reality might be. These debates can generally be viewed as being about whether quantitative or qualitative methods should be used. "As part of this debate, qualitative approaches to research are mainly, but not exclusively, linked with interpretivism and quantitative approaches are linked with

positivism" (Williamson, Burstein and McKemmish 2000, p. 26). (See also (Trauth 2001, p. 7)).

"The term positivism derives from the belief that society will become ever more perfect as a result of advances in science, including social science" (Wynn 2001, p. 21). There is an implicit understanding here that scientific method, if not yet perfect, is the best tool we have to understand the world. Quantitative methods originated from the natural sciences (Myers 1997) and were adopted within the social sciences by those who wished to be seen as producing objective results which at the time the sciences were thought to be (Tesch 1990). As Tesch explains there was also a very definite 'scientific method' enshrined in the "respectable and hopeful sounding 'positivism' " (1990, p. 9) which emphasises the use of objective measurement and deductive reasoning to produce theories linking cause and effect. Now, one of the functions of scientific method was to establish general laws from the empirical measurements that were being taken on objects existing in the real world. This was the approach taken by social scientists who adopted the quantitative method. The individual became lost in the averages and standard deviations produced from the plenitude of numbers recorded.

Over many decades in the last century, this view has come to be widely questioned (Feyerabend 1978; Fleck 1981 (originally published 1935); Latour 1987; Pinch and Bijker 1987; Turnbull 2000), indeed as Wynn (2001) reminds us

it was sociologist Max Weber (1864-1920) who was amongst the first to question the positivist view propounded by Auguste Comte (1798-1857).[33]

Qualitative research is often seen to accommodate all the other non-numeric forms of research. In fact Tesch identifies it as arising from the German Romantic movement, where the aesthetic, the emotions, human experience of the lifeworld, the *Sturm und Drang*, were of prime importance. Philosopher Bertrand Russell (1961) finds the romantics tend to be "definitely hostile to what is commonly called reason [scientific thought and method]" (p.696) and that there was a tendency for them to be anti-scientific.

It (qualitative research) has become increasingly popular in Information Systems and has moved a considerable distance from just understanding users to having developed "into studies of processes, practitioners, the organization and a reflexive view on the IS discipline itself" (Wynn 2001, p. 27). However whilst Klein and Myers argue that qualitative research can be either positivist, interpretive or critical depending on the particular philosophical 'bent' of the researcher (Klein and Myers 2001; Trauth 2001), based on my previous experience I favoured an interpretivist approach.

Having admitted that, I now must say something about interpretivism.

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[33] For a series of very accessible case-studies that illustrate the socially constructed nature of science the reader is referred to Collins, H. M. and Pinch, T. 1993., *The Golem: What Everyone Should Know About Science*, Cambridge University Press, Cambridge, UK.

> Interpretive studies assume that people create and associate their own subjective and intersubjective meanings as they interact with the world around them... [T]he intent is to understand the deeper structure of a phenomenon ... to increase understanding of the phenomenon within cultural and contextual situations. (Chua (1986) as cited by Trauth 2001, p. 9)

If a researcher wishes to build a complex, holistic picture, likes working in a naturalistic setting collecting and working with text-based data and feels comfortable reporting detailed descriptions of the informants views then a qualitative [interpretive] methodology is what they should consider using (Creswell 1998). An interpretivist "reject[s] the idea that scientific knowledge exists independently or can be made to exist independently of knowing subjects" (Lee 2001, p. 241). (See also for example, Bruner 1990; Feenberg 1999a; Feenberg n.d.; Geertz 1993).

An interpretivist approach was taken for this project because I do not subscribe to the view that knowledge can exist independent of human subjects, rather knowledge is a product of shared meanings, technologies and other artefacts. Hence the data collected is arranged, sorted and interpreted by the researcher. Even the questions I asked and the preconceptions I brought to this research shape the 'end product' of the report.

By its very nature qualitative research tends towards the holistic, trying as it does to reveal as many influences as possible on the thing being studied (Myers 1995). In a work of this length and type, it is very hard to present, and for you the reader to make sense of, that whole. I have chosen to discuss only some aspects of Internet use in libraries to give you a glimpse of the complexity of a problem that is both heterogeneous and continually changing. Denzin and Lincoln argue that the pluralistic methodologies of the qualitative researcher characterise them as a bricoleur and the work they do as *bricolage* (1998, p. 5

emphasis in original). In what follows, the materials I am going to place before you are parts of the bricolage I have assembled. In some way I want you to view it as a "theoretical tinkering" (Turkle 1996, p. 48), a piecing together using the materials to hand, arranging and rearranging them until some sense emerges. Turkle tells us that "[b]ricoleurs approach problem-solving by entering into a relationship with their work materials that has more the flavour of a conversation than a monologue" (1996, p. 51). That is, it is a conversation between me the author, the materials that have been gathered and you the reader. There are multiple layers of interpretation.

Qualitative research enables us to explore social or human problems, it permits us to understand social and cultural contexts in which the participants are embedded (Miles and Huberman 1984; Myers 1997). As Miles and Huberman say "[q]ualitative data ... have always been the staple of certain social sciences, notably anthropology, history, and political science" (1984, p. 15).

One thing to understand is that qualitative methods allow us to "study selected issues in depth and detail" (Patton 1990 p. 13) thus producing a deep understanding of a particular situation that is most unlikely to be generalisable. On the other hand, quantitative research uses methods whereby standardised categories are predetermined based on the researchers deep reading on the study area and measures are devised so that peoples' varying perspectives and experiences are coded to these categories as numeric responses (Leedy 1997; Patton 1990; See also Williamson 2000). Quantitative methods allow the researcher to test a wider range of variables at the expense of depth, that is, fewer variations in response are catered for. But the outcomes of the research will be generalisable (Patton 1990). This issue of the generalisabilty of qualitative research results will be discussed later.

As it was just this holistic type of study where I sought to discover the meanings people brought to the use of the Internet, one that was to take place in a natural setting (the libraries), it became clear that this really set the scene for a qualitative interpretive study, enhanced by a sociotechnical understanding (Section 2.4), of libraries and the ways the various actors involved were using the Internet. Such a study would reveal more detail about the evolution of the open system under investigation and enable the stakeholders to better comprehend and plan for future needs. It would also enable future researchers who may wish to take up Bertot and McClure's challenge to fine-tune their list of measures.

Now, whilst the choice of method had been made there is still the issue of what particular qualitative approach to adopt. In order to better understand how this decision was made it is helpful to first of all consider the selection of the research site and the revised list of research questions in more detail. This is done in Sections 3.4-3.6. Only then do I look at possible approaches.

I note that one of my aims was "to investigate and describe the growth and organization of an open computer system". My earlier study (Wenn 1996c) revealed VICNET as an evolving system embedded in an ever-changing external environment. There will be (are?) pressures from within and without for change.[34] Turkle, in her book *Life on the Screen* talks about the way emergent artificial intelligence systems depend on local interactions amongst decentralised components (1996, p. 138). In the same way it may be that VICNET is best seen as an emergent system where the interactions are taking place between the various sites, organizations, and users both information

[34] I note that also I wished to study, how distributed access to VICNET was; what barriers to access there were; the relationship between public libraries and VICNET; and whether or not the advent of VICNET changed the ideas about access to information from the librarians' perspective?

seekers and information providers (although it should be noted that often seekers are also providers and vice versa) and the reason that we can consider these local interactions is that the Internet itself acts to brings these entities closer together. In order to investigate this, I proposed to conduct interviews, read the archival records of a number of public libraries that had Internet access and observe users accessing the Internet from these libraries as well as at the State Library of Victoria.

3.4 Selecting the Site

I chose the SLV as the preferred site for my research for several reasons. Firstly, the State Library of Victoria is where the administrative centre of, and where the majority of the equipment that constitutes VICNET is housed, so it seemed sensible to use that as one of the sites for my study. Secondly, the SLV is located in Melbourne's CBD quite close to public transport and is thus used by large numbers of people. Thirdly, at the time its main reference centre was also undergoing refurbishment and part of the plan was to enhance public access to the Internet. Fourthly, strategically the choice was enhanced by the fact that an amendment to the *Arts Institutions Act (1996)* meant that the SLV was to share with the Office of Local Government responsibility for "funding and policy development for public libraries" (1998, p. 8). Previously this had been the sole responsibility of the Office of Library Services. Fifthly, the SLV provides many services for Victoria's 44 public library services (Library Board of Victoria 1998). Finally, my previous research had also allowed me to make a number of contacts within the organization thus enabling an easy entrée to the site.

However, when I began discussions with the State Library of Victoria it transpired that many of the staff regarded the Public Access Internet (PAI) facility at the SLV and VICNET as two different things. In fact, in early discussions my 'gatekeeper'

(Creswell 2003) (contact at the State Library) specifically stated that the Public Access Internet facility there and VICNET were not to be considered the same. At a later point (July 1999) during an informal discussion with a senior SLV staff member, she recalled that the Chief Librarian had said "we have got VICNET but where does it fit into the SLV?" Furthermore an Information Paper titled Victoria's Virtual Library Proposal"[35] which outlines a project to increase accessibility to a range of "value added library services" lists amongst the stakeholders the Public Libraries, the State Library and VICNET (Libraries Online Steering Committee 1999). Again, the indications are that VICNET and the SLV are not as fully integrated as I might have thought at first. In fact, the opening screen displayed on the PAI terminals was not the VICNET homepage.

Thus, although it would have been possible to investigate some aspects of VICNET and libraries, it was clear that if I was to obtain a more detailed picture of the way the Internet and libraries interacted (thus enabling me to answer my major research question) then I would have to look further than VICNET's role in libraries.

So having moved the focus from VICNET I formulated a new set of questions. The major research question remained the same but I broke it down into a number of sub-questions, some that point to matters of procedure and those that relate more to the way the research is to be reported as recommended by Creswell (1998).

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[35] Libraries Online Steering Committee 1999, 'Information Paper: Victoria's Virtual Library Proposal', [Format. information paper], 13 July 1999.

3.5 The Second Iteration

- What is the social situation being studied?
- What observations can be made?
- Has the introduction of the Internet altered the role of the librarian?
- How is the interaction between the social and technical artefacts shaping the use of the Internet?
- What is information?
- What has happened to the nature of the information provided by libraries?
- Has the way information is provided by libraries altered with the introduction of the Internet? That is, has the packaging and signposting of information altered?
- What do the library users who access the Internet at public libraries do?
- What is the culture of library Internet users?
- How might the events leading up to the use of the Internet be best described?
- What themes emerge?
- How does one interpret and write about the observations?

3.6 Adding Some Flesh to the Bones

The sub-questions posed above are as they were written down in my reflective notes early on in my research but after I had made some preliminary forays into the field. They are not in any particular order but reflect my thoughts at the time about what I regarded as important (see for example Creswell 1998; Mason 2002). In this section I will flesh some of these issues out reordering and grouping them

in ways that enable us to see the types of methodological issues that need to be addressed.

1. What is the social situation being studied?

   Although this was the way I expressed it at the time, I now feel that the question should have focussed more on the social processes that are embedded within the organization as well. Doing this then signals the fact that I was interested in examining the roles of and the interplay between the various participants. How are these roles defined and played out in practice? Van Maanen characterises qualitative researchers as being interested in describing social processes and adds that until the researcher has a "direct, firsthand and more or less intimate knowledge of the research setting" (1983b, p. 10) he or she will not attempt to claim knowledge or understanding of what the observed behaviour(s) mean. Hence to begin to understand the process one must observe and record the events that are happening "*in vivo* close to the point of origin" (Van Maanen 1983b, p. 9).

2. What is the culture of library Internet users?

   Following Weber's view that humans are suspended in self-spun webs of significance, Geertz (1975) describes culture as just those webs of significance. Culture emerges as a semiotic concept for it follows that these webs are created by the networks of interactions between the actors. It is the group of shared meanings that are developed and embedded in and through social interaction. It is the task of the researcher, most often the ethnographer, to search for the meanings signified by those webs (Bochner and Ellis 1996).

Sharon Traweek following the work of David Schneider and Clifford Geertz, enriches our understanding of culture by describing it as: "... *patterns* of explanation and action, the meanings people bring from one situation to another, the connections and distinctions people make between certain actions, feelings, ideas, things, and their environment" (Traweek 1992, p. 8 emphasis in original). So what does having access to the Internet at a library mean to users? What actions do they take or are they required to take by the technology and the library system that they have to negotiate with when desiring to use the Internet? How do they account for the fact that the technology is not always as robust as they would like or the demand for the system is high and they cannot use it when they were hoping to? Dealing with the predictable and the unpredictable as we will see is part of the life of an Internet user in the library. Foreshadowing a little of what is to come we will see how knowledge is shared between users, how they co-operate to form an identifiable if itinerant user community, some of the feelings of frustration, anger, anxiety, puzzlement, relief, exaltation and so on that they may have.

3. What do the library users who access the Internet at public libraries do?

Although this question could be thought of as referring to the some of the cultural actions mentioned above, it really was framed as something far more prosaic. Internet technologies have embedded in them many scripts of use (Akrich 1992; Akrich and Latour 1992; Lehoux et al. 1999) which users can employ to carry out a variety of tasks such as email, chat, viewing web TV, transferring files, searching for information, buying and selling goods and services and so on. What I was really seeking to know was which of these were the ones being used?

4. How has the introduction of the Internet altered the role of the librarian?

Introduction of new technologies does change the roles of those in the situation to which it was introduced. One has only to think of the stories surrounding the introduction of the telegraph (Standage 1999), CAD/CAM (Downey 1998), electrical generators in Senegal (Akrich 1992) or the genetic technology that produced OncoMouse™ (Haraway 1997). The Public Libraries movement of the nineteenth century regarded the establishment of libraries as essential for improving the moral tone of the younger and less advantaged of the general populace (Armstrong 1906; Dean 1983; Molz and Dain 1999). The public libraries are institutions "devoted to the diffusion of knowledge" (Molz and Dain 1999, p. 11). Library 21 – Victorian Libraries Policy 1998 states that "[l]ibraries are the most widely used cultural or information agency in Victoria" (Library Board of Victoria 1998, p. 5) and sees the increasing complexity brought about through the expansion of library services into "'virtual' or electronic resources" (Library Board of Victoria 1998, p. 6), which will coexist with traditional print-based resources, as increasing the "significance of the librarian as a *navigator*" (Library Board of Victoria 1998, p. 10 emphasis in original).[36] That is, the librarian acts as a guide to knowledge stored within and increasingly outside the walls of the library. In a report on a workshop conducted for SLV and VICNET staff, some of the

[36] Scully not only sees libraries as being guides to the world's knowledge but a vital access point too. "By being access providers public libraries can expand and extend their library collections beyond the physical confines of their buildings. ... [by providing] effective access to Internet resources [a public library] has an onsite and an offsite collection." Scully, P. 1998, 'The Internet: A Core or Value Added Service?' *Australasian Public Libraries and Information Services*, vol. 11, no. 1, pp. 36-45.

things identified by the participants that connect the practices of librarians and the Internet were:

- Navigational expertise
- Information evaluation
- Internet search experts
- Education and training of users
- The melding of the global and the real

(Stillman 1998)

The librarian, whether they be in cataloguing, acquisitions, or reference will be affected by these changes. But, and here we start to see the significance of the sociotechnical approach, how do librarians adopt, adapt, assimilate or otherwise, these new forms of technology into their practices? Thus we look for and treat the actors involved symmetrically. This, of course, does not mean that the actors are symmetrical, but that we treat the actor's successes, failures, resistance to change and acceptance of change in the same way, using the same tools. We look for and describe reasons and contingencies, alliances and betrayals for the reshaping of the network. Success may be celebrated but we also recognise and learn from failures. ANT recognises that both human and non-human actors are part of the network shaping process and they are treated in similar ways in any explanation (Callon 1986a; Latour 1996a).

5. How is the interaction between the social and technical artefacts shaping the use of the Internet?

In this case, the use of such terms as social, technical, artefacts and the assumption that they shape the way the Internet is used returns us to the discussion in Section 2.4. This is the type of question that would asked by a researcher who has a preference for taking a sociotechnical perspective on his research subject. This, of course, comes from my grounding in sociology of technology through reading authors such as Bijker and Law (1992), Callon (1986b), Downey (1998), and Latour (1996a) writers who in their analysis of technology treat the human and the technical with equal regard. That is, the same type of analysis should be used for all elements in a system irrespective of whether these elements are human or not. These elements can be scientific, technical, natural, social, economic, or political in nature. Explanation does not privilege the social over the technical or vice versa.

6. What is information?

This question of the nature of information is fundamental to any research involving the Internet (Refer to discussion in Section 2.12). Certainly one of the main thrusts of VICNET is to provide information and allow others to publish information. It is seen as an information bank. Authors such as Stone (1995) and Turkle (1996) have written extensively about the way computers enable to people to interact, how gender may change or entirely fictitious persona may be created, how they may even become, to use Stone's term a "prosthesis" (Stone 1995 p. 15). Now the question is 'Is it really information they are dealing with or something else?'

Whilst I agree with Stone that computers are not only tools but also "areas of social experience" (1995, p. 15) my interest is information since there are large numbers of organizations which use computers to store data which can be processed in many ways to become information. More specifically how is information being used?, why are people making it available?, why are people seeking it out from global repositories?, and what do they do with it? Again harking back to my early diary notes I see that I wrote "It seems to me that I have to think carefully about what the various players mean by information" (10/3/98) and here I was thinking mainly in terms of the communication of information, that is information as a flow, and wondering whether it was a one way, bi-directional, asynchronous or synchronous type of transfer.

When VICNET was launched in May 1995, the SLV Chief Librarian at the time, Helen Tait, in her speech alluded to the historical roots of the State Library of Victoria and stated she saw VICNET as "continuing the development from the times of the Mechanics Institutes of the nineteenth century where widespread access to **information** was seen as fundamental".[37] Information is the 'stuff' of computers and libraries but do the actors in this play necessarily see information in the same way?

In a diary entry I have written, "Does the use of the term 'information' flatten or hide the disparate constituents that make it up?" Is this why emails are often seen as a waste of time because to many librarians they contain no legitimate information, but to the sender or receiver they contain information about home, friends, places etc (28/4/98). This note was written subsequent to having interviewed several librarians who regarded email use a non-legitimate use of Internet facilities.

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[37] Personal notes taken at the VICNET launch. Emphasis added. Tait, H. 1995, 'Transcription of Speech Given at the VICNET Launch', [Format. Andrew Wenn - personal notes], 23 May 1995.

By collecting texts that refer to information as it is used in the library field, listening to way users and librarians refer to 'information' and asking questions about what library staff see as information we should be able to understand the nature of it. How is the term used in practice? Does its meaning vary depending on context? These are some of the issues that need to be considered.

The next two questions are linked to the preceding one in that they presume some standardised meaning of information. The first one is really asking if the type of information that users request has altered as a result of the availability to Internet technologies, if so in what way has it changed? With the introduction of information technology into libraries back in the early 1980's we saw the gradual disappearance of the card catalogue (although at the State Library in the mid 1990s I was still referred to the card catalogue when I was seeking information on a particular topic). The card catalogue and later the online catalogues and CDROM based indexes act as sign posts to the holdings within the library and in some instances, external to it. But has the advent of the Internet altered the way users and librarians seek out, find and access information? This ties back to the statement by the Chief Librarian, in her speech about access to information (Tait 1995).

7. What has happened to the nature of the information provided by libraries?

8. Has the way information is provided by libraries altered with the introduction of the Internet? That is has the packaging and signposting of information altered?

These questions are really about practices. Are things done differently than they were previously? What is happening now when a user comes to the desk seeking information? Has the means of access to information really changed? Certainly these are questions qualitative research can help answer. My diary notes of the time refer to that fact that Uniform Resource Locators (URLs) and email addresses signify much more than an address, they can package and point to information (28/4/98).

The remaining questions are more to do with method rather than questions about what is going on. As Creswell (1998) notes they are important nonetheless as how data is collected, interpreted and reported form the framework of successful research. Here are those questions just to remind us of what they were:

- What observations can be made?
- What themes emerge?
- How might events leading up to the use of the Internet best be described?
- How does one interpret and write about the observations?

9. What observations can be made?

Whilst the questions asked above provide a way of focussing on the issues, we also need to consider what type of data needs to be collected, what as the question asks, type of observations can be made?

Since the Internet had been introduced prior to the commencement of this study, the best way to capture the nature of changes was by conducting interviews with librarians especially as they would be able to talk about the

past, prior to the Internet, as well as recount the situation as it is at the present time.

10. What themes emerge?

11. How might the events leading up to the use of the Internet be best described?

I have to admit to a slight sense of bemusement on returning to this question sometime after I initially framed it. I am now unsure of why I refer only to events leading up to the use of the Internet. My diary notes of the time are no help either. So, why not think about all events surrounding the use of the Internet and how they can be described. In which case this question can be subsumed into the following one.

12. How does one interpret and write about the observations?

Here with these three questions (10-12), I was more concerned with method. I note that in my reflective notes from 1998 I wrote:

Visiting the field and actually observing what is happening in the library was important to me; I did not want to feel remote from and uninvolved in the actual working environment – where things were happening, the coal-face, I needed to get a feel for and uncover the day-to-day events that I feel a survey just could not do. If I had undertaken a purely quantitative survey, then I would have missed many of the changes to the Internet usage configuration that occurred over the time I conducted my research. It is important to understand that this is an emerging set of phenomena and as one of my interests is in the characteristics of open or emerging systems then I had to be there to experience as much of it as possible.

3.7 Selecting a Tradition or Traditions

Creswell defines tradition to mean "an approach to qualitative research that has a distinguished history in one of the disciplines and has spawned books, journals and distinct methodologies that characterize its approach" (1998 p. 2). Tesch (1990) identifies over 30 qualitative traditions that are used in the fields of sociology, psychology and education far too many to consider here. In an effort to narrow down the choice of tradition I consulted two research methods texts Creswell (1998) and Leedy (1997) to establish the methods most commonly discussed, I then augmented this by consulting the ISWorld[38] qualitative research website (Myers 1997) to gain an insight into the methods commonly used in Information Systems. Similarly, I also turned to an Information Management research text (which also includes a treatment of Information Systems research) to gain an appreciation of the qualitative methods commonly used therein (Williamson 2000). As can be seen from Table 3.1 there are three major traditions common to all four sources, these being: case study research, ethnography, and grounded theory[39]. Now as I was not intending to develop theories from the field data Grounded Theory was not considered a viable alternative. An Ethnographic Study involves spending a considerable length of time (often six months or more) in the field and results in the description of the cultural behaviour in a group or individual whilst Case Study Research is the "in-depth study of a case or cases"

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[38] ISWorld is a website established by The Association of Information Systems that is a resource for IS practitioners and academics. It also hosts a discussion list. http://isworld.org/, accessed 18 May 2005.

[39] It should be noted that this is not meant to imply for instance that phenomenology is not used in Information Management research rather that it is not a commonly applied technique.

that results in the identification of themes and a detailed description of the case (Creswell 1998, p. 65).

Thinking about the type of questions outlined in the discussion above we can see that they cover issues such as the role of people within an organization, what type of practices are involved in Internet use, and descriptions of the social situations where the Internet is used. There are questions being asked about the culture of users and libraries. It would thus seem appropriate to borrow some of the data collection, analysis and reporting techniques from ethnography, notably observations over an extended period of time coupled with interviews. The analysis entails thick descriptions of the social settings, actors and events along with pictures of the setting and analysis of the same for patterns and themes (Creswell 1998).

	Research Methods		*Information Systems*	*Information Management*
Tradition	Creswell (1998)	Leedy (1997)	Myers (1998)	Williamson (2000)
Action research			X	X
Biography	X			
Case study	X	X	X	X
Delphi				X
Ethnography	X	X	X	X
Grounded theory	X	X	X	X
Phenomenology	X	X		

Table 3.1: Some common research traditions as identified by authors from various fields

Along with these techniques borrowed from ethnography, there are also those that can be borrowed from case study research, for I wished to investigate one case; namely, the SLV along with two mini-cases (see Section 3.10 for an explanation of the reasoning behind this) so this project was not to be just one naturalistic setting as is the norm for ethnography (Creswell 1998). In many ways what I would be doing is describing a case in context as is recommended by Creswell (1998), augmenting the ethnographic observations and interviews with other sources of data. In this instance, the context being the introduction and use of Internet technologies in the case of the State Library of Victoria.

To be honest, I found it very difficult to pin down the exact tradition that I employed. In fact I vacillated between ethnography and case study from the early days to the moment of printing the final version. I was happier to describe it as an ethnography particularly when thinking about the reporting style adopted (reflective, confessional, thick descriptions of settings and observations) but I did not immerse myself in fieldwork to the level suggested by many ethnographic methods texts (Creswell (1998) suggests 6 months on the other hand Agar (1996) describes how a focus group became an ethnographic study and contrasts that with a 17 year study into patterns of drug use. Bow is silent on the actual length of time just saying "time spent in the field is dependent on the amount of time available to do the research, and how much the researcher wants to achieve" (2000, p. 255)).

In the end I took the pragmatic approach and decided to settle for the fact that I used techniques from both traditions and as long as I made it clear the way the research was conducted it probably didn't matter if it didn't fit neatly into either.

I have also expressed an interest in trying to understand the nature of information and the ways it may be changing. And there are some meta-questions that seek to find ways of identifying themes and report the findings. So there are data collection issues, analysis issues and reporting issues. In the

remainder of this chapter I seek to address these points in more detail interweaving theoretical discussion on research methods along with a description of the pragmatic issues of actually carrying out the research.

3.8 This Project

From my earlier study of VICNET (Wenn 1996c) it was, so I thought, but a short step to extend it to an investigation of the way the Internet is being used in libraries. VICNET was only a part of the Internet technologies used in the SLV and other libraries.

Whilst this may have seemed that simple back in 1999 as I collected more data and as the open system evolved whilst I was doing so—almost like a rhizome (Deleuze and Guattari 1988)—it became increasingly obvious to me that the organising principles or themes were multiplying like beyond bounds.

… rhizomes, creeping underground stems which spread sideways on dispersed, horizontal networks of swollen or slender filaments and produce aerial shoots along their length and surface as distributions of plants. These plants are populations, multiplicities, rather than unified upright things. (Plant 1997)[40]

Whilst a rhizome will have the same structure and be made of the same cell material, it was also rather apparent that with these Internet-based systems some things remained the same others changed with great rapidity. One could say it exhibited exuberant open system behaviour. Somehow I would have to retain this sense of rhizomicity, but reduce the number of organising principles I wish to write about and find a way to make a story of this system.

[40] The well-known and despised Australian couch grass is an example of a rhizome.

Whilst this Internet system was seen as performing a useful purpose by many (for example those in the public libraries, library users, and community organizations) in that it enabled Victorians to gain access to the Internet and provided publishing space (Bertot and McClure 1998; Hardy 1996; Mackenzie and Siegersma 1996; Stillman 1998; Wenn 1996c), many staff saw the need to have Internet terminals within the library as an additional tool (for both staff and users) for finding information.

> It was obvious to me that what I was seeing was an open system formed by VICNET and these additional functions of the Internet (and the way that libraries are changed by, employ and co-construct this technology) would form the main part of this study. Thus, it was clear that I was going to be studying a fluid and changing situation.

Patton (1990) points out qualitative study allows the researcher to approach the fieldwork without "being constrained by predetermined categories of analysis contributes to the depth, openness and detail of the qualitative inquiry" (p. 13). And it seemed clear to me that using predetermined categories would hide many of the developments, negotiations and features I wished to uncover. This then was to be a qualitative study borrowing, from the traditions of ethnographic and case study research, using multiple modes of data collection in an attempt to remove some of the errors and biases that are inherent if only one type of data or one source is used, it also allows the presentation of a richer picture by increasing the chances of finding "disconfirming data" (Stewart 1998, p. 28).

The Issue of Data Validity in Qualitative Research

Validity, or verification as Creswell prefers to call it, refers to the methods used to establish the credibility, authenticity and correctness of the study (Creswell 1998;

Maxwell 1996, p. 87). Verification procedures can be and should be carried out by the researcher. There are a wide variety of ways that a study can be verified, Creswell lists eight of these, recommending that researchers "engage in at least two of these in any given study" (Creswell 1998, p. 203) Of these eight, he mentions that triangulation, member-checking and the use of thick description are possibly the easiest and most cost effective to perform. I am using each of these where possible but with more emphasis on triangulation which can be carried out by collecting data from multiple sources (Creswell 1998; Hammersley 1992; Trauth 1997) and thick description. Member checking is being done in some cases with library staff but due to the itinerant nature of many of the patrons cannot be carried out easily with them. In an attempt to obtain some additional triangulation for data collected from the patrons I have collected some quantitative data in the form of surveys to obtain demographic and other information.

3.9 Telling the Story

Systems, serendipity, reconfiguration and change form the larger part of this study. But how do we make sense of things that are continually changing, not just practices but the people using or implementing the system as well? A first step, perhaps, is to recognise that the computing definition of an information system is too narrow, the idea of hardware, programs and single applications black boxed into a single package just cannot be used when studying the emergence of Internet use in libraries. This is perhaps the main methodological question to be answered in this section: how to deal with complexity without simply filtering out and ignoring the parts played by many of the human and

nonhuman actors involved. But yet again, one must make the complexity of the system clear to the reader, whilst making it readable and intelligible.

As well as using the interpretive lens along with ANT, I employ the technique of narrative reporting. For as Pentland says:

> [t]here have been numerous calls to incorporate narrative more explicitly into social science methods. ... I argue that preserving the most basic features of narrative (sequential structure) is helpful, but that incorporating more aspects of narrative (such as the focal actor(s), narrative voice, and evaluative context) creates some interesting possibilities in the area of collaborative systems research. (Pentland 1999)

Whilst Horsfall (2001, p. 90) finds that "[t]elling a story, or using a narrative approach, is a way of organizing what we want/need to say". The story connects the events that took place. When we write up research in this way we use our "imagination and creativity to select and organize 'events', 'facts', 'findings'" (Horsfall 2001, p. 90). Here we can see the dual purpose of narrative reporting from both the participant's and the author's point of view.

Picturing the interactions – Semantic Networks

Whilst Actor Networks have their basis in semiotics, and are often used to create deeply descriptive written reports I have also found it valuable to picture things graphically. I required another way to (re)present my interpretations of the data.

One method available, often employed in artificial intelligence (Firebaugh 1988), is to use Semantic Networks. These are often represented graphically as a series of nodes linked together using members of a set of semantic relations, that is relationships that show how one node is referred to by the other. A node will

represent a separate concept or actant whose definition is defined in terms of other concepts provided by the semantic links to other nodes (Joslyn and Heylighen 1993). Sowa when discussing conceptual graphs, which he considers to be subsets of a semantic network, used to represent a single proposition, says "[o]nly through the semantic network are its [the conceptual graph's] concepts and relations linked to context, language, emotion and perception" (Sowa 1984, p. 77). Thus semantic networks can be a useful way of representing multiple concepts and the relationship to the real world.

However, I required something that was nowhere near as formal as a semantic network tends to be, because I don't have a predetermined set of relationships that I try and force the interactions between entities into. These maps, which for want of a better description I term limited concept semantic networks (LCSNs) (Wenn 1999; Wenn 2003). Limited because the number of relationships they display are often just a subset of those that are occurring as I want to maintain a degree of simplicity and hence clarity. They are limited too in the way they display the various attributes of the actants involved as well as being a depiction of the interrelationships between actors at a given time. The rule of thumb that I employ when selecting the actors and relationships to display in an individual LCSN is that they have to add to, clarify or further explain my verbal discussion in the relevant section. These actors are involved in interactions of interest to me.

The LCSNs are an aid to enable me, and I hope you the reader, to understand how the situations I describe are being co-constructed. The LCSNs consist of nodes which speak for (are delegates for (Latour 1996b)) actors such as organizations or services or places called home. These nodes may be directly

connected by arcs or may have arcs that pass through them on their way to another node.

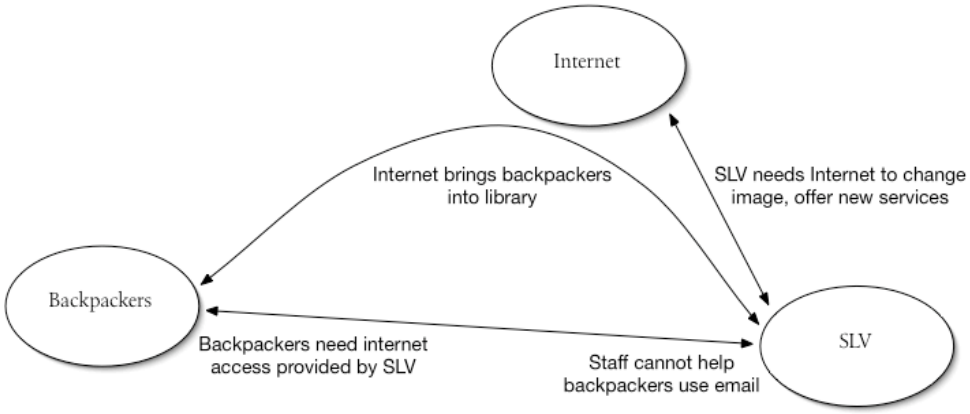

Figure 3.1: An LCSN consists of ovals or nodes which represent the actors (human and nonhuman) and labelled arcs that are used to depict the relationships between two or more actors.

The LCSNs seem to me, at least, a useful way of understanding the way systems are shaped by the actors involved. It helps us picture the way for a given actor, "the strategy of the other actors is interdefined" (Latour 1996a, p. 163).

3.10 Conducting the Fieldwork

This section describes the data sources, the way it was collected, the way it was analysed and presented to the reader.

The Research Sites

The study was conducted at three libraries within metropolitan Melbourne. The central focus and the site where I performed most of the data collection was the State Library of Victoria (SLV). The other two sites were public lending libraries;

the North Melbourne Library (Figure 3.2) is approximately 1.5 kilometres from the CBD and the other, Sam Merrifield Library (Figure 3.3), is eight kilometres away from the CBD in Moonee Ponds and is my local library.

Figure 3.2: The second data collection site—-The North Melbourne Public Library. (Photo: June 1998)

The SLV is the principal and oldest public library in Victoria and at the time the data collection was done was not a lending library.[41] It sees itself as principally a research library where the public may come and request items from the extensive collections and work with the materials on site. Now, whilst the State Library of Victoria houses the VICNET central office and the staff employed there are under

[41] At the time of writing (2004), it was celebrating its 150th birthday.

the jurisdiction of the CEO of the SLV, VICNET, and indeed Internet access and use, must also be considered as being part of the Public Library System.

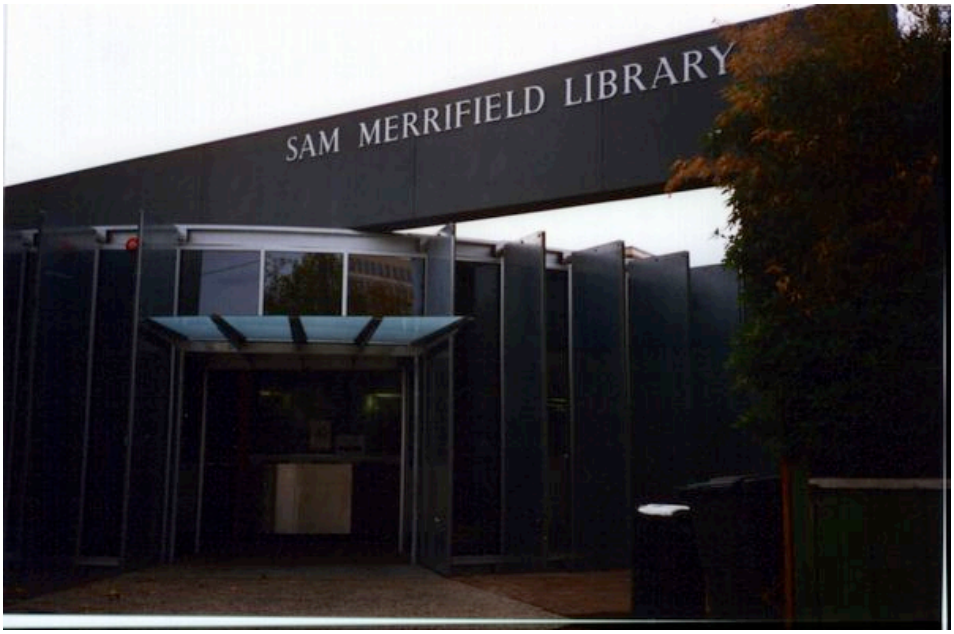

Figure 3.3: The Sam Merrifield Library was the third site used for data collection. (Photo: June 1998)

Thus it was decided to incorporate two other libraries into the study. As already mentioned, these were the North Melbourne Library and the Sam Merrifield Library in Moonee Ponds. In this way I was able to see how the libraries as Internet and possibly VICNET users were affected by the ability to access the Internet. Thus one way of contextualising the open system being studied is that it is a case study with the SLV being the major site and with a richer perspective being provided by data collected from two other libraries thus, allowing us to see how libraries as Internet users fitted into the picture.

My data sources draw on the documents supplied to me by the participating libraries, reports on research and practice from a number of fields including computer science, information systems, library and information sciences, sociology, and science and technology studies. These were collected from Phase 1 onwards. During this phase of my data collection I spent many weeks, in the first half of 1998, observing users of the public access Internet facilities in the SLV, The North Melbourne Library and the Sam Merrifield Library, I interviewed staff from all three libraries as well as many users. The majority of these took place during the first half of 1998. The staff interviewed consisted of managers involved in policy-making decisions, the people involved in the original VICNET proposal and pilot study, acquisition, cataloguing and reference librarians as well as IT staff.

Time

The major data collection took place in 1998 and there was a follow-up data collection session in March-May 2005.

It is perhaps appropriate at this stage to admit that coming back to this project after an extended period of disillusionment and frustration coupled with a desire to throw everything I had done on a bonfire was not the easiest thing I have ever done. Strangely enough however, there still remained just a hint, a vestige of interest on my part that here was an issue that was exciting and perhaps worthwhile bringing to some sort of conclusion. And it was interesting. It still is interesting. The interest was(is) generated by my desire to peer into, unravel the webs of significance, the activities that take place within and without (especially these days) those bricks and mortar walls of the public library.

So return to it I did.

But, where to start?

I had boxes full of data; disks full of writings. Too much of both to warrant starting afresh. My inclination was to take the easy way out by analyzing what I had and cobble together 80,000 words based on data that was several years old. After all, there would be some historical significance in such a work. There were however those who demurred, providing less than subtle hints that as a PhD thesis it should be made more relevant, more current. Those who kept saying "wouldn't it be much more interesting if there was a longitudinal component to the story?"

On the one hand I agreed with them. On the other there was all that old work.

Luckily common sense prevailed. An Advanced Candidature proposal that provided for a second round of data collection was written, an ethics application was submitted and another visit to the SLV ensued.

It is because of the insistence of those others that to the best of my knowledge this project is one of the few sociotechnical investigations that includes a significant longitudinal component. In retrospect, I feel that the project has benefited from this and it is to the credit of those others that the report you are reading provides a richer picture of machinations of the actors involved.

In another layer of abstraction, this episode also reveals the way this research project and I suggest most other projects are produced through the negotiations, disputes betrayals and alliances—the co-constructions—of a wide variety of actors.

What is the Case?

If this were a case study, then it could be expected that a fairly clear boundary could be drawn around 'the case', that is, the object of study (Yin 1994). A case may be an event, an organisation, a program, or a group of individuals but these are bounded either spatially or temporarily (Yin 1994). This particular instance, 'the case' is not that easy to define; it is not the SLV, but that organisation is the main focus, there is no definite program being studied (for example an Internet

training program for library users), nor was it bounded by time as two distinct data collection periods were involved and finally, whilst there were individuals involved they came from many different groups. However, if we were to think of the Internet and Internet use as forming the backbone to this study then 'the case' becomes more easily identifiable. Internet adoption and use becomes the object of study and the people and organisations involved (the SLV, North Melbourne and Sam Merrifield libraries) are actors in the case study. And then we have, a case study with a longitudinal element where data was collected in two major time periods 1998-9 and 2004-5.

The Materials

Interviews

One of the main methods of data collection used was the interview. I used both semi-structured and loose interview formats (Mason 2002). The main difference being in the number of questions the interviewer has formulated and the amount of guidance given to the whole interview structure to elicit more specific information (Rubin and Rubin 1995). On the whole, the interviews I conducted with librarians were semi-structured whilst for most of the patrons they were quite loose whilst I used the survey forms that many of the patrons had completed to provide prompts and to get them to reflect on their experience of Internet use in the library. On a number of occasions I also engaged in informal discussions with the users and library staff.

Initially I asked for interview volunteers from the SLV staff and obtained 6, from several of these it was often suggested 'Oh, I think you should interview so and so, or X would know more about that than I do.' From there I expanded my network of respondents and in all cases they readily agreed to participate in

interviews when approached. A similar method was used at the other two sites. This thesis draws upon a total of 23 library staff interviews of an average length of forty-five minutes. The number of interviews was determined by the principle of 'theoretical saturation' (Strauss and Corbin 1990) and the need to follow-up on specific points that a particular person or persons only could answer. Table 3.2 shows the total number of interviewees broken down by site and function.

	Interviewee Function	
Site	Staff	User
State Library	14	20
Sam Merrifield	5	0
North Melbourne	4	9
Total	23	29

Table 3.2: Number and category of interviewee at each of the three sites during Phase 1.

As far as the users were concerned, because they were a far more fluid population, I used a different method of obtaining interviews. I initially handed out survey forms on a pseudo-random basis (the collection and use of survey data is discussed elsewhere) and then approached them about an interview when they returned the forms. Initially, only a few were willing to make a time to be interviewed, but I soon learnt that if I approached them whilst they waited for their 'turn on the Internet' they were quite happy to fill in the 15 minutes or so talking to me. On these occasions the interview format was quite loose, as I had to get to the point of what they wanted to say quite quickly. If there is a failing in

this part of the research it is that lengthy one-on-one interviews could not be easily obtained.

On several occasions, I was approached by users who were seeking help either because the computer they were using had crashed or because they were unable to perform a particular operation once they had obtained Internet access. I used these occasions to engage the users in informal discussions and in one case I was able to tape record (with permission) the whole unstructured exchange.

By using interviews that were only loosely structured the conversational partners had considerable control of the direction of the conversation. The respondents were not forced into a standardised format and thus they were able to shape the interviews around their interests and ideas and provide a richer discourse for subsequent analysis. Obviously though the topics were used to guide the overall discussion towards obtaining knowledge about the way the Internet, the library staff, the users and the library organization interacted.

With the respondents permission interviews were taped recorded—this amounted to all library staff and many of the library users. I also took notes at the same time. In most cases, interview summaries were made within several days of the actual meeting. Appendix B contains details of the interviews conducted at all three sites during Phase 1 whilst Appendix D supplies details of those interviews conducted in 2004-5.

Email Interviews

Besides using face-to-face interviews, I also used email as an interview medium; in most cases as a follow-up. In several cases, especially when it came to obtaining data from someone (generally a staff member) to whom I had been

referred as the most able or knowledgeable in a particular area, we found it more convenient to conduct the interview this way rather than meeting face-to-face. This was particularly so when seeking historical or policy data. Another advantage of using email was that it allowed the respondent to reply at their own convenience, possibly seeking out other documents or links (URLs) to the appropriate information without being confined to a single 45-minute interview session. The advantages provided by this type of interaction are not to be overlooked especially when it comes to interviewing employees who have to make time for a meeting in what is already a very busy work schedule.

Interview Topics

The topics covered in the staff interviews varied to some extent depending on the staff member's responsibilities within the organization. However, a list of possible questions (discussion points) was provided to each interviewee; I found this enabled each subject to consider aspects of the experience with the Internet before we actually met for the more formal interview. In a number of cases, the subject had jotted down some notes beside each question. At the conclusion of the interview, they allowed me to take their notes with me. I found these provided another valuable source of information, particularly if we hadn't managed to discuss a particular topic in detail.

After obtaining the usual information from each subject that is, name, position within the organization and major responsibilities, the possible topics included:[42]

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[42] Remember, that Internet facilities are made available in libraries in two ways: 1. for staff use in their work area/office 2. as a facility in the public space for use by members of the public.

- How have has your work changed since the introduction of the Internet for staff use?
- How have has your work changed since the introduction of Public Access Internet facilities?
- What new skills have you had to learn?
- What advantages or benefits have arisen from the introduction of Public Access Internet facilities?
- What are the disadvantages?
- Has the Internet made it easier to find various types of information (reference material, pictorial information, entertainment information)?
- How has the control access to information changed?
- Have there been any problems with:
- The equipment
- Booking procedures
- Inappropriate or unexpected use of the service
- The patrons[43]
- What training have you had on the use of the Internet?
- What procedures must be followed before a patron is allowed to use the Public Access Internet facilities?
- Have the expectations and behaviour of patrons changed since the introduction of the Internet?
- Are these expectations realistic?
- Are these expectations met?

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[43] For the State Library, I had to use the word 'patron', for the other two libraries the word 'user' was the preferred term.

- How much of your overall working day would you spend showing patrons how to use the Internet facilities?

As mentioned previously, the interviews conducted with members of the public were much more loosely structured. As well as collecting the usual demographic data (name, age, gender, employment status) there were some guiding questions:

- What do you use the Internet for?
- How did you find out about the Internet availability at the library?
- What are the advantages/disadvantages of using the Internet?
- Have you had much experience using the Internet?
- How frequently do you use the Internet?
- Where are you from?

Depending on the answers to the above questions we would then discuss issues that appeared of mutual interest or importance. More often than not these would veer on the side of importance or concerns of the individual user.

As the space where I was permitted to conduct the user interviews had fairly high levels of ambient noise at times (especially at North Melbourne I did not always tape these interviews, but make handwritten notes instead. The duration of these interviews varied fairly widely too, as often the users agreed to talk to me whilst they were waiting for the terminal they had booked to become vacant. With many of the interviewees, especially the itinerant ones like the backpackers, it was often a matter of talking to them at the first available opportunity because they would have plans to be somewhere else (often out of Melbourne) or have made arrangements to go on a tour somewhere. So, somewhat unsurprisingly, because of the very nature of their visits to the library, that is solely to use the Internet at the allocated time and the fact that many of them had plans to meet up with a

friend they had met along the way at some destination they had in common (as I was to find out these meetings were often arranged using email) they were much harder to pin down to a fixed formal interview time.

However, often they would be prepared to talk to me in an informal conversation, and I found with a number of them if they happened to be in the library when I was there they would come by and have a bit of a chat before their Internet session. Sometimes this also occurred afterwards as well.

As partial compensation for this, I interviewed and chatted informally to far more people than was perhaps strictly necessary just to ensure that enough data was collected so that saturation could occur. I also found that the observations (see later) helped to provide confirming data.

Visuals

Dotted throughout this thesis you will find a variety of images either singly, in pairs or as a montage. These visual data serve a number of purposes: firstly they can give you a sense of place. When I describe the sites where I performed my investigations the visual data act as an aid to your understanding. You can picture yourself walking up the steps to the SLV and through the portico or you can see the queues of young adults waiting to make appointments to use the Internet.

Secondly they can be analysed in their own right. According to Ball and Smith, Georg Simmel was one of the first to alert us about the use of visual data and its significance for revealing mood, understanding intention and visual impressions of “large scale urban society” (1992, p. 2).

Thirdly, the photographs I took and other visual materials I collected provided me with an *aide memoire,* a means of gaining an impression of the object of study. Sometimes they also provide me with an historical reference point. For example, whilst this research was in the planning phase, I decided it would be a good idea to photograph the main entrance on Swanston St with the imposing statue of Sir Redmond Barry, judge, one of the library's founding fathers, Senior Trustee of the library, and staunch advocate of public libraries, in front of the steps to the SLV entrance as a symbol of the library as classical place of knowledge. However, just prior to beginning this research the State Government had provided funding for the redevelopment of the forecourt and the statues and the beautiful trees had been removed. In this case I resorted to scanning a postcard purchased from the library. Using visual data, especially photos that I had taken, allowed me to repeatedly refer back to them whilst translating the visual data into words. The language to some extent "has been allowed to do the work of the eyes" (Ball and Smith 1992, p. 6).

Fourthly, they can also serve to provide evidence rather than be used just for analytical purposes. That is they provide evidence that what I observed did actually occur another form of triangulation.

The visual data I use is not just confined to photographs, but also includes postcards, screen captures of websites and posters. Prior to 2004, all photos were digitised. This was carried out using a scanner and suitable image capturing software. The reader should be aware of the fact that in many cases the figures presented here don't always show the veracity of the originals, as there is inevitably some loss in colour, contrast and detail in the process of transferring

them into print. From January 2004, a digital camera was used to acquire all photographic images.

Observations

Observations were carried out at both the State and North Melbourne libraries. I had originally thought of using the Sam Merrifield Library (SML) as well, however, circumstances were against this. One of these was that the number of Internet users at that time was quite low (I did in fact spend a whole morning at SML but there were only two users, both using email). The second reason, which is partly a result of the low usage, I found that the time was much more productively spent at the other two sites. Appendix C provides details of the observations times and sites for Phase 1 whilst Appendix E applies for the Phase 2 observations.

I wrote up the observations in a notebook, making a note of the date, time and site. Recording of events was made easier by the fact that at the SLV users could only book for half an hour with sessions commencing on the hour and half hour; at NML, sessions lasted an hour.

I also wanted to collect data on the type of Internet applications or tasks being performed during a typical session. To facilitate this I would walk around, as discretely as possible[44], every 10-15 minutes and record what each person was doing. Obviously for privacy reasons I refrained from taking photographs of individual users at the computers. At each designated time I would record:

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[44] As part of the agreement with all libraries and with the ethics committee, signs were displayed prominently at all sites informing users that a researcher was collecting data and looking for people to interview.

- the number of terminals in use
- the activity being performed
- the number of people seated in front of a particular terminal
- over several days, the gender of each user was also recorded

Sometimes, but very rarely, at the SLV a user would finish early this was also recorded as were the times of arrival of new people at each terminal whether it was vacant or not. At NML this happened more frequently as the booking time was longer, the network connection was slower and less reliable, so people would often give-up and walk away. In order to collect typical data on the users country of origin at several times over the initial observations at the SLV I circulated amongst the users and asked them their country of origin.

It was whilst conducting these observations, in both cases I was seated fairly prominently near the Internet facility, that I struck up quite a few informal conversations with the library visitors. At NML, which is smaller and a more intimate space, with the waiting area being the same table as where I was seated, this arose fairly frequently. During the course of these exchanges I would ask them their country of origin.

One of the hazards(!?) of undertaking a study such as this that there is an ever present chance of the researcher becoming involved with the people he is studying. The requirement for notices to be placed around the sites of the Internet terminals informing people that there was a researcher collecting data in the area increased the chances of this happening enormously. Once the users were aware of this any hope of being an unobtrusive researcher (Kellehear 1993) went out the window.

Whilst this was not a big dilemma for me, it is important that you, the reader are aware of this particularly if you prefer more scientific data collection methods.

Thus, it would be fair to say that my data collection was not observation *simpliciter*, but participant observation that is, not just observing but becoming part of the culture setting and the group being studied (Creswell 1998; Mason 2002).

I became to some extent immersed in the group that I was studying. I could share the experiences of and develop an empathy with other members of the social setting. Of course, I did have a rather different view than many in the community. Firstly, I had never been a backpacker and it is true to say that at the beginning of this project I had not been overseas or even flown a significant distance within Australia. I had never experienced hostel life albeit I had lived in a residential college whilst studying as an undergraduate. When I eventually did start travelling overseas my financial situation was such that I didn't have to worry about free Internet access. Secondly, I was epistemologically privileged (Mason 2002) in that I knew what the research was about, I had ideas of the type of data I was interested in and the types of social interactions that would be fruitful in that regard.

However, there is one caveat. I entered the community of backpackers rather reluctantly. There are two reasons for this, the first one being that I have rather a shy disposition and this naturally made it harder for me to enter a group of strangers. This was something that had to be overcome as I was intending to interview the users. Naturally, the first few interviews were somewhat 'shaky' affairs. Second, when I first set out to do this research I had been advised that being an 'unobtrusive researcher' was probably a good idea. For the reasons mentioned earlier this soon became impractical.

I soon found it more practical and more ethical to become a participant in the community that was centred on the public access Internet area. For example, when you are asked whether you are a member of the library staff it is easy to say "no". But, if you are approached and asked whether you know how to do something, for example, log in to **Hotmail** or help someone print a page then it is rather unethical to say no when that is something you do know the answer to. It is even more unethical to then approach members of this community and ask them to devote time to your research.

Documentary sources

Amongst the documentary sources made available to me were: draft policies, final versions of policies, procedure manuals, Internet booking sheets, and less often minutes of meetings. At the SLV I also had access to *The Grapevine*, the internal newsletter of the library and the *State Library of Victoria News*, its public newsletter. Both libraries were extremely helpful in pointing me towards or supplying me with additional materials they thought would be of relevance. By 2005, reports such as the Library Board of Victoria Annual Reports were available from the Internet
http://www.slv.vic.gov.au/about/information/annual_reports/index.html
(accessed 17 April 2005).

Data Analysis

The interviews and informal conversations were transcribed and analysed using both manual techniques such as classifying coding, writing memos and notes and constant-comparison techniques (Creswell 1998) and the qualitative data analysis software Atlas.ti (Muhr 1998). I found this software particularly good for flagging various themes and generating some reports that used various combinations of these so that a variety of perspectives could be explored and discarded if it seemed to be an unfruitful path to follow. The Atlas.ti software was not used for all of the analysis is that it would require retyping much of the printed documentation. This would have been time consuming and is clearly a limitation of computer-aided analysis. The photographs and documents were combined with the interview texts and emails and analysed manually. Observational data were read through at the end of each day and some memos made (Creswell 1998).

I found myself coming back to both the original observation notes and memos time and time again to help me re-immerse myself in the atmosphere of the Public Access Internet space. This was particularly helpful, as this thesis has been written over quite a long period of time. I also read many of the transcriptions through several times and listened to many of the taped interviews more than once.

Throughout, I was of course conditioned or sensitised by the sociotechnical view I had chosen to take and was very consciously approaching the analysis in terms of Actor-Network Theory (Section 2.6), identifying actors and the influences and interactions that they experienced. At times I also found that sketching an LCSN (p. 130) was helpful in terms of understanding the situation being observed.

During the analysis phases, I also started writing-up, partly as an attempt to try and describe what I was feeling and discovering. How I was interpreting the data. This is of course the practice that is recommended by the canonical research methods texts (Creswell 1998; Miles and Huberman 1984; Van Maanen 1983a; Wolcott 1990). One should collect, reflect, analyse, reflect, interpret and write, always bearing in mind that more data might be needed, both to add to the richness of the picture or confirm some impressions that have been made. Then the spiral may begin again. However, at some stage the spiral must come to an end just as this chapter that has spiralled from research questions, through the theory of method, the practices or as I would like to see it the spiral of research process, must.

3.11 Concluding Remarks

This thesis is an exercise in the sociology of technology and the social construction of knowledge. Whilst many would argue about the validity and value of doing 'sociology of technology' and seriously dispute the knowledge claims that emerge I have taken a leaf out of Shapin and Schaffer's (1985) work and decided at this juncture to just get on with the job of doing the thing.[45]

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[45] They say, "[i]t will not escape our readers' notice that this book is an exercise in the sociology of scientific knowledge. One can either debate the possibility of the sociology of knowledge, or one can get on with the job of doing the thing. We have chosen the later option". Shapin, S. and Schaffer, S. 1985, *Leviathan and the Air Pump: Hobbes, Boyle and the Experimental Life*, Princeton University Press, Princeton, NJ. (p. 15).