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The Attitudes of Public Library Staff to the Internet and Evaluations of Internet Training

by

Rachel Elizabeth Spacey

A Doctoral Thesis

Submitted in partial fulfilment of the requirements for the award of

PhD Information Science of Loughborough University

2003

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Abstract

The aim of this study was to measure the attitudes of public library staff towards the Internet. Opinions of training received by staff for use of the Internet were also recorded and the relationship between attitudes and training was analysed and considered. This was deemed of value at a time when public library staff were about to embark on the largest public library training initiative ever undertaken for Information and Communications Technology (ICT) and the installation of PCs with Internet access in every public library as part of the People’s Network.

A mixture of quantitative and qualitative research methods were utilised including a questionnaire which incorporated an amended version of the Technology Acceptance Model completed by more than 900 public library staff, interviews with managers, focus groups with a cross-section of staff and an online bulletin board.

The study found that the attitudes of most public library staff were positive towards using the Internet at work. Negativity towards the Internet related to discomfort with the cultural changes taking place in public libraries as a result of ICT.

Attitudes were found to have an integral role in relation to public library staff’s willingness to use the Internet; in particular, perceptions of usefulness were very influential. Helping the public use the Internet was generally regarded as a positive experience although finding the time to assist library users was difficult.

Training, support and assistance for use of the Internet was well rated although a minority of respondents had not received any training. Ratings of the usefulness of Internet training were related to perceptions of the usefulness, ease of use and intention to use the Internet at work. The popularity of self-directed learning denoted the increased potential for online learning in the future. In contrast with findings from the literature review, informal learning methods such as on-the-job and cascade training were well rated by staff for use of the Internet.

The findings of this study suggest that seemingly throwaway comments deriding a new innovation or practice in the public library sphere cannot be easily dismissed and may point to deeper concerns about change and lay bare negative attitudes. In addition, staff demonstrating pessimistic and unconstructive remarks appear to be influential. More worryingly, these attitudes may mean that staff will not use a new technology in the way that managers, policy makers and funding bodies envisage.
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CHAPTER 1 INTRODUCTION

1.1 Introduction
This chapter will discuss the motivation for the work that is being reported and consider how the research problem was identified and refined. The aims and objectives will be defined and an indication of how the work was progressed. A number of research assumptions arrived at from an exploration of the literature are listed. Finally, a brief overview of the main chapters is provided.

1.2 Context
The motivation behind the two main threads in this study, attitudes and training, resulted from two factors: personal experience and government strategies. In late 2000 as a direct result of two key pieces of literature, New Library: the People's Network (LIC 1997) and Building the New Library Network (LIC 1998), public library staff embarked upon an extensive Information and Communications Technology (ICT) training programme. These two reports detailed proposals of what public libraries could provide as part of a networked information society and how they could be fulfilled. To achieve these aims public library staff would be required to possess, at minimum, basic ICT skills to support learning and assist the public in performing a range of ICT functions. It was recognised that some staff were ill equipped to perform even basic ICT tasks because training had been irregular and the responsibility of individual library authorities (LIC 1998). To that end, the New Opportunities Fund (NOF), a lottery distributor, allocated £20 million to train public library staff in ICT skills.

The researcher had both witnessed and experienced the introduction of the Internet into the public library environment and observed that colleagues and employees had not always met it with a positive response. Indeed, some staff had expressed negative opinions about the introduction or increasing amount of ICT in the library workplace whereas others appeared apprehensive about ICT in general and having to support library users wishing to use the new facilities. These initial observations between 1997 and 2000 were confirmed in a research report in 1999, Staff in the New Library (Jones et al 1999). The authors noted that focus group participants from two public library authorities had voiced negative attitudes towards technology and the authors argued that "it is hard to separate attitudes to technology from attitudes to change generally or to learning new skills" (Jones et al 1999, p.9).
Furthermore, analysis of such attitudes was deemed important in informing the future planning of staff training. Attitudes were also alluded to in *Building the New Library Network* (LIC 1998) where it was noted that they constituted a barrier to training.

In light of the initiatives taking place and personal experience, attitudes were considered worthy of attention and it seemed appropriate to analyse public library staff’s attitudes towards ICT and their relationship to training. Additionally, it was documented that there had been little evaluation of the ICT training public library staff had received and that reported experiences were mainly negative (Jones et al 1999).

During the formulation of the research plan it was observed that no detailed research exploring the attitudes of public library staff in the UK by means of a measurement model had transpired. Moreover, the relationship between attitudes and training was often inferred rather than analysed. The requirement that staff possess positive attitudes to ICT and participate in a comprehensive ICT training plan suggested an investigation of the attitudes of public library staff to ICT focusing on the Internet and an exploration of the relationship between training and attitudes. This appeared both timely and vital in contributing to the body of research concerning the value of training and in understanding the role attitudes play in the public library workplace.

1.3 **Aims and objectives**

The aim of this research was to measure the attitudes of public library staff towards the Internet in order to gain an understanding of the factors influencing both positive and negative attitudes. In conjunction with this, it was hoped to record staff evaluations of training received for use of the Internet to permit an investigation of the relationship between attitudes and training.

The specific objectives of the research were to:

i. Measure the attitudes of public library staff to ICT, focussing on the Internet;

ii. Investigate the influences on public library staff’s attitudes to the Internet;

iii. Consider the potential effects of public library staff’s positive and negative attitudes to the Internet;
iv. Record public library staff's opinions of Internet training received including the NOF ICT training;
v. Explore the relationship between attitudes to the Internet and training.

1.4 Research assumptions

A number of assumptions were drawn from an examination of the literature and were contemplated during analysis of the research data. These notions relate to the influence of a number of organisational and demographic variables, change and resistance, attitudes and training:

1.4.1 Influencing variables and computer skills

- Organisational variables including post, place of work and length of time working in public libraries will affect attitudes to towards the Internet.
- Demographic variables including education will also affect attitudes to the Internet.
- The computer skills of female staff will be inferior to men’s and they may use the Internet less frequently.
- The computer skills of older staff will be inferior to those of their younger colleagues and they may use the Internet less frequently.

1.4.2 Change and resistance

- Some staff will perceive the implementation of ICT as an advantage or a challenge, improving the status of the public library.
- The installation of the People’s Network will result in increased demands and expectations from library users.
- Technological innovation will be resisted by some staff and illustrated in negative comments and an unwillingness to use ICT at work or be trained in it.
- Staff negativity towards ICT in public libraries will be related to the wider implications for staff’s jobs.

1.4.3 Attitudes

- Computer proficiency will be related to attitudes to the Internet, the higher staff’s PC skills the more positive their attitudes.
- Colleagues and managers will influence public library staff’s attitudes to the Internet. Women and older workers will be more influenced by subjective
• The attitudes of public library staff will influence their intention to use the Internet at work.
• Intention to use the Internet will be related to actual use.

1.4.4 Training
• Training methods such as on-the-job and cascade will numerically dominate and ratings of these informal methods will be low.
• Staff will prefer a variety of training methods reflecting individual learning styles.
• Staff will want more time to train and practice.
• Training will affect attitudes towards the Internet for the better.

1.5 Outline
This thesis is comprised of four parts, which consider the attitudes of public library staff to the Internet and evaluations of training. The first part of the study offers a critical review of the available literature providing context and background to the aims and objectives related above (see Chapter 2). Consideration is made of the environment in which change in public libraries in the UK has taken place whilst a more general analysis of the literature relating to individuals’ reactions to change and technology is made. The literature pertaining to attitudes, including attitude measurement and training for public library staff, is judiciously reviewed. The second part of the study considers the methodological issues relevant to a study of attitudes in the library sphere and details the research strategies adopted in the study (see Chapter 3). The various methods used for data collection are illustrated including consideration of issues of reliability and validity. The third part of the thesis is made up of Chapters 4 and 5, which detail the results of the study. Chapter 4 provides the results relating to attitudes while Chapter 5 presents those relating to training. This latter chapter also explores the relationship between attitudes and training. The significance of the results in light of the literature review and aims and objectives of the study are reflected upon in Chapter 6. This chapter includes consideration of the future for public library staff in light of the findings and lessons for library managers. A summary of the main results of the study, the contributions made by the work and recommendations for further work are contemplated in Chapter 7. These two chapters constitute the fourth and final part of the thesis.
1.6 Summary

This chapter has set out the aims and objectives of the research in the context of the researcher's motivations to explore attitudes to the Internet and record opinions of training. Research assumptions derived from a review of the literature have also been detailed and the structure of the thesis presented.
CHAPTER 2 CONTEXT AND BACKGROUND

2.1 Introduction

The aim of this chapter is to present a critical review of the pertinent literature in the fields relating to the aims and objectives of the study (see Chapter 1).

Section 2.2 presents background to the research. Governmental papers, initiatives and developments relevant to public library staff and ICT in the UK are detailed and the effects of these initiatives on public library staff and users are considered. A wider, sweeping look at human reactions to technology, focussing on ICT is examined in Section 2.3, which also concentrates on library staff's reactions to ICT in both academic and public libraries. The attitudes of library staff in the literature are considered and research in other disciplines is analysed to gauge the value of attitudes and how they can be measured (Section 2.4). Variables affecting attitudes to ICT are also examined in this section including gender, age, social influence and previous computer experience. An analysis of literature relating to the training of public library staff in ICTs to the present day including details of the NOF ICT training plan for public library staff in the UK is presented in Section 2.5. The difficulties associated with training staff in libraries are also explored in this section. The chapter concludes with a summary of the significant findings from the literature.

The following diagram illustrates how the wider subject areas explored in the literature review are related:
2.2 Public libraries and ICT

This section considers the history of public libraries and ICT in the United Kingdom. The recent proliferation of ICT in public libraries resulting from key pieces of government-initiated literature is analysed. In addition, the effects of these
initiatives on staff are reflected upon.

2.2.1 Background

Since the Public Library Act of 1850, public libraries in Britain have enjoyed popularity as respected institutions in the public eye (Black & Crann 2000) or, as a recent Audit Commission report noted, “Public libraries hold an important place in people’s hearts. Unlike many of the other services that are provided by councils, they are used out of choice rather than necessity” (Audit Commission 2002, p.3). The library of the 1850s, however, is markedly different from its contemporary relation in one aspect in particular - technology. Public libraries have used computers in some form since the 1960s, firstly in the use of cataloguing (Black 2000) and predominantly in the form of library circulation systems and online databases. Throughout the 1970s and 1980s a range of borrowing services were automated such that by 1974, 35 individual libraries operated computerised circulation systems while another 120 awaited installation (Black 2000). As Gorman noted “Technology used to be simply a way of improving and enhancing library service. This was certainly true 15 to 20 years ago, when library automation was seen as the only way to improve library service in cataloguing, circulation, acquisitions, and many other areas” (Gorman 2001, p.49). By the 1990s, the use of Information Technology (IT) in libraries had grown with technology for staff to use in the form of library management systems and facilities designed for public use in the form of PCs to access the Internet and undertake word processing, CD-ROM systems and community information (Murray 1997).

IT can be described as “Electronic technologies for collecting, storing, processing and communicating information” (Feather & Sturges 2002, p.310) although the authors noted that the term Information and Communication Technology (ICT) has been more commonly used in recent times. Cawkell defined ICT to include both the “design and application of systems and equipment for exchanging data by electrical means between two or more stations” (In: Feather & Sturges 2002, p.244) and can include the Internet, email and the telephone. In public libraries, the Internet, which is made up of networks that connect computers around the world using servers and contains the World Wide Web (WWW) and email, can be accessed on personal computers (PCs).
2.2.2 A plethora of reviews and reports

In the last decade, public libraries have been both the main focus and at the forefront of important government inspired and developed reports and recommendations, as Usherwood confirmed "Over the past few years there has been an unprecedented public and political interest in library and information services" (Usherwood 2002, p.139). The effect on public libraries in the UK has been considerable, as the expectations of what public libraries can provide have grown. Issues of increased ICT in public libraries, lifelong learning, electronic networks and standards will affect the roles and day-to-day realities of public library staff and will continue to do so in the future, as the following section illustrates.

Following local government reorganisation, the Department of National Heritage contemplated the future of the public library service in *The Public Library Service in the 1990s* (DNH 1995). IT in public libraries was present in the form of library systems and OPACs (Online Public Access Catalogues) and provided an opportunity for libraries to become "the principal point of access for ordinary citizens to the new information superhighways" (DNH 1995, p.6). In the same year the *Review of the Public Library Service in England and Wales for the Department of National Heritage* (Aslib 1995) recommended infrastructure investment for central, branch and mobile public libraries in order to connect to that very same information superhighway. It was observed that some authorities had incorporated IT in the day-to-day services provided by the library but in the main technology was associated with the automation of the library management system. The report also highlighted the lack of funding for IT initiatives and a surprisingly low level of response to the Public Library Development Incentive Scheme initiated in 1988 that had been designed to provide backing for such new enterprise.

*Due for Renewal* (Audit Commission 1997) also recommended that public libraries "harness technological developments if they are to remain relevant to modern life" (Audit Commission 1997, p.1). The tone of this report was a little more sombre and urgent than that of the *Review of the Public Library Service* (Aslib 1995) in its concerns about the decline of the public library service exemplified in decreasing issues of library materials. A variety of suggestions were made to improve the situation, some of which involved increasing ICT in libraries. Like Aslib, the Audit Commission acknowledged that some libraries were using ICT but warned that all libraries must respond to developments or face being left behind. Ormes and
McClure's comparison of American and British Internet connectivity in public libraries noted that same year, "public libraries in the USA have been exploring the opportunities that the Internet offers to them since the early 1990s. Most UK public library Internet activity has only taken place within the last two years" (In: Ormes & Dempsey 1997, p.26).

Recognition that libraries incorporate increasing amounts of ICT or face decline was also noted with the release of the Connecting the Learning Society; the National Grid for Learning (DfEE 1997). Under the National Grid for Learning (NGfL), information would be provided electronically in all libraries, schools, colleges and universities in the UK by 2002. The NGfL would be "a mosaic of inter-connecting networks and education services based on the Internet which will support teaching, learning, training and administration in schools, colleges, universities, libraries, the workplace and homes" (DfEE 1997, p.3). The NGfL hoped to establish the UK's status as a leader in electronic knowledge and information, with emphasis on lifelong learning, community and citizenship. Furthermore, the report acknowledged that the skills of library staff would need to be developed if the networked public library system was to be realised.

The Department for Culture, Media and Sport (DCMS) commissioned the Library and Information Commission (LIC), a body established in 1995 to advise the Government on library and information issues across the whole sector, to consider the role of public libraries as part of this electronic network. In October 1997, New Library: the People’s Network (LIC 1997) was published. New Library finally considered the future of public libraries in the context of the new ICT in detail. The Government’s response to New Library and its successor Building the New Library Network (LIC 1998) signalled dramatic changes in the speed in which public libraries introduced and installed ICT hardware and software and consequently public library staff’s relation to it.

2.2.2.1 New Library: The People’s Network

New Library: The People’s Network (LIC 1997) proposed that public libraries embrace ICT and in doing so reinforce their role as quality information providers to everyone. The networked public library would provide education and learning, community history and identity, citizen's information and facilities for participation in society, business and economic information, training and employment and the
National Digital Library. *New Library* was an ambitious programme and it was recognised that many people would require assistance in using ICT to access this wealth of information. A small scale qualitative research programme commissioned by the LIC revealed that the librarian was seen as pivotal in helping library users get to grips with ICT, “They will help people overcome their anxieties about the new world of networked and digitised information, and assist them to navigate through it” (LIC 1997, Introduction). To adequately assist users and create content relevant to them library staff themselves required, at the very least, basic ICT skills. Furthermore, staff could expect to help users with ICT everyday. The role of public library staff as ICT trainers was emphasised in this report as issues of technophobia in the populace were discussed and it was proposed that library staff could help people to combat such fears. The LIC noted, “‘Techno-fear’ was evident among some, especially women. Despite some of them using computers at work, they did not seem confident about using them in other situations. The role of the librarian in encouraging and coaching will be vital with this group” (LIC 1997, p.30).

2.2.2.2 *New Library: the People’s Network* *The Government’s Response*

In April 1998 the Government reinforced its support for the proposals articulated in *New Library* (DCMS 1998). The Government would supply £20 million to be made available through the NOF to train all library staff in the United Kingdom (LIC 1998). This report also envisaged public libraries in the context of other government initiatives namely the *National Grid for Learning* and the *IT for All* programme created to provide high quality learning in the home and in learning centres. In addition, public libraries were important constituents of the electronic delivery of government services to the public. In 1999 it was hoped that by 2002, 25 per cent of government services would be available electronically (Howarth 1999). The University for Industry (Ufi) was an additional initiative public libraries would contribute to (whose learning services are now delivered through *learndirect*).

2.2.2.3 *Building the New Library Network*

The successor to the *New Library* report detailed how the People’s Network could be achieved by considering the three strands of the programme: content, network and training. The report reinforced the requirement that public library staff possess expertise in the use of ICT to assist the public and support learning. Public library staff were viewed as “the key” in helping people to learn (LIC 1998, p.51), as Batt noted, “Confident, experienced and fully trained library staff are key to the
successful exploitation of resources available via the People's Network” (Batt 2000, p.50). ICT literate public library staff were to be achieved by local authorities applying for a share of the £20 million set aside by the NOF, although it was noted that some library staff were already competent in using ICT. According to the LIC, approximately “half of the front-line workers reported a high level of ICT awareness” (LIC 1998, p.55). The sporadic introduction of ICT into libraries during this period was the result of local authority initiatives with the main thrust of money for libraries in England coming from the DCMS/Wolfson Public Libraries Challenge Fund. The fund provided £6 million over the years 1998/99 and 1999/2000 for network infrastructure and approximately £9 million towards 69 projects (DCMS 2000a).

2.2.3 Lifelong learning, social inclusion and public library standards

Additional government papers in the latter stages of the 1990s, which also affected the situation of public libraries included Our Information Age (COI 1998), which detailed the proposed government.direct, the National Grid for Learning and IT for All. The green paper, The Learning Age (DfEE 1998) outlined plans for Lifelong Learning, the University for Industry and the establishment of the now withdrawn Individual Learning Accounts. Usherwood (2002) noted that although the NGfL “stressed the importance of the Internet in supporting teaching, learning, training and administration and emphasised the impact on libraries”, The Learning Age did not really explain the role of libraries (Usherwood 2002, p.139). In light of this a House of Commons select committee on Culture, Media and Sport recommended “the Department for Culture, Media and Sport and the Department for Education and Employment work together with library authorities to ensure that libraries can play an integral role within the wider delivery of Lifelong Learning and that funding arrangements reflect this” (DCMS 2000b, no page number).

Tackling social exclusion and promoting inclusion was highlighted with the establishment of the Social Exclusion Unit by the newly elected Labour government in 1997. According to Durrani, social exclusion is related to “class, poverty, discrimination, equal opportunities and racism” (In: Feather & Sturges 2002, p.579) and can include a lack of skills. Public libraries, in their provision of ICT to a large proportion of the population in the UK, were seen as well placed to cater for the needs of the socially excluded in providing access to a range of online learning opportunities, for example, learndirect. Use of learning packages would help
individuals acquire new skills of value in an information rich society, in a friendly environment where staff could provide support and advice. A report by the policy action team at the Department of Trade and Industry (DTI) argued that public libraries provided a means of access to ICT for the socially excluded whilst acknowledging that libraries were not used by everyone, “Although the libraries initiatives are not directly aimed at the socially excluded, the network provides another means of access to ICTs in the community. Although unattractive to some of the socially excluded target groups, the network provides a valuable service used by a large number of people” (DTI 2000, p.77).

Public Library Standards were published in April 2001 (DCMS 2001). The Standards built upon the service ethos established with the introduction of Annual Library Plans in 1998 and the Local Government Act of 1999. Standards included setting targets for services to groups such as children and ethnic minority communities and the concept of Best Value whereby local authorities must ensure there is continuous improvement in the way in which their aims are carried out (DCMS 2001). The standards aimed to provide a comprehensive and efficient service as stipulated in the Public Libraries and Museums Act of 1964 and tackle social exclusion, a recurring theme of recent government literature as envisioned by Tony Blair in the foreword to Our Information Age, “I want to ensure that everyone in the UK has the best chance to seize this moment – our information age which offers new opportunities for greater prosperity, and a better quality of life” (COI 1998, Foreword). Similarly, Alan Howarth, then Minister for the Arts, noted libraries could provide learning opportunities, “Just as public libraries helped to revolutionise educational opportunity in the 19th century, they can do so again through information and communications technology (ICT) in the 21st century” (Howarth 1999, p.144).

In relation to ICT, objectives included developing electronic access for users and providing “satisfactory services for the issuing and reserving of books” (DCMS 2001, p.8). Providing electronic access for users required that online access to library catalogues was available by the end of April 2004 and workstations for public use to be equal to or exceed six per 10,000 populations, also by the end of 2004. In addition every static service point was to provide public Internet access by the end of December 2002. The number of visits to the library website would be counted, presumably to encourage authorities to develop this aspect of the service.
In order to provide this level of service the Standards recommended qualified staff possess appropriate ICT qualifications.

2.2.4 Recent reports and recommendations

*Building Better Library Services*, (Audit Commission 2002) updated the plethora of findings and recommendations from the mid to late 1990s and noted that public libraries provided both traditional and non-traditional services including “computing facilities for access to the internet, software (word processors, spreadsheets) and CD-ROMs” (Audit Commission 2002, p.3). In relation to ICT, the report noted that good progress had been made, “libraries have over 14,500 ICT terminals for public use - 10,000 more than five years ago” (p.1) and the Internet facilitated a 24-hour library enabling users to place reservations and renew books in the comfort of their home. The Internet was perceived as both an opportunity and a threat, “The introduction of Internet facilities in libraries has proved to be popular with many users” but it “is competing directly with libraries as a source of reference information and leisure as an increasing number of people get internet access at home” (Audit Commission 2002, p.8).

The Commission was impressed with the development of ICT particularly the implementation of the People’s Network “and the support many libraries give to people who are learning to use the Internet” (Audit Commission 2002, p.18). Library staff’s traditional skills were regarded as an asset and could be used in exploiting ICT and tackling social exclusion, to “help people navigate the Internet; to provide Internet access to the 60 per cent of households which cannot access it at home” (Audit Commission 2002, p.46).

*Framework for the Future* was issued by DCMS in 2003 and considered the role of libraries in the next decade. Internet use in public libraries was acknowledged and the future roles of staff considered; library staff could be “local mediators, helping people develop their information literacy skills, facilitators, aggregators and publishers of online content” (DCMS 2003, p.17). It was argued that one success of the People’s Network was that it had brought new users into libraries and librarians were working with other sectors such as education and training to provide services to the public. ICT was also being used to support reader development. In contrast, Leadbeater's controversial vision (2003) of how to create a modern public library service made for sombre but thought provoking reading. Its author commented that
although public libraries benefited those without access to ICT, services such as Internet access were merely add-on services and certainly not substantial enough to justify the existence of the public library, especially when, “People can get the information, books and other services libraries provide from many other sources” (Demos 2003, p.13). Leadbeater suggested that the future of public libraries depended on the answers to two fundamental questions, which asked what libraries should do and how those goals should be delivered.

2.2.5 Raising expectations

The reports and the initiatives they have instigated have created expectations on both the parts of library users and library staff. Building the New Library Network (LIC 1998) commented that the increase in ICT in the public library sector would produce “new forms of demand and expectation among libraries’ users, and will call for a different approach from staff” (LIC 1998, p.58). Similarly, Jones et al (1999) identified greater expectation on the part of customers as to what library assistants could provide and advise them on, suggesting, “there is evidence that people are beginning to see libraries as a place for advice on using computers” (Jones et al 1999, p.22). A report by the select committee on Culture, Media and Sport noted that expectations from the public were high “Ms. Kempster said that library users ‘do want everything. They want access when they want it; they want a range of books melded with technology’” (DCMS 2000b, no page number) whilst Sturges rather more tentatively suggested that Internet access in the library requiring supervision would “ increase the need for staff rather than decrease it” (Sturges 2002, p.67). It might be argued that expectations from library users have increased in relation to all services provided by the local authority. Goulding (1995) considered the training and development of public library support staff with emphasis on the implications of the Investors in People Award. The introduction of initiatives such as the Citizens Charter meant that customers expected more for their council tax and in the study, “Staff did feel that the public had become much more demanding in terms of what their local taxes paid for” (Goulding 1995, p.30).

Conversely, Black and Crann’s (2000) mass observation of the public library revealed that staff expectations and perceptions of what users wanted from the public library were far higher than those of users and they argued that “Although recognising its value, the ordinary public library user does not appear to share the same enthusiasm for IT in libraries as librarians, library strategists and politicians”
This sentiment was echoed to some degree by Gallimore, "Demand from the public for change is less apparent but the decline in traditional library use, particularly borrowing books, could be seen as an expression of dissatisfaction or disinterest with what libraries are currently offering" (Gallimore 1999, p.384).

Recent research in both the UK and USA, however, has supported the notion that expectations on the part of library users have increased with the introduction and proliferation of public access to ICT. Dunkley (2000) noted that public library staff were finding it difficult to find the time to assist users with the PCs, "staff, however confident and skilled, will still in most cases be hard pressed to give sufficient time to user training. With issue desks, enquiry desks and backrooms to be staffed, not many librarians can afford to spare a member of staff to patrol learning centres or PCs, however much they may wish to" (Dunkley 2000, no page number). One remedy to this problem in Islington libraries in the UK was the establishment of a training centre operated by library staff to train users referred to them by other libraries in a bid to save staff time and empower users. Interestingly, Longitude (Yeates 2001) a project to develop a 'toolkit' for public library authorities to explore the impact of ICT on libraries primarily from the user's perspective, found that there was some disagreement about the role of staff in relation to ICT training. Library users questioned in interviews and focus groups believed ICT training was an essential library service unlike those who completed a survey which the author thought was attributable to respondents already having high levels of ICT skills, "Somewhat in contrast to some of the survey results, computer training was viewed as an important part of library IT services by some" (Yeates 2001, p.27).

Nevertheless suggestions for improvements did include assistance with the PCs, as one respondent recommended, "Having someone available full-time for 'drop-in' training. By so doing you will eventually obtain more use of all your computers" (Yeates 2001, p.25). Although research with users at a Cheshire library included interviews with only nine users representative of those completing a survey in the library, all nine "saw the library staff as having a role to play in the provision of access to the Internet" (Turner & Kendall 2000, no page number). Library staff were perceived as being on hand to deal with technical problems, offering advice and teaching users how to use the Internet effectively.
Research from the USA on the impact of public access computers in public libraries also revealed that the expectations of library users were high. A study using random digit dial telephone interviews asked respondents whether public libraries were suitable locations for public access computers and the Internet. Ninety-three percent of respondents agreed that PCs should be available in public libraries while 86% thought they were appropriate places for Internet access (Gordon et al 2002a). In addition, when asked what was most important in public access computing, library users felt that it was important for librarians to be knowledgeable about computers (36%), the Internet (28%) and to help with computers (27%) and the Internet (15%). Similarly, 82% of more than 3000 library staff across five states when questioned about public access computing, believed that the number of library users requiring help with computers had increased and that increase was correlated with staff perceptions of increased workloads, job stress and job satisfaction (Gordon et al 2002b).

Sturges argued that library staff have a “responsibility to provide personal support and guidance to users so that they can make effective use of what is provided” (Sturges 2002, p.12). This is in line with what libraries have always been expected to provide to their users but those individuals wishing to make use of public computing facilities might have additional needs, “The users of public access facilities are likely to include many who are new users, people from groups with little background in information technology (such as older people, or migrants from less technically advanced countries)” (Sturges 2002, p.12). Brophy’s evaluation of the People’s Network noted that the atmosphere of the public library was conducive to users wishing to use the PCs, both factors contributing to greater demands on staff’s time (Brophy 2002).

In the last five years, public libraries have experienced rapid change as computers have been installed, learning centres accommodated and public library staff required to demonstrate the Internet and word-processing to users. While some library authorities had instigated technological change before New Library, specifically those successful at securing the aid of DCMS/Wolfson funds in the latter 1990s for the purchase of PCs with Internet access (DCMS 2000a), and with computers having long been a feature in some public libraries particularly larger branch and city libraries, for others ICT has been a more recent addition. Indeed, for some libraries this change has taken place in the last year. Although authors have
disputed whether users or staff had the greatest expectations of what ICT in public libraries would mean, recent research illustrated that users perceive public libraries as appropriate places to learn how to use computers. Certainly, the physical presence of ICT in public libraries cannot be ignored and as Lilley and Usherwood observed, “once expectations are raised, particularly it would appear in terms of the provision of ICT, those expectations increase rapidly” (Lilley & Usherwood 2000, p.19).

2.3 Technology and change

Recent change in public libraries in the UK has involved the introduction and/or proliferation of ICT in the workplace for both public and staff use. A review of the literature relating to individual reactions to technology and change in libraries and similar organisations was therefore pertinent. The effects of technology on employees in libraries, including research into the effects of automation and responses such as computer anxiety and resistance are critically analysed.

2.3.1 Background

The advent of new technology into the workplace and into society generally, can be very frightening for some individuals. Expressions such as technophobia, cyberphobia, computer anxiety and technostress have been used in an attempt to describe individual’s reactions to technology. Furthermore, phobias can prove costly for organisations if workers actively avoid using ICT. For those not used to working with or using ICT, technology appears to threaten the status quo - whether that is a change in the routine of work happily undertaken for the past 20 years or a fear of being left behind or replaced by others with relevant computer skills.

The research findings of Weil and Rosen in the USA illustrated some common human reactions to the introduction of additional technologies in the home and the workplace. Weil and Rosen studied the responses of clerical and support staff, managers and executives in businesses across America and categorised their reactions to technology. Their categories included individuals such as eager adopters who enjoyed technology, hesitant prove its who were not particularly against technology but disliked the problems that could arise and hoped someone else would solve them, through to resisters who simply avoided technology because, “They do not like it, want it or find it enjoyable” (Weil & Rosen 2000, no page number). Their research revealed that although there were people who were
genuinely excited by new technology and enjoyed using it, there were a substantial number of individuals resistant to technology.

The introduction or growth of ICT is fundamentally associated with change and changes in working practices and routines. What might appear as resistance to technology could be resistance to change (Clark & Kalin 1996), of which technology is symbolic “the introduction of IT in any context constitutes a change” and “any change brings about uncertainty and a measure of discomfort into our lives” (Burton 1992, p.39). Change can provoke strong emotional reactions in people ranging from confusion, fear and stress (Cooper 1998), which can be associated with loss and bereavement1, such as “the introduction of a computer system using the World Wide Web” (Whetherley 1998, p.15). Whetherley identified shock as the first response a change could provoke, followed by denial, which might lead to resistance. Responses to change were not uniform, however, but dependent upon an individual’s personal experiences. Green et al also noted that reactions to change varied greatly in their study of factors influencing the motivation of library staff, “A library assistant with ten years’ experience, for example, may be reluctant to use new technology. Alternatively they may welcome the change as an improvement on the outdated technology currently in use” (Green et al 2000, p.382).

The way changes to or within an organisation are introduced can influence staff’s reactions to the change and what it may bring. A research project using interviews and questionnaires with staff in a Social Services department in the UK (Vickers 1997) considered attitudes to technological change resulting from the introduction of a new computer system for client records. Staff were resistant because they had not been consulted about the change. Luquire (1983) provided an example of staff consultation in an academic library and found that the earlier staff were acquainted with the automation system prior to arrival, the more positive their evaluation of it.

The issue of control is essential in changing environments, having new technology or equipment imposed obliterates any sense of power and control an individual may have had over their work. As Oskamp wrote, “A key variable in determining acceptance of new technology seems to be whether users have control over the

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1 Indeed, Usherwood (1996) noted that Cleveland Council used bereavement counsellors to help staff with the issues arising from local government reorganisation.
decision of whether and when to use it” (Oskamp 1990, p.13). Staff dissatisfaction with automation in Bii and Wanyama’s study (2001) in Kenya, for example, resulted from the way its introduction was handled. Specifically, staff were expected to use the new system without training.

Research into the effects of automation on library staff was principally undertaken in the 1980s, but still has relevance in the discussion of the effects of ICT and change on public library staff, particularly when some smaller branch libraries in the UK have only recently moved from using Browne issue to a library management system to manage issues and returns of library materials. The introduction of automated library systems was a major point in the working lives of library staff since it involved learning new technologies, new processes and procedures to assist patrons in locating and having the required reading matter issued to them. Years of routine were often overturned instantly with the introduction of a computer for staff to work with. If the proliferation of more ICT into the workplace is frightening for some, how much more threatening was the removal of a system that had been used and had worked for years to be replaced by a computer. The literature revealed that common reactions to automation included stress, resistance, fear and physical complaints, which are discussed in the following sections.

2.3.2 Stress

Researchers claimed that the negative effects of technology in the workplace led to psychological problems, for example, technostress and computer anxiety. In the library sphere many articles have discussed the phenomenon of technostress, a term first formulated by Brod in the 1980s, which he defined as “a modern disease of adaptation caused by an inability to cope with new technologies in a healthy manner,” (In: Clark & Kalin 1996, p.30). Technostress was identified in the 1980s as information technologies proliferated (Bichteler 1987). Similarly, computer anxiety was also explored, for example, amongst British managers and professionals. A respondent was considered computer anxious “if the emotional state during interaction or impending interaction with a computer reduced the potential benefits from the use of computers and discourages necessary use of computers” (Bozionelos 1996, p.996). Bozionelos argued that the prevalence of computer anxiety amongst British managers and professionals was “far from negligible” (1996, p.998). Computer anxiety was associated with system avoidance
and according to Henderson et al (1995) should be regarded as both an organisational and individual problem. Stover, for example, surveyed library managers on a personal website hosted in the USA in relation to technology. Of the 41 responses he received it was noted that nearly all “referred to computer phobia or avoidance on the part of beginning end-users or inexperienced staff” (Stover 2000, p.477). Although managers were concerned with psychological issues such as computer avoidance and phobia, Stover noted that these issues did not “generate the same kind of empathy among library managers and computer-savvy librarians” as physical problems (Stover 2000, p.481).

The effects of computer anxiety may not always be apparent as Sievert et al (1988) noted in an investigation of its prevalence in an academic library environment. They identified computer anxiety as an important part of resistance to technology. Using the Computer Opinion Survey they researched staff attending computer literacy workshops and found that the department and number of years worked in libraries were both significant factors affecting computer anxiety. Members of technical services, for example, were less anxious than other colleagues possibly because they had already dealt with anxiety when their department was initially automated. They observed that computer anxiety was reduced after attendance at formal computer classes, from hands-on experience, working with computers in one’s present post and experience with the online catalogue. Interestingly, members of departments who had experienced the introduction of automated systems possessed higher computer anxiety if they knew a new development was imminent, suggesting, “Staff fear change, regardless of how that change is perceived” (Sievert et al 1988, p.250).

Doubts about the existence of computer anxiety and technostress have been expressed by a number of authors including Harper (2000), Fisher (1996) and Davis-Millis (1998). Jerabek et al (2001) explored the correlation between library anxiety and computer anxiety and in a review of the literature noted the numerous computer anxiety studies but observed that there were many definitions and examples of the phenomenon and consequently questioned both its existence and its causes.

Harper (2000) discussed the definitions of stress and technostress including both the physical and psychological symptoms of technostress such as information overload,
under work and routine jobs, job insecurity and demotivation and uncertainty about job role. A possible solution to technostress included appropriate training. He also argued that reports of technostress might be exaggerated, "The increasing body of literature on the subject certainly presents no firm evidence of an 'epidemic' of librarian technostress" (Harper 2000, no page number). Fisher's (1996) analysis of the technostress literature went further and argued that Brod's work on technostress was largely anecdotal and subsequent work was based, wrongly, on Brod's focus on the techno anxious. He argued that feeling unable to cope was a normal reaction, "I would have thought conversely, that it is perfectly normal and healthy to find new computer systems and applications difficult to learn, not because of any individual 'disease of adaptation', but because of the often inadequate interfaces, confusing protocols, and poor standard of documentation" (Fisher 1996, p.10). According to Fisher a number of studies were problematic including Bichteler (1987), which was based on chats with no real evidence whilst Kupersmith (1992) simply cited other studies as proof. Fisher suggested, "I think we would be well-advised, despite its youth, to offer technostress early retirement" (Fisher 1996, p.14).

Similarly, Davis-Millis (1998), a music librarian in the USA, expressed her dissatisfaction with Brod's definition of technostress and argued that librarians had adapted and coped well with automation, "Thus, if the stress were merely a symptom of an inability to adapt and cope, and if you agree with me that we have adapted well, then why are we still so stressed?" (Davis-Millis 1998, no page number). Davis-Millis suggested in line with both Fisher and Harper, that reactions to technology such as the "fear of not keeping up", "escalating expectations on the part of library users" and "changing patterns of interaction with colleagues and patrons" were all "legitimate and external". Her new definition of technostress took account of the external factors affecting library staff's relationship to technology, "A condition resulting from having to adapt to the introduction and operation of new technology, particularly when equipment, support, or the technology itself is inadequate" (Davis-Millis 1998, no page number). Bartlett also offered a different interpretation of this term, providing a more general definition which included the physical and psychological impacts of technology and change, "the physical, mental, or emotional strain felt by people faced with rapidly changing technology in the workplace" (Bartlett 1995, p.276).
2.3.3 Resistance

A fear of new technology might take the form of resistance as Edwards and Walton's study of change and conflict in academic libraries noted, "Significant levels of conflict were associated with the introduction of new working practices and technological innovation" (Edwards & Walton 2000, p.38). An individual resistant to new technology may be hostile, opposed or uncooperative when faced with the prospect of using ICT in the workplace. Martinko et al (1996) noted that resistance could be characterised by "low levels of use, by a lack of use, or by dysfunctional, e.g. harmful use" (Martinko et al 1996, p.322). Bichteler (1987) identified patterns of resistance behaviour to technology in libraries. One form of resistance might be "an unwillingness or inability to be trained and to learn the new system". Resistant staff may become "passive non-users", continuing to depend on the manual version of the system" (Bichteler 1987, p.283). This is problematic for an organization with substantial investment in new ICT as neither staff nor library users benefit from the acquisition of technology. Further signs of resistance to new ICT might include an increase in absenteeism, again costly to the organisation and possibly to the individual concerned. Bichteler also noted that staff might be aggressive, negative, and argumentative, denigrate colleagues and withdraw - actions contributing to a hostile and unfriendly working environment.

Similar studies have also noted varying resistance behaviours. Morris and Dyer's consideration of library automation (Morris & Dyer 1998) noted that opposition to a system could be expressed in slow down, gossip or an unwillingness to learn whilst Burton (1992) saw resistance taking the form of inertia "hoping it will go away and refusing to work with it in the interim" (Burton 1992, p.40). Fine (1986) recorded that in a study of Tulsa Public Library from 1972 by Feldman, resistance to innovation and change came in the form of "avoidance or postponement of tasks, hostility, resignation and meeting only the minimum expectations of one's work" (Fine 1986, p.85). Obviously this study was undertaken almost twenty years ago and many public library staff in the UK are used to automation. Consideration of these reactions, however, might be of value in relation to those staff whose libraries have been automated in recent times. Resistance to technological change was recently apparent in an academic library in Kenya although the study by Bii and Wanyama (2001) of job satisfaction amongst library staff found only one respondent who actively resisted automation.
Flatten, writing of the lessons learned when six university libraries worked on the Electronic Libraries Programme (eLib) in the UK, noted that change exacerbated professional staff's negative attitudes and increased resistance to ICT, "They were not in a position to control change, yet they knew change was imminent. This increased their negative attitudes and resistance" (Flatten 1997, no page number). In the library sphere change might involve automation of the library system, moving to a new library management system, the acquisition of CD-ROMs and e-journals (Hudson 1999) or Internet access for staff and library users, all of which might be intimidating for staff with little or no prior experience of such innovations. Hudson argued that libraries generally "are in a period of general uncertainty" (Hudson 1999, p.36) which can be worrying for staff and might provoke hostility or resistance to the introduction of new technologies.

Hudiburg (1996) warned that resistance was "emotion-focused and less effective in reducing the stressor", for example, the feelings arising from having out of date computer or Internet skills. Although education and training can help, Hudiburg suggested staff accept that "computer technology will always be changing, with some periods of slower change than others" (Hudiburg 1996, no page number). Similarly, Harper (2000) argued that employees have a responsibility to manage their reactions to change and attempt to adapt to new technologies, "There is undoubtedly a two-way relationship between employees' attitudes towards technology and physical or psychological damage technology is said to cause" (Harper 2000, no page number). Possession of the relevant skills, however, might not prevent resistance as both Biddiscombe (1997) and Sharpe (2001a) noted staff already competent in using ICT still displayed resistance or fear in the face of further change.

2.3.4 Fear of the unknown and fear of failure

Concerns about new technology arise from a number of factors including fear of the unknown (Morris & Dyer 1998; Sykes 1991). This is particularly pertinent for staff employed in a post for a long period of time with an established routine. The introduction of a new system upsets comfortable working practices and may threaten staff's sense of authority, "They have the most invested in certain established ways of doing things, and also have the most to lose should things change" (Quinn 1995, p.6). Sandore and Baker's (1986) review of automation in American academic libraries agreed with this suggestion in their reassessment of
sociological and anthropological research, "studies of reactions to automation suggest that people initially resist changes that challenge and threaten their basic securities" (Sandore & Baker 1986, p.294). Dakshinamurti noted that the negative effects of automation on library staff included feelings of insignificance and insecurity (1985). One obvious fear is that the introduction of technology will lead to job losses, for example, in a study by Luquire, academic library staff's positive evaluations of the new computerised system in their library was due to the emphasis that had been placed on job security during the planning, introduction and arrival of the new system (Luquire 1983).

Related to a fear of the unknown is a fear of obsolescence and failure (Morris & Dyer 1998). An individual with 30 years experience of manual systems is reduced to the same level as those new to the profession or to the library if an automated system is introduced or a lower level if newer staff have experience with computer technology. Sandore and Baker (1986) considered this to be the fear of "continued competence" in the face of others with greater computer experience (Sandore & Baker 1986, p.294). Automation may affect the 'pecking order' when an individual with less experience of librarianship but superior computer skills replaces a librarian (Sykes 1991) or one has to rely on younger staff with the requisite skills (Quinn 1995) as Usherwood described, "power may shift, or be perceived to shift, in favour of the computer experts and away from (say) cataloguers or community librarians" (Usherwood 1996, p. 34). Similarly, Cowan observed that power within the libraries she studied had changed as a result of automation, "The person who has been there the longest or who is the most senior is not necessarily the individual who holds the balance of power in relation to technical knowledge or skills. Traditional knowledge although still very valuable is seen as a lesser skill to some" (Cowan 1998, p.95).

Morris and Dyer (1998) argued that the fear of obsolescence might be more common in middle-aged workers or those close to retirement age. Older staff's experience could be negated with the introduction of ICT and since they will soon leave, they perceive little point in retraining. This is particularly pertinent in the library profession where, as Rowley noted "Many staff work in the same library system for many years" (Rowley 1996, p.35). Gender might also combine with age to affect perceptions of new technology. Gannon-Leary and Parker (2002) considered women's status in libraries across sectors and surveyed attendees at the
67th International Federation of Library Associations (IFLA) conference. In relation to ICT they argued that both gender and age could be problematic in terms of possession of desirable skills, “The lack of training for new technologies led, some felt, to the devaluation of older women workers over younger and over older male workers with skills learned outside the library that relate to information technologies” (Gannon-Leary & Parker 2002, p.22). Individuals’ posts in the library might also have an influence on attitudes to new or more ICT. Sykes (1991) noted in his study of the effects of automation on academic library staff, that change might impact on library assistants more than librarians, “library assistants’ sense of self-worth and dignity in their job may be more bound up with their knowledge of a particular set of local routines than is the case with a professional librarian” (Sykes 1991, p.34). Similarly, not having the skills to use ICT or fear of trying might mean staff are unable to answer enquiries, creating feelings of inadequacy. As Nawe noted (1995), staff undergoing change felt incompetent if they failed to serve the needs of users, for example, finding an answer too late or not knowing the resources.

2.3.5 Increased demands

In relation to library staff the introduction of technology was frequently seen as increasing the amount of work that had to be performed in the same amount of time, a perception Lovecy termed the fear of an increased workload (1984). An increase in ICT might stimulate demand from library users creating more work for staff (Daniels 1995), having to learn to use it at the same time as working (Quinn 1995) or simply the creation of additional administrative tasks to be performed in the working day such as switching PCs on and off or signing them on for the public to use. Research by Jones found that library support staff displayed negative reactions to technology precisely because of an increased workload rather than because of the technology itself (1999).

Increased demands and the ensuing work generated could make staff feel stressed and unable to provide the level of service previously offered to users. Nawe’s (1995) review of work-related stress amongst the library workforce argued that an individual was stressed when “a situation is perceived as presenting an extra demand on the individual’s capabilities and resources” (Nawe 1995, p.30). Taking

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2 “New equipment, new software, and new information sources (the Internet) place increased work demands on the librarian and time constraints might not allow for proper implementation” (Hudiburg 1996, no page number).
on new roles can have a positive or negative effect on workers and work overload may be one cause of distress for library workers. Subsequently staff might avoid using new systems, as Kupersmith noted, "If there are not enough staff to provide more than rudimentary services, then technostress is more likely to lead to frustration and avoidance than to engagement and mastery" (Kupersmith 1992, p.9). Respondents working in community college libraries in the USA felt that although technology had made library work easier, the majority observed that it had "increased their workload and added more responsibilities to their jobs" which was not reflected in "pay checks, job descriptions, or degrees of respect from colleagues" (Poole & Denny 2001, p.511). In Jones' questionnaire study (1999) university library support staff also felt that the introduction of technology had added more responsibilities to their job and yet this had not been reflected in the "pay check" (Jones 1999, p.726). Increased workload for the same level of pay can create hostility as noted by Dakshinamurti, "there were a few people who expressed reservations about being called upon to take more responsibility without being paid for it" (Dakshinamurti 1985, p.348).

A year long research project which investigated the impact of ICT on public library staff in one metropolitan and one rural library service in the UK (Jones et al 1999) observed that some staff were nervous of ICT and its implications, which corresponded with those noted in other research, such as job losses and increased demands, "there were staff in every focus group that felt apprehensive about the technologies, and feelings of inadequacy were common. Some were afraid of the technology, and what it might mean for their jobs - either that it would make additional demands on already stressed staff or that it might replace some of their work and therefore pose a threat" (Jones et al 1999, p.13).

2.3.6 Changed relationships

Technological change might reduce opportunities for interaction with library colleagues and staff. In a profession that prides itself on its service ethos, this may well be viewed in a negative manner. Respondents in Dakshinamurti's (1985) study of automation expressed concern that it reduced interpersonal communication amongst staff, which could be detrimental for the library "as it does not bring people together" (Dakshinamurti 1985, p.348). Similarly, staff in Sykes' study of automation at an academic library in the UK felt it had reduced the opportunity for contact with users and other staff, an aspect considered to be a motivating factor in
their job (Sykes 1991). Additionally, technological change might result in altered relationships such as having to work with different colleagues and supervisors, which might be unnerving for some individuals (Morris & Dyer 1998). This fear may become more apparent as a recent evaluation of public library online services in the UK, claimed that ICT would mean more co-operation with staff in other authorities, organisations and departments (Brophy 2002).

2.3.7 Fear of the Internet

The majority of literature dealing with technological change in libraries focused on automation and library management systems while more recent studies have considered reactions to the Internet. These have been mainly related to its nature and capabilities including the extensive amount of information available and the ease with which library users might access offensive material. Sturges considered fear of the Internet in public libraries in some detail and suggested it was related to "the apparent lack of control that can be exercised over it" (Sturges 2002, p.18) particularly in relation to undesirable content such as pornography. In addition there were concerns about privacy and surveillance and "the quality and accuracy of information" (Sturges 2002, p.18), of particular concern when library staff are considered purveyors of reliable information such that the task of evaluating information from the Internet can be a daunting prospect. Rosenthal and Spiegelman’s study of academic reference librarians also noted library staff’s concerns about the nature of the Internet, “Many feel anxiety, frustration, and techno-stress due to the basic nature of the Internet which is inconsistent, ephemeral, evolving, and lacking authority control” and suggested librarians themselves develop the attitudes and skills to enable them to use the Internet (Rosenthal & Spiegelman 1996, p.65). Hudiburg argued that the Internet was probably the greatest source of technostress at present in libraries for library staff because of the mass of information added on a daily basis (Hudiburg 1996).

2.3.8 Physical effects

The history of automation in libraries has been plagued with accounts of physical side effects. The main culprits were workstations that were not ergonomically designed and glare and eye problems arising from visual display unit (VDU) use. Although barriers and filters were introduced to minimise the glare of VDUs, library staff often stood looking at PC screens for long periods of time.

Dakshinamurti’s (1985) study of the effect of automation on library personnel in
Canadian libraries noted the existence of eyestrain, backache and headaches. Olsgaard argued that the introduction of information technologies might actually deplete staff productivity and it was in the interests of the organisation to introduce ergonomically designed systems such that “employees work longer, faster, with fewer entry errors, and with fewer sick days” (Olsgaard 1989, p.491). Winstead’s comparative study of automation in academic libraries in 1987 and 1993 found concerns about ergonomic issues amongst staff. Physical problems mentioned included eyestrain, which increased from 51% to 54% of respondents from 1987 to 1993 (Winstead 1994). Carpal tunnel syndrome, a condition demonstrated by numbness or tingling in the hands resulting from repetitive motions such as using a keyboard (Quinn 1995), was reported by respondents in Jones’ study of university library support staff (Jones 1999). More recently library managers in a web survey mentioned carpal tunnel syndrome, backache, eyestrain and headaches (Stover 2000). Morris and Dyer noted in their discussion of technological change that some individuals were genuinely frightened of the adverse health effects associated with computers, which might deter usage (Morris & Dyer 1998).

2.3.9 The power of training

The relationship between training and the introduction of new technologies appears relatively simple; training reduces stress whereas using new technology without training increases stress. Bichteler suggested that technostress was often a result of “inadequate or nonexistent training on in-house systems” (Bichteler 1987, p.286). Historically in libraries, large sums of money were spent on new library management systems but budgeting for the actual training was lacking, an omission which might exacerbate existing worries and, as Bichteler argued, actually “engender negative attitudes on the part of staff” which could, unfortunately, be “quickly passed onto patrons” (Bichteler 1987, p.286).

Library staff have had to deal with the introduction of new library systems and use them to serve customers whilst they themselves learnt how they operated. Bii and Wanyama (2001) found that some academic library staff in Kenya were expected to use an automated system to catalogue, issue and discharge items without any training according to questionnaires from 24 staff and two interviews. The staff were embarrassed about their inability to answer queries from IT enthusiasts using the library facilities (Bii & Wanyama 2001). Lack of training was found to hinder use in Vickers’ study, “Some felt that to expect practitioners to just ‘pick it up’
without regular training and access to hardware was unrealistic and did not give enough recognition to the way practitioners learn to use new technology especially those with no understanding of it” (Vickers 1997, p.6) whilst Bartlett argued that lack of training or time to practice on new technologies was stressful for library staff (Bartlett 1995).

In contrast, good training was shown to have beneficial effects on staff and their reactions to new technologies. Jones’ study (1999), for example, of university library support staff and technology noted that, “The desire and need for training appears in almost every area in which library technology is discussed” (Jones 1999, p.737). In her study respondents saw training as a means of building staff morale, curing technostress and reassuring them of their ability to do the job. Of those who felt that technology had raised the stress level of their job, most felt that this was because there was not enough training. Similarly, staff in Luquire’s study of automation in an academic library environment were more favourable when evaluating the new system as the amount of training they received, increased (Luquire 1983).

2.3.10 Positive reactions to ICT

Although the literature is replete with examples of negative reactions to technology, not all individuals fear its introduction. A questionnaire completed by academic library workers in three Australian universities, for example, revealed that the introduction of a computerised service was perceived as improving efficiency (Bothwell & Lovejoy 1987).

Technological change constitutes a favourable challenge to some individuals. Burton noted that these people might well become “enthusiastic advocates of IT”, of benefit to the organisation in reducing the resistance of their co-workers to new technology (Burton 1992, p.43). Similarly, for some staff the introduction or an increase in ICT in the workplace was welcomed as an opportunity to learn new skills (Farrow 1997).

A study of non-professional staff in college libraries noted from the literature that one positive aspect of automation was “status enhancement” - enhancing perceptions of what libraries could provide to library users and staff’s own perceptions of their jobs. Staff may feel that their role is more relevant and
interesting, causing them to “take more pride in their jobs, working harder because of it” (Daniels 1995, p.5). Similarly staff working in a British public library felt that posts in the library had greater status with the advent of IT, in both the eyes of staff and the public and consequently “it was generally agreed that, on balance, job satisfaction had increased” (Craghill et al 1989, p.24).

2.4 Attitudes

The literature relating to individual’s reactions to technology and change frequently considered attitudes as the following section explores. This section reflects upon attitudes in relation to library workers in the information and library science literature and individuals in other areas of research. The varying definitions of attitude are detailed and the Technology Acceptance Model (TAM) is explored in some depth as a suitable model of measuring attitudes in libraries.

2.4.1 Attitudes of library staff to ICT

The library and information literature considered the value of attitudes in relation to technology, change and service. An early study by Fine (1986) contemplated the literature pertaining to technological change and libraries and cited a study by Nitecki from 1976 which found that a quarter of librarians questioned thought that negative attitudes amongst library staff were barriers to the successful incorporation of automated systems. Considering the studies analysed from 1978 to 1981, Fine suggested attitudes played a significant role in reactions to new technology “resistance is not a function of personality nor of demographics but is rather related to the climate of the organization and the beliefs, attitudes and values of the individual” (Fine 1986, p.88).

An acceptance that positive attitudes were desirable and negative attitudes undesirable in relation to information technology was embraced in much of the library and information literature. Research by Zimmerman into the attitudes of school librarians towards technology, using a 12-item Technology Attitude Scale, discovered school library media specialists’ attitudes were extremely positive, which was considered of value in the context of the literature where it was noted, “Attitudes and resistance to the use of technology have been frequently cited in the literature as major obstacles to the acceptance of ‘change’” (Zimmerman 1993, p.305).
A questionnaire and interview study of staff in ten public libraries in relation to ICT in Denmark found that its implementation had been slow as a result of a number of factors including the sceptical attitudes of staff to IT (Evald 1996). Burton's analysis of IT and the information professions suggested that attitudes were fundamental in determining the impact of IT based on the work of Zuboff in 1988, in which similar organizations adopting different attitudes to the implementation of IT achieved different results (Burton 1992). Daniels also argued this point in research on non-professional college library staff, arguing that as holders of prominent positions "their attitude towards the new computerised system will ultimately determine how successful it will be" (1995, p.2).

It has not been consistently validated in research that those who hold a positive attitude to computers will use them more readily than those with negative attitudes (Winter et al 1998). Survey research by Noble and O'Connor, for example, regarding attitudes toward technology as predictors of online catalogue use in an Australian academic library found that although some library users readily accepted computers they exhibited negative attitudes towards computer technology in general, "although library users, at one level, can give a specific technology a very high acceptance, the same users can, at another level, exhibit contrasting attitudes towards computer technology in general" (Noble & O'Connor 1986, p.610). Winter et al set out to discover if their assumption was true arguing that, "it is commonsense to predict that people who hold favourable attitudes towards computers will use them more than those who hold unfavourable attitudes" (Winter et al 1998, p.275). Their study measured computer use, computer literacy, volitional control and attitudes towards computers and results supported the hypothesis that attitudes towards computers would be positively associated with computer use. They also found that attitudes were predictive of the number of hours of work performed on a computer and suggested, "Attitudes towards computers are an appropriate focus for organisations attempting to increase the number of hours that their employees use their computers" (Winter et al 1998, p.281).

A number of authors have argued that staff attitudes affect the service received by library users, which might have far-reaching consequences, "The performance of both professional and non-professional staff determines to a large extent the quality of the customer experience and has a significant impact on the contribution that libraries can make to their communities" (Rowley 1996, p.31). Morris and Dyer, for
example, suggested that change could affect library assistants more than professional staff and, as front line workers, their attitudes affected library users' perceptions of the service (Morris & Dyer 1998). Similarly, Goulding noted that the perception of the public library service was in the hands of its support staff, "they are the public face of the library service and to a large extent are the library service for many customers" (Goulding 1995, p.30). Lilley and Usherwood also maintained, "the attitudes of staff are integral to the service experience of the library user" (Lilley & Usherwood 2000, p.21) because "Members of staff do not leave their attitudes at the entrance with their coats, they bring them into the workplace" (Usherwood 1996, p.58). Specifically if staff developed or held negative attitudes towards technology the service offered may no longer meet the needs of users who expect to be offered the latest in technological advances (Sandore & Baker 1986; see also Su 1993).

More recently, research has explored the attitudes of library personnel and use of the Internet. Flatley (2001) explored the impact of the Internet on the service rural libraries provide in the USA. His study based on a self-constructed questionnaire included analysis of the views of librarians towards the Internet and technology in libraries, their perceptions of library users and use of the Internet. Of 300 respondents, the majority were positive toward the Internet. Over 70% of librarians thought the Internet had improved their work, whereas 95% thought it had improved their ability to assist the public and over half felt that the Internet had changed their job significantly. He concluded "Rural librarians have a positive attitude towards the Internet and its impact on both their work and on the quality of the library service" (Flatley 2001, p.16).

2.4.2 Measuring the attitudes of library staff to ICT

Research in library and information science suggested that the attitudes of staff to ICT were important, based on documentary research, survey results and interviews. Bichteler considered the attitudes of library staff to automation in the USA arguing that attitudes to IT were important because negative attitudes could lead to staff resistance, a judgement that was inferred rather than measured (Bichteler 1987). In contrast, a study by Luquire (1983) repeatedly cited as an early example of attitude measurement to IT, considered attitudes toward the preparation for the introduction of a new system in an American academic library using a survey and interviews. Although not explicitly measuring attitudes to IT, Luquire stated that
"Technological change as a force in libraries must be coped with from the attitudinal or psychological point of view even more than from the technical approach" (Luquire 1983, p.344). An evaluation of the effect of public access computing on library staff in the USA in a study of more than 3000 library staff in five states (Gordon et al 2002b) found that librarians agreed with positive statements and disagreed with negative ones about computers and had consistently positive attitudes about computers, for example, the largest number of staff agreed with the statement, the Internet connection=better information sources, and disagreed with computers don’t belong in the library (Gordon et al 2002b, p.5). Research by Sievert et al (1988), however, based on results from a measured survey including the Computer Opinion Survey, concluded that an unwillingness to learn about computers was not related to negative attitudes toward IT, in contrast to their original hypothesis that “positive attitudes are believed to increase the prospect for achievement, and negative attitudes make achievement of competency less likely” (Sievert et al 1988, p.245).

A study of public and academic librarians’ attitudes to and use of digital resources to answer reference enquires in the USA was based on self-constructed attitude statements in a questionnaire (Janes 2002). Public librarians felt technology had had a positive effect on reference, unlike their academic counterparts who were more negative, although respondents were generally positive overall. The authors suggested that a limitation of the study might have been that only respondents who used digital reference sources actually completed the questionnaire, “We may have a good picture of the reference librarians who feel generally positive about digital reference but not those who do not” (Janes 2002, p.560).

To date there has been little research into the attitudes of public library staff to ICT in the UK. An early study by Craghill et al (1989) on the effect of IT on staff deployment in UK public libraries argued that “all library staff would need to have a positive attitude towards IT in the future” (Craghill et al 1989, p.31) a recommendation which was presumed rather than measured in any way. They considered how the introduction of IT in public libraries affected professional and non-professional staff focusing on issues of staffing levels, staff structures and nature of jobs. Based on 40 interviews with library managers and staff at six public libraries, they found that in the main the introduction of IT had been a positive experience. Although IT was initially considered to be a barrier for many staff, once
they had grown used to it they were able to overcome this obstacle.

The *Public Library Review* (Aslib 1995) considered the attitudes of public library staff using questionnaires sent to over 3000 staff and focus groups with 144 staff in relation to innovations. They found that professional library staff were more enthusiastic than other library staff to the introduction of innovations such as courses and sessions for the public. In terms of age, younger staff’s attitudes were more negative than those of older staff in relation to new services and organisational structure. Both old and young staff expressed interest in computers for use by staff and library users. On a scale from -3 to +3, *strongly negative* to *strongly positive*, both professional and paraprofessional staff scored 1.1.

Dick’s (1998) MA study of library staff in two English public library authorities considered confidence and attitudes. Respondents were asked to tick the IT applications they had used and indicate how confident they felt using them. In relation to attitudes, respondents were presented with a list of words to describe how they felt about computers and asked to select those they agreed with, for example, *confident, anxious, or learning fast*. Most staff felt they were just about managing in terms of IT but were positive about the future potential of IT.

There were no attitude measurement instruments specifically designed for use in the library context. Rather, studies have concluded attitudes were important from previous literature or qualitative evidence, utilised self-constructed questionnaires or used and/or adapted measurement models from other disciplines.

### 2.4.3 Definitions of attitude and attitude measurement

Definitions of attitude include a “mental view, opinion: posture, pose: disposition, behaviour” (Collins 1997, p.38) and “a pre-existing mind-set to act in a certain way toward a particular object, event, or person – a sort of mental readiness to produce a specific response” (Caputo 1991, p.37). Attitude is a concept open to interpretation and might involve feelings, responses or reactions (Usoro 2000). At its cruelest, a negative attitude towards ICT might mean that an individual is fearful of computers thinking they would replace people and avoid using them. According to the most basic of definitions, attitudes appeared worthy of investigation because they influence behaviour, although researchers have not consistently agreed upon this assertion (Wicker 1969 in DeBono & Omoto 1993; Usoro 2000).
A general understanding of attitudes in psychology conforms to the tripartite model where attitudes are structured on three components, cognitive, affective and conative. The cognitive dimension relates to beliefs or thoughts about an object, while affective or emotional refers to the feelings about it (Piderit 2000). Conative or intentional relates to the action or response towards that object, how we intend to behave towards it. Piderit's example of the three aspects in relation to change and resistance at work is useful here:

"An employee's response to an organizational change along the cognitive dimension might range from strong positive beliefs (i.e. 'this change is essential for the organisation to succeed') to strong negative beliefs (i.e. 'this change could ruin the company'). An employee's response along the emotional dimension might range from strong positive emotions (such as excitement or happiness) to strong negative emotions (such as anger or fear). An employee's response along the intentional dimension might range from positive intentions to support the change to negative intentions to oppose it" (Piderit 2000, p.787).

2.4.3.1 The Theory of Reasoned Action

Attitude measurement scales in areas of research such as management information systems (MIS) were informed by the tripartite definition of attitude and understanding of the relationship between attitudes and behaviour as proposed by social psychologists, Ajzen and Fishbein (1980) in the Theory Of Reasoned Action (TRA) (fig. 2.2). The TRA suggested that an individual's behaviour was determined by a person's intention to perform that behaviour. This intention was influenced jointly by the individual's attitude and subjective norm - a measure of how people are influenced by their peers' opinions (Dillon & Morris 1996). According to this theory, attitude arises as a result of beliefs about the consequences of that behaviour and one's evaluation of the consequences, whilst subjective norm was determined by an individual's normative beliefs and motivation to comply with perceived norms (Dillon & Morris 1996).

Research based on the TRA included work by Sheeran et al (1999) who tested the scales on undergraduates. Calculating statistical correlations between scales, they found that intentions based on attitudes rather than subjective norms better predicted behaviour. DeBono and Omoto (1993) also investigated attitude, behavioural intention and subjective norm using three scales on undergraduates in
relation to writing letters about drinking-age legislation. They confirmed that behavioural intention was related to attitude and subjective norm.

![Figure 2.2 The Theory of Reasoned Action from Dillon and Morris (1996)](image)

2.4.3.2 The Theory of Planned Behaviour

The TRA was further developed in the Theory of Planned Behaviour (TPB) (Ajzen 1991, in Dillon & Morris 1996), which argued that attitudes, subjective norm and perceived behavioural control were direct determinants of intentions, which in turn influenced behaviour (fig. 2.3). Perceived behavioural control was determined by the availability of skills, resources and opportunities as well as their perceived importance to achieve outcomes. This latter construct is sometimes considered to be similar to the concept of computer self-efficacy.

The TPB was a well-used model and of value in investigating social influence in technology adoption decisions. Klobas (1995) compared the TPB, TAM, and the Fitness for Purpose and Information Use Models in an exploration of the potential influences on use of a campus information system, which provided access to Internet resources amongst Australian university staff. Results indicated that the TPB was the better model because it concentrated on social pressure, users’ overall attitudes and feelings of control rather than focussing on the attributes of the information source.

According to Dillon and Morris and their review of the available models for user acceptance of information technologies and related research, TRA and TPB were
better models for investigating the determinants of intentions whilst TAM better predicted IT usage. Based upon previous research they argued that all three were robust theories but the results of the TPB were mixed.

2.4.3.3 The Technology Acceptance Model

A derivative of the TRA, the TAM measures the psychological determinant of attitudes and subsequent behaviours (fig. 2.4). Although the TAM’s origins were in MIS research, it has been a widely used and respected model in IT and ICT research. The TAM was not designed specifically to measure attitudes but rather technology acceptance which was considered the most important factor in determining the success or failure of an information system at a time when organisations were investing large sums of money on computerised systems for employees (Dillon & Morris 1996). Acceptance is defined as a “demonstrable willingness within a user group to employ IT for the tasks it is designed to support” (Dillon & Morris 1996, p.3). Indeed the measurement of user attitudes has been an important research issue in MIS since the 1970s (Swanson 1982).
Perceived Usefulness

External Variables

Attitude toward Using

Behavioural Intention to Use

Actual Use

Perceived Ease of Use

Figure 2.4 The Technology Acceptance Model developed by Davis (1986) from Dillon and Morris (1996)

Davis developed the TAM in 1986 as part of his doctoral dissertation, *A technology acceptance model for empirically testing new end-user acceptance of information systems: theory and results* (Davis 1986). TAM developed the TRA further with its inclusion of the constructs of perceived usefulness and perceived ease of use. Perceived usefulness is "the degree to which a person believes that using a particular system would enhance his or her job performance" whereas perceived ease of use is "the degree to which a person believes that using a particular system would be free of effort" (Davis 1989, p.320). These two constructs have an important impact on a person's attitude toward using the system. However, unlike the TRA, attitude did not completely mediate between beliefs and intentions, which might mean that an individual had negative attitudes to a system but might still use it because they thought it had high perceived usefulness. As Morris and Venkatesh suggested in relation to usefulness based on studies including those by Davis, "There is significant evidence to suggest that the most critical belief underlying an individual's attitude toward the behaviour of adopting a new technology in the workplace is her or his perception about the usefulness of the technology" (Morris & Venkatesh 2000, p.380).

Further research on the TAM by its creator included studies in 1989 and 1993. In 1989, Davis et al compared the TAM to the TRA to determine how well the two models explained people's intentions to use a particular computer system. Data were collected from 107 students who used a word processing package via a
questionnaire at both the beginning and the end of a semester. They found that people’s computer use could be predicted reasonably well from their intentions, which was in line with their research goal, “The goal of TAM 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” (Davis et al 1989, p.985).

Davis’ research in 1993 tested the TAM on 112 people using two end-user systems and distinguished between the two attitude constructs based on the work of Fishbein and Ajzen, attitude towards the object and attitude towards the behaviour, with the TAM exploring the latter. As Mathieson explained, “Research in social psychology shows that behaviour is best predicted by an individual's attitudes towards the behaviour (such as using an IS), rather than his or her attitude towards objects involved in the behaviour (such as the IS) (Fishbein & Ajzen 1975)” (Mathieson 1991, p.173). Davis found that “attitude had a significant effect on usage” whilst “perceived usefulness had a significant and strong effect on attitude”, similarly, “ease-of-use had a smaller but still significant effect on attitude” and on usefulness (Davis 1993, p.481).

Venkatesh and Davis recently extended the TAM (Venkatesh & Davis 2000). The revised version (TAM2) hoped to explain perceived usefulness and usage intentions in terms of social influence (subjective norm, voluntariness and image) and cognitive instrumental processes (job relevance, output quality, results demonstrability and perceived ease of use). The new model took on some of the attributes associated with the TPB, notably the reintroduction of subjective norm, which Davis et al (1989) had originally found to have no significant effect on intention.

2.4.3.3.1 The value of attitudes

The concept of attitude is one that has vexed Davis. In the final version of the TAM, attitude was omitted based on the reasoning that the effect of perceived usefulness on intention was only partially mediated by attitude towards using the system in question (Davis & Venkatesh 1996). A review of the research utilising the TAM noted that a large number of studies had retained the attitude concept and found that it had an effect on behavioural intention, for example, Davis 1989; Taylor and Todd
Mathieson (1991) compared the TAM with the TPB model to predict the use of spreadsheets amongst juniors and seniors on a management course at an American university and found that the "TAM explained attitudes towards using an IS much better than TPB, and may be the model of choice when this variable is of particular interest" (Mathieson 1991, p.187). More recently a study which considered the applicability of the TAM in the UK using data collected from questionnaires based on the original TAM and completed by university students, indicated that perceived usefulness had the greatest influence on IT acceptance followed by users' attitudes to IT (Al-Gahtani 2001).

In contrast, Szajna suggested, "The original TAM, revised to exclude the attitude construct, has consistently done well in predicting intentions" (Szajna 1996, p.92) although her research acknowledged that the original TAM was a useful model. In addition, Taylor and Todd tested TAM with two versions of the TPB on almost 800 students who used a computing resource centre. Questionnaire items related to use of the centre rather than computers generally, including actual centre usage over a 12-week period. Results from the TAM indicated, "Attitude does not have an indirect effect on behaviour. This would appear to support the contention of Davis et al (1989) that attitude may not be an important determinant of intention and usage in workplace settings when other factors such as usefulness are independently taken into account" (Taylor & Todd 1995a, p.165), which suggested that students used the centre because they thought it would help their grades regardless of their attitudes to it.

2.4.3.3.2 Growth of the TAM

Since Davis's dissertation research, use of the TAM has blossomed. Validation of the TAM and the constructs of perceived usefulness and perceived ease of use and comparison with other measurement models has been explored by a number of authors including Hendrickson et al, 1993; Segars and Grover, 1993 and Chin and Todd, 1995. Adams et al (1992), for example, re-examined the perceived usefulness and perceived ease of use scales in relation to electronic and voice mail and word processing, spreadsheets and graphics. Usefulness was found to exert a greater influence in relation to use than ease of use for undergraduates using electronic and voice mail whilst both factors were of influence in relation to word processing, spreadsheets and graphics.
Additions and modifications have been made to the TAM model. The literature will not be reviewed here but is available from Bagozzi et al 1992; Igbaria 1993; Taylor and Todd 1995a and b; Chau 1996; Gefen and Straub 1997; Igbaria et al 1997; Jackson et al 1997; De Souza Dias 1998; Al-Gahtani and King 1999; Dishaw and Strong 1999; Roberts and Henderson 2000; Chau 2001; Handy et al 2001.

2.4.3.3.3 Testing TAM and ICT

More recently the TAM has been used to explore individual’s acceptance of ICT such as electronic mail, the WWW and the Internet, for example, Morris and Dillon 1997; Straub et al 1997; Cooper 1998; Rose and Straub 1998; Agarwal and Prasad 1999; Teo et al 1999; Venkatesh and Morris 2000. As the use of these mediums has grown rapidly internationally, it has been a timely effort to understand people’s reactions to, and use of, these technologies.

Results have been mixed and contradictory in researchers’ appraisal of the TAM’s value in this area. Fenech used the TAM to predict WWW usage amongst students and found it inadequate (Fenech 1998). In contrast, Wu and Fam modified the TAM to investigate intention to use a website amongst university students. They found that perceived ease of use had a positive effect on perceived usefulness and attitude toward use while perceived usefulness had a positive effect on both attitude and intention although attitude did not affect intention to use a website (Wu & Fam 1999). Similar research by Lederer et al (2000) explored the ease of use and usefulness of websites. The TAM model was extended and modified in its use of antecedent ease of use and usefulness items. From the results of a survey conducted via email, which asked respondents to identify a site used for work and to answer questions about it, they concluded that the effects of ease of use and usefulness were significant with usefulness more important than ease of use (Lederer et al 2000).

2.4.4 Variables affecting attitudes to ICT

This section will consider variables discovered in the literature that influence individual’s attitudes towards ICT.

2.4.4.1 Gender

Gender, frequently explored in relation to ICT, is of importance when the majority of public library staff in the UK are women. There has been much debate as to whether women’s use of computers was more problematic than that of men’s.
Women have generally been portrayed as afraid of technology, computers and the Internet - alienated by the masculine culture surrounding them, for example, Perry and Greber 1990; Grint and Gill 1995. Feminists, including Plant, for example, have disputed this arguing, "Technophobia is increasingly becoming a myth. I think it is a shame a lot of feminist theory buys into the notion of technophobia. It not only buys into it, it's keen to perpetuate it" (In: Spender 1995, p.230). This was illustrated in a study by Zauchner et al (2000) of men and women who undertook clerical work in Viennese companies during a period of technical implementation using questionnaires and structured interviews, which found no real differences between men and women when IT was implemented, although women did experience more stress than the men. They argued that women were benefiting from information technology, "Women have become more familiar with the technologies due to their experiences with continuous implementation processes" (Zauchner et al 2000, p.128).

In the UK, the DTI undertook a literature review to consider whether women were less engaged with ICTs than men (DTI 1999). The majority of data came from three IT for All surveys between 1996 and 1998. It was argued in relation to attitudes that "women are less likely to feel that PCs and the Internet/Web would be useful to them in their daily lives. Women are also more concerned about making a fool of themselves when trying to learn about new technology and are more worried that technology is leaving them behind" (DTI 1999, no page number). Fifty seven per cent of men compared to 43% of women, for example, agreed with the statement computer technology is useful to me in my daily life. Women, the report suggested, had less opportunity to use a PC at home or at work.

Similarly, Jackson et al (2001) hypothesised that women's attitudes towards the Internet would be less favourable than men's based on previous research into women and computers. Their study of 630 undergraduates in the USA found in line with the DTI suggestion, that more males than females had a computer at home, 86% compared to 76%. In terms of Internet use, the research found that there were no great gender differences in use of the Internet overall, although men used the WWW more often than women who used the Internet more frequently for email. Schumacher and Morahan-Martin's (2001) study of college students revealed that 72% of males owned their computer compared to 59.6% of females. They found that males had more experience with the Internet than females and used it more
hours weekly although no differences were found in length of time using the Internet. Significant differences were also found in relation to Internet comfort and competency with males scoring higher on this variable than females. Again, slight differences in attitudes were recorded amongst high school students in Taiwan (Tsai et al 2001) although males and females similarly rated the usefulness of the Internet. In relation to control and behaviour male students had more positive attitudes than females. Brosnan and Lee’s (1998) comparative questionnaire study of attitudes to computers amongst male and female undergraduates in the UK and Hong Kong found that in terms of computer experience in both samples, males had more experience than females. Relationships were found between experience using applications programmes and positive attitudes to computers for men and women in both the UK and Hong Kong. Furthermore, in the UK, men had more positive attitudes to computers than women.

In relation to the TAM, the research of Venkatesh and Morris (2000) considered gender and technology adoption decisions. Noting that the TAM had excluded subjective norm, the authors felt that it was useful to include this construct since social influence can play a vital role in decisions to use technology. Reactions to and usage of a new software system were studied over five months and it was discovered that men were more strongly influenced by perceptions of usefulness whereas women were influenced by perceptions of ease of use and subjective norm. Similarly, the research of Venkatesh et al (2000) using the TPB found that men were more strongly influenced by their attitudes toward the technology whilst women were more influenced by subjective norm and perceived behavioural control.

In the library and information literature the effects of gender on attitudes to ICT and use of ICT are again, mixed. Harris (1999) studied the impact of technological change on library work in public and academic libraries in the USA and Canada. Interviews with 71 staff in six libraries revealed that women felt more threatened by technological change than men and perceived themselves as having less control over that change than the men questioned. In contrast, Bothwell and Lovejoy’s (1987) study of technological change and academic library workers found that there were no significant differences in attitudes according to gender and a study of Internet use amongst academic reference librarians found that gender had no real influence (Rosenthal & Speigelman 1996).
2.4.4.2 Others: subjective norm

Research exploring the relationship between attitudes, gender and age has explored the concept of social influence and subjective norm. Martinko et al (1996), for example, considered the influences of co-workers and supervisors on resistance to technology based on a review of the literature. It appeared that the opinions of colleagues in the workplace might affect the attitudes of others. The authors suggested, “If a supervisor or co-worker expresses resistance to the new IT and places specific blame for failure, so might the individual. For example, a co-worker or supervisor who is unable to master a new IT may attribute failure to the difficulty of using the new technology. The individual is then also more likely to attribute his or her own failure to the system itself” (Martinko et al 1996, p.316).

Examination by Wolski and Jackson (1999) into technology acceptance in an educational environment argued that subjective norm might have influence, “in educational contexts, where technology is a potential influence on teacher/student relationships and where individuals identify themselves closely with expert communities of fellow practitioners, it does not seem plausible to assume that the decision to use technology is made without reference to others’ approval or disapproval of its use” (Wolski & Jackson 1999, p.1720). Similarly Roberts and Henderson (2000) included subjective norm in their investigation of technology acceptance using the TAM amongst employees in Australia but found that subjective norm had no relationship with any of the other variables explored.

2.4.4.3 Computer experience

Prior computer use and experience might affect attitudes to ICT in that the greater the experience, the more positive the attitude to ICT, although this relationship has not been consistently endorsed in the research. In support of this suggestion, Thompson et al (1994) explored computer experience using questionnaires with employees at eight organisations. It was found that the influence of experience was statistically significant, suggesting, “Past use of a personal computer would be expected to influence current use directly” (Thompson et al 1994, p.181).

A number of studies utilising the TAM model have explored the influence of previous computer experience, for example, Igbaria et al (1995). Using a modified TAM combined with the TPB the authors explored the impact of a range of external factors including user training, computer experience and organisational support on
the computer usage of university students. The authors found that training and prior computer experience were important influencing variables on the use of a system. Similarly, Al-Gahtani and King (1999) modified the TAM to include a number of new variables including course of study, training and computer experience. University students who had just finished a sandwich year in industry completed a questionnaire divulging their opinions of spreadsheets. Results indicated that individual, organisational and IT characteristics all influenced user perceptions, attitudes, satisfaction and usage.

Agarwal and Prasad (1999) explored a wide range of variables in relation to information technology acceptance including personality and demographic and situational variables such as experience and training. They theorised that “beliefs or perceptions as represented in TAM ‘intervene’ between individual difference variables and IT acceptance” (Agarwal & Prasad 1999, p.362). The study, based on the responses of workers at an information technology vendor in the USA to a variation of the TAM found that prior similar experience was significant in relation to perceived ease of use while training was significant in relation to perceived usefulness.

In the library sphere, some studies have suggested prior use of ICT might make it easier for staff to accept new technologies in the workplace. Kirby’s account of the Croydon Libraries Internet Project (CLIP) noted that staff had used a CD-ROM network prior to the introduction of the Internet. This had proved popular such that staff were able to “appreciate the benefits of IT and gave them the confidence to try new services” (In: Ormes & Dempsey 1997, p.76). In the USA, a study of Internet use amongst academic reference librarians (Rosenthal & Speigelman 1996) found that the higher the level of skill the greater the level of usage. Similarly, a Nigerian study, which investigated the relationship between experience and attitudes in academic libraries measuring attitudes on a Likert type scale with results based on chi-squared analysis of variables, indicated that previous experience of computers influenced attitudes toward the use of computers, as did knowledge of usage (Idowu 1999).

### 2.4.4.4 Age

Morris and Venkatesh (2000) explored the influence of age on attitudes using the TPB. Based on a review of the literature they hypothesised that older people’s
decisions to use IT would be influenced by subjective norm because they were more concerned with conforming to the expectations of others. A survey study of short and long-term technology adoption decisions of employees introduced to a new software system was undertaken at an accounting firm. The authors found that in the short-term, older workers were more influenced by subjective norm and perceived behavioural control (ease or difficulty in using the new technology) than their younger counterparts who were more influenced by attitude. In the long-term, however, there was less emphasis on subjective norm. The authors suggested that attitude might be more pertinent for younger employees because they faced greater exposure to computers and IT whilst older workers were less concerned with rising in the ranks and more with good social relations and security.

In the library and information sphere, Arthur’s overview of the literature in relation to older academic librarians in the USA noted that older staff were subject to common myths such as being “unwilling to learn new skills” (Arthur 1998, p.323). Arthur contested these assumptions noting that “Overall, with few exceptions, age-related research seems to indicate that primary differences in performance appear to be due more to individual differences than to age differences” (Arthur 1998, p.323). Academic librarians in the USA were made up of “almost 40 per cent more individuals aged 45 or older” (Arthur 1998, p.323) compared to other professions and as a result librarians might be judged as being “less open to change than younger workers” (Arthur 1998, p.325). Similarly, Kelley and Charness (1995) reviewed the literature relating to training older adults to use computers and concluded that “It is important to note that older adults are not always less positive about computers than younger adults. Controlled studies designed to examine older and younger adults’ ability to learn to use computers have usually found no effect or weak effects of age upon computer attitudes” (Kelley & Charness 1995, p.111).

Rosenthal and Speigelman’s study of academic reference librarians’ Internet use found that older librarians were less likely to use the Internet (Rosenthal & Speigelman 1996). In contrast, Zimmerman’s (1993) survey study of school librarians found that neither age, education or general experience were statistically significant in relation to school librarians’ attitudes toward technology whereas professional organisation involvement, school location and taking part in continuing education were correlated with attitudes but only weakly. Yaacob (1992) explored librarians’ perceptions of IT and the relationship between the librarian’s attitude
towards IT and extent of technology available. In addition, selected variables such as demographic factors and their relationship to attitudes in government special libraries in Malaysia were considered. Using a self-constructed questionnaire sent to 120 libraries with an 85% response rate and interviews with librarians, Yaacob found that library staff exhibited positive attitudes to IT. The parent organisation, size of the library, age, recency of attaining qualifications, knowledge of technology and budgets were all related to attitudes whilst gender, qualifications and participation in professional activities were not. Specifically, as librarians gained more knowledge of information technology their attitudes were more favourable.

This section has considered the variables affecting attitudes to ICT and to ICT usage. Although research results were mixed, the variables of gender, previous computer experience, social influence and age all appeared worthy of consideration in the library sphere.

2.5 Training

This section will consider the relationship between training and attitudes to ICT and change including staff experiences and evaluation of ICT training to date. The different training methods favoured by staff and learning styles theory will be detailed. Finally, the national ICT training plan for public library staff as envisaged in *Building the New Library Network* (LIC 1998) and its progress will be explored.

2.5.1 The benefits of training

Training is generally accepted as an appropriate part of staff development in the workplace to help individuals acquire the skills to make effective use of ICT, new systems, procedures and equipment. Furthermore, training in the library and information science literature was understood to reduce stress in the workplace, improving morale and reducing negativity as the following section explores (see also Section 2.3.9 for a discussion of training and change).

Research findings have frequently argued that training assists individuals in dealing with the stress brought on by technological change (Clark & Kalin 1996). As Poole and Denny (2001) noted in their review of the literature relating to the effects of technological change on library staff and technostress, “the most frequently cited recommendation to alleviate or avoid technostress was training” (Poole & Denny 2001, p.509). Wolski and Jackson documented that training could be used to
persuade individuals to try new technology at work, "Training does often succeed in persuading people of the benefits of new technology, and it also often succeeds in overcoming beliefs about the difficulty of using new technology" (Wolski & Jackson 1999, p.1722), to enable employees to adapt to new technologies in the workplace (Employment Department Skills and Enterprise Network 1994) and actually increase individuals' use of information technology (Gilmore 1998).

Training staff might also improve confidence and spirits as identified by Cowan in a study of public library staff in England and Canada. She observed that IT training improved morale and staff felt more confident about the information they gave out to users because of the training they had received in use of the automated system (Cowan 1998). Attending training that individuals considered a success might also encourage participation in future training. This was illustrated in a follow-up survey study of participants at the Computer Training Centre in Lahore, Pakistan. It was found that respondents attended more courses and in wider subjects after they had completed the basic Certificate in Library Automation. The authors documented that "the data clearly show that the trend of getting computer education was accelerated in the respondents after they had attended the Certificate in Library Automation course" (Sharif & Mahmood 2001, p.175).

Equally, it has been suggested that poor training can actually exacerbate technostress (Bichteler 1987) as can too little training (Jones 1999). Staff already anxious or scared of using ICTs, faced with the prospect of having to use them without any training, could have their fears reinforced. Poole and Denny (2001) explored technological change and its effects on staff in community college libraries using a previously formulated questionnaire. Although respondents to their study were generally positive in their attitudes to computer technology, insufficient training was one reason cited for making the job more stressful.

2.5.1.1 Training and attitudes

A relationship between training and attitudes to ICT, specifically that suitable training eradicates negative attitudes towards ICT, has been suggested in the literature (Luquire 1983; Bichteler 1987; Flatten 1997; Vickers 1997; Jones 1999). Research by Igbaria et al (1997) into technology acceptance in small firms found that training was significant; internal training had a positive effect on perceived usefulness whereas external training had a positive effect on perceived ease of use.
such that the authors asserted, "external educational and training programs designed to increase individuals' knowledge about computers and their operations may be beneficial in enhancing computer skills and reducing attitudinal barriers to the acceptance of information technology" (Igbaria et al. 1997, p.296). The relationship between attitudes and training was considered by Idowu (1999) who studied training and computer experience in relation to attitudes in Nigerian academic libraries. The author suggested that computer training and practical use of that knowledge determined librarians' attitudes towards computers.

It has also been suggested that individuals with negative attitudes to ICT might also possess negative attitudes to training, as Henry imagined, "think of the person in your organisation who consistently refuses to upgrade or learn new procedures/software. Consequently, this end-user will not succeed in training/learning new Computer Based Training (CBT), since he/she believes that it would not do him/her any good" (Henry 1994, p.22). Building the New Library Network (LIC 1998) judged that negative attitudes might be a problem in relation to ICT training, "time, funding, attitudes to information and communication technology and limited infrastructures emerged as possible barriers to training" (LIC 1998, p.57). Nonetheless, the report observed that front-line staff displayed supportive attitudes to the need for training, although for some staff the suggestion of increased ICT in public libraries was threatening and the authors consequently suggested, "there is a need to become familiar with the technology concerned – to develop a degree of competence that enables all staff to reach a point where the technology holds no fear for them" (LIC 1998, p.59). Jones et al also considered the relationship between training and attitudes in relation to English public library staff and argued that it was hard to separate attitudes to technology from attitudes to change or to training (Jones et al. 1999). Furthermore, in their opinion attitudes to ICT and change affected the success of training. If ICT was perceived by some individuals to be threatening and anxiety-ridden, then training in that ICT might also be feared and resisted. For those employed in a library where little, if any, formal or informal ICT training has taken place, its introduction might prove to be unsettling. As Biddiscombe remarked, "A lack of IT training over a long period could, however, result in an initial difficulty in motivating staff who may see little reason to change" (Biddiscombe 1997, p.14).
Staff with negative attitudes might create resistance to the training amongst colleagues. This was suggested by Cowan (1998) following interviews with public library staff in England and Canada in relation to automated systems training. She felt that staff who were unwilling to train might have a detrimental effect on others, "negative attitudes are extremely hard to overcome and can easily lead to an entire unit adopting the same stance. In the case of introducing information technology it is particularly important that communication is open and clear. Fears of the staff, while lessening as more IT is introduced in the workplace, are still factors to be considered" (Cowan 1998, p.155). Similarly if staff cannot see the relevance of the training, managers might meet with resistance. This was observed in a study of Internet training for academic library staff in which resistance to training was felt in one university library whilst in another library, staff questioned the relevance of the training. The author noted "staff must see the relevance of the training topic if the sessions are to be successful" (Mathews 1997, p.88).

2.5.2 Training in UK public libraries

Prior to the commencement of the NOF ICT training programme for public library staff, training for public library staff in the UK was often ad hoc and unbalanced, varying from authorities with intricate training plans to those that were less judicious in their choice of training (Williamson 1993). This was illustrated in Staff in the New Library (Jones et al 1999), a study that considered the "impact of new technologies on staff and ways to re-skill the library workforce" (Jones et al 1999, v) based on data from focus groups within two public library authorities. One of the main findings of the report was that there had been inadequate ICT training in public libraries. Training was frequently inappropriate and lacking with little time allocated. The staff in a Master's study echoed this sentiment; only 14 percent felt that the training they had received was sufficient compared to 82 per cent that considered it insufficient, although this study was based on the responses of just 31 staff in three public library authorities. Furthermore, staff surveyed felt that most ICT training was provided when required rather then being planned in advance (Coulson 2000).

Building the New Library Network (LIC 1998) also considered the shape of ICT training provision. The authors noted that there was an established environment of training in some library authorities which had been supplemented by university departments of library and information studies, professional organisations including...
the Library Association (LA) (now the Chartered Institute of Library and Information Professionals (CILIP)) and colleges which offered postgraduate qualifications and NVQs or similar, such that “the New Opportunities Fund will not be launched into a vacuum. A considerable amount of training in the use of information and communication technology already takes place” (LIC 1998, p.58). The LIC concluded that this provision was insufficient and too patchy to secure the skills required for the ambitious aims of New Library, indeed as Coulson later identified “within library authorities there are significant disparities between the levels of skill possessed by different groups of staff” (Coulson 2000, p.51). This latter sentiment was echoed more recently when the effects of the NOF ICT training initiative were considered and it was noted that staff were “coming from many different starting points”, for example, some staff in Worcestershire “truly had no experience of ICT” (Beck 2001, p.67).

2.5.3 Training issues

Issues related to the training of library employees generally have included insufficient time allocated to undertake training and to practice, the lack of importance placed on library staff training and training unsuitable for those involved.

Experiences of library staff and ICT training have documented the need for additional time to train and practice. Furthermore, the opportunity to use newly acquired skills helps reinforce what has been learned. As Quinn observed of individuals learning to use information technology in public services, it was important that staff had time for hands on practice during a training programme and, following training, were able to put their skills to use straight away (Quinn 1995). These sentiments were expressed in three studies, which included a survey and/or interviews with public library staff in the UK. Staff in Coulson’s study (Coulson 2000) felt that time off the desk to practice and train was important, as was using newly acquired skills without delay. In Garbelotto’s study staff complained about the lack of opportunity to practice their Internet skills during and following training (Garbelotto 1999) while Cowan went on to suggest that lack of time to practice actually contributed to unsuccessful training (Cowan 1998). Clark and Kalin’s advice appeared relevant in light of these studies, “Managers must allow their staff adequate time for practice and reinforcement” (Clark & Kalin 1996, p.32).
Managers not placing enough importance on staff acquiring ICT skills could affect training received by staff. Jones et al (1999) suggested that deficient management approaches might lead to a reactive rather than proactive training strategy, "Managers may underestimate the depth and breadth of ICT skills front-line staff need and adopt a reactive, 'emergency' approach to training, rather than aiming to provide staff with a good foundation for the future. This has the effect of squashing staff aspirations, especially if they cannot see an overall training strategy with clear goals" (Jones et al 1999, p.30). An example of ill-considered training might be staff told to learn on computers allocated to the public in their 'spare time', which could be difficult when faced with interruptions from colleagues or the public. This was illustrated in an evaluation of the DCMS/Wolfson Public Libraries Challenge Fund, where the training approaches used by one authority had included designated machines in some libraries for staff to 'surf' (DCMS 2000a).

Dick's study of staff in Derbyshire and Sheffield public library services (1998) maintained that staff had to overcome their own anxiety before they could ease those of the public's. This required training and funding for staff to have their own machines and the time to use them. He felt that a reactive training strategy merely reinforced staff fears, "Training in hindsight is one of the worst kinds as staff will already have feelings of inadequacy or negativity in place when training begins" (Dick 1998, p.80). Similarly, managers might under or over estimate the current level of staff's ICT skills. Coulson (2000) found that while some of the staff surveyed did not possess a basic ICT skills base, including use of a keyboard, a mouse and/or some Windows applications, others actually possessed skills beyond the basics. This situation, however, was unknown to the organisation; a state of affairs Coulson believed reflected a "diminished level of communication between staff and managers" (Coulson 2000, p.84).

2.5.4 Training methods

Certain methods of training have dominated in public libraries in the UK including cascade, on-the-job and in-house courses. Cascade training involves the training of at least one member of staff who then passes their knowledge onto colleagues and is perceived as a cost-efficient strategy, "most libraries (were) keeping costs low by using staff members as instructors" (Harper 2000, no page number). Jones et al found that cascade training was not a particularly successful training technique, "cascade methods are largely ineffective in teaching ICT skills. This is due to
factors such as staff who are not trained to pass on their learning, not being willing to train others, or not having the time to do so” (Jones et al 1999, p.33). Goulding noted that cascade or drop-down training, as it is also known, had been wholeheartedly adopted by some library authorities and some staff were not happy with the IT training they had received. It was found that “nearly all staff had been trained by a supervisor or co-worker, or had gained skills ‘osmotically’ while on the job” (Goulding 1995, p.31). Similarly, of the authorities featured in a report by the DCMS which detailed projects funded by awards from the DCMS/Wolfson fund in 1999-2000 to expand ICT facilities in English public libraries (DCMS 2000a), a commonality was using existing staff to provide training. Libraries in both Norfolk and Bradford, for example, had used experienced library staff to provide advice, “Librarians with good knowledge of Internet use and previous technology training experience were selected as trainers” (DCMS 2000a, p.11).

On-the-job training can also be used to train staff in ICT. For a library assistant this might involve learning how to use the library management system when serving the public at the issue desk. As Bennett explained, on-the-job is, “Training undertaken at the place of work while the employee is simultaneously contributing to the employee’s business. Typically it involves verbal instruction regarding equipment, procedures and working methods” (Goulding & Kerslake 1996, p.82). Although on-the-job training is a practical approach in terms of learning to use equipment in a real life situation, it might be stressful if undertaken in front of customers. Prytherch argued that the on-the-job approach to learning in libraries could not be considered training because it was neither organised nor monitored, “random bits of continuing education or mere learning-on-the-job cannot be called training; the term implies a scheme of instruction which is more-or-less formal and on-going, which is planned, systematic, consistent, pervasive, and monitored to measure its effectiveness” (Prytherch 1986, p.1).

In-house courses have also been well used in public libraries and involve training in the library by a member of staff or internal trainer. Building the New Library Network (LIC 1998) in its investigation of the current state of ICT training in the UK also considered preferred methods of training. The British Educational Communications and Technology agency (BECTa) had been commissioned to undertake a study for the LIC Training Task Group in June 1998 and of 901 responses it was found that the two most popular methods of training were a
combination of a short course with online support in the workplace and in-house courses. Similarly, participation in group training sessions was the preferred training method for many staff in the focus groups questioned in *Staff in the New Library* (Jones et al 1999), although some respondents admitted they would feel intimidated training in a mixed-level group as it might prevent them from asking questions on issues they did not understand. As Quinn, an academic reference librarian, noted in an extensive review of the technostress literature, training must be suited to the expertise of the staff member so that those who learn faster do not feel they are being held back by those slower to learn and the faster learners do not intimidate slower learners (Quinn 1995). A more recent evaluation of training for Outcomes 2-8 of the NOF ICT training reinforced the notion that public library staff preferred to attend formal training, “Formal sessions rather than distance learning methods are preferred by most staff” (Dodd et al 2002, p.5) (see Section 2.5.7 for details of the NOF ICT training Outcomes).

ICT training for public library staff prior to the NOF ICT training was not solely restricted to on-the-job, cascade and in-house courses, although these methods predominated. Training methods divulged by library authorities in a report by the DCMS (DCMS 2000a), included cascade methods, tutorials, instruction packs, manuals and machines for staff to use. Unfortunately, an evaluation of the success of these methods and how many staff actually benefited from them was lacking.

2.5.4.1 Learning styles

The learning style of individuals might affect the success of different types of ICT training. As Bartlett noted “Different people require different instructional methods, i.e. visual versus aural, concrete versus theoretical, etc. These should all be considered in the training process” (Bartlett 1995, p.228). Similarly Davis-Millis (1998) considered inadequate training in relation to technostress in libraries and suggested the adoption of one particular approach might be inconsistent with the preferred learning styles of some individuals and noted “For everyone who feels comfortable with exploring on their own, you can count upon there being someone else who’ll be paralysed until they are shown it, or taught it” (Davis-Millis 1998, no page number).

Learning styles and strategies constitute a vast area of study in educational psychology research and all the literature will not be reviewed here, rather
consideration of the better-known theories and their applicability to ICT training will be made. Learning style relates to an individual's preferred mode of learning. Although this might be specific to a situation, a pattern can often be observed in individuals and "left to themselves, they tend to use these styles across a whole range of different situations" (Cashdan 1971, p.16). A widely used and adapted categorization of learning styles was that of Kolb (Kolb 1976 in Riding & Rayner 1998). This grouping emanated from experiential learning, related to experience and active learning. The four styles included divergers, assimilators, convergers and accommodators. Divergers take time to think about what they have learnt and may confer with others and as a result may prefer lectures with time for reflection, as Riding and Rayner (1998) suggested "they need to personally engage in the learning activity" (Riding and Rayner 1998, p.54). Assimilators, in contrast, may enjoy abstract concepts and ponder problems step by step whereas convergers like to experiment and apply ideas and accommodators prefer to learn through concrete experience. Honey and Mumford (1982) furthered the work of Kolb and applied his theory to a commercial environment. Their four styles included reflectors (divergers), theorists (assimilators), pragmatists (convergers) and activists (accommodators). Reflectors "were concerned with the 'what is' rather than the 'how' in any directed activity" (Riding and Rayner 1998, p.58) whilst theorists preferred ideas and logic rather than intuition. Pragmatists enjoyed working in groups and taking part in discussions and testing what they have learnt while activists preferred new experiences and using intuition. In relation to learning how to use computers, activists might simply start, reflectors would think about what they had just done, theorists would read the manual and pragmatists might use the help feature for further assistance (Clark 2000).

Other theories pertaining to learning styles include personality models, social interaction and information processing. Gardner's Theory of Multiple Intelligence from 1983 proposed seven different types of intelligence, which lend themselves to different styles of learning. They consist of verbal, spatial, musical, intrapersonal, interpersonal, bodily and linguistic intelligences. Gardner proposed individuals possess all seven intelligences with some more developed than others. Gardner's theory has been expanded, for example, Lockitt (1997) suggested three categories of learning styles, auditory, visual and kinaesthetic. Auditory learners learn through listening, visual through seeing and kinaesthetic by moving, feeling and doing. In the context of learning how to use the Internet for example, auditory learners might
prefer to discuss their ideas verbally and listen to the trainer's instructions whereas visual learners might excel through the use of multi-media, for example a computer based tutorial or reading a book with illustrations. Visual learners often like to take notes during demonstrations and lectures whilst kinaesthetic learners might benefit from the opportunity to imitate others performing a task and then practice.

2.5.5 A revolution in ICT training for public library staff

To facilitate the emergence of the *New Library: the Peoples Network* (LIC 1997), which envisioned an information network throughout the UK available through the library sector (see Section 2.2.2.1), *Building the New Library Network* (LIC 1998) detailed how this could be achieved focusing on network, content and training (see Section 2.2.2.3). Public library staff were required to become familiar with ICT. They were expected to use it effectively in their own work and assist the public to make effective use of it, to take on a learning role in the library.

The survey of staff by BECTa (see page 54) found that managers were most comfortable with ICT, having had the greater exposure to it, while front line staff possessed mixed competencies with approximately half having a high level of ICT awareness. Front line staff were identified as the group most in need of training and priorities identified included basic ICT skills, navigation of the Internet, and equipment troubleshooting.

In light of this the aim was to ensure that all staff developed a basic competence in using ICT and for those whose skills already exceeded the basic requirements, advanced training might be appropriate. This could involve acquiring additional skills such as web design or in-depth searching skills and staff in receipt of such skills would be known to other staff, suggesting that they would become sources of assistance and guidance for less experienced staff.

To remedy the sketchy training provision situation identified in *Building the New Library Network* (LIC 1998) it was proposed that the NOF allocate £20 million to train all library staff in the use of ICT. Library authorities were asked to apply for funds based on staff needs identified in a Training Needs Analysis, a process Williamson describes as a systematic approach to determining the real training needs which exist within an organisation or department of staff (1993), and present a suitable training plan. Authorities also had to consider how the training would best
be delivered, from whom they wished to purchase it, suitable timescales for the training and how the programme would be monitored and evaluated.

For public library staff and their managers, this has been the largest, most thorough and ambitious training initiative ever undertaken. It appeared to be well planned and conceived and meant that local authorities concentrated on the training needs of their staff, when it is difficult to imagine that many library authorities had ever really utilised Training Needs Analysis before. Similarly, the stipulation that NOF training was monitored and evaluated were undertakings, it is imagined, libraries have attempted in the past but the reality is that many probably did not make or find time to do so.

2.5.6 Shortcomings of the NOF ICT training plan

The NOF ICT training plan was an ambitious initiative and there were stipulations that might lead to problems. In terms of eligibility for training, Building the New Library Network stated that ICT training would apply only to those in regular employment, consequently “Staff who are employed only occasionally for relief work, or who work irregularly, should be excluded” (LIC 1998, p.5). The study undertaken by BECTa for the LIC also observed that “There were also concerns about the difficulties of training part-time staff and staff who work in single-person service points” (LIC 1998, p.62). Fortunately, it was decided that funding be allocated according to the number of staff employed rather than basing monies on full time equivalents as the LIC noted it took “just as much effort to train a part-time member of staff as it does to train one that works full time” (LIC 1998, p.62).

Although appreciating the cost implications of training irregular workers, library users do not make distinctions between the employment status of staff and the service they provide. This is especially pertinent if, as Hull noted, “Most customer interactions take place with counter staff, who are not usually qualified librarians” (Hull 2002, p.163). Furthermore, casual staff may be in greater need of training to keep them up to date, “Regular training in, and practice of, IT skills for flexible workers is particularly important as they may not have the opportunity to use equipment for as long as, or as regularly as, permanent full-time staff and therefore may not have the chances to become as competent” (Goulding & Kerslake 1996, p.73). Goulding and Kerslake in their study of the flexible workers in the library profession also found that some employees expressed concern that they were not
performing their jobs properly, which affected the quality of service they were able to provide and their morale. In the academic library environment, Garrod discovered that part time staff were generally overlooked in relation to training and yet it was “continuous practice” which was seen as integrally related to acquiring expertise (Garrod 1998, p.253).

In addition, NOF funding did not pay for extra staff to provide cover (LIC 1998) while other staff receive or attend training; rather this cost has been borne by local authorities. This problem appeared to have been confronted in some library authorities by adjusting opening hours to allow a regular training session (Sharpe 2001b).

2.5.7 Progress of the NOF ICT training to present

The first phase of the training began in September 2000. The NOF ICT training programme, as it became known, consists of eight Expected Outcomes aimed to develop competence with ICT. They include:

i. Competence with ICT;

ii. Understanding how ICT can support library work;

iii. Health, safety and legal issues relating to ICT;

iv. Using ICT to find information for users (including evaluating information);

v. Using ICT to support reader development;

vi. Using ICT to support users to ensure effective learning;

vii. Effective management of ICT resources;

viii. Knowing how to use ICT to improve efficiency.

Outcome 1 of the NOF ICT training programme includes word processing, utilising spreadsheets and databases, presentations, managing files and using network services including the Internet. According to NOF, Outcome 1 forms the core of the training programme (The People’s Network 2003) and has been frequently encompassed by the ECDL qualification, although some public library authorities have pursued acceptable alternative routes, for example, the Learning Line programme in Birmingham City libraries and City and Guilds in North East Lincolnshire libraries. Outcomes 2-8 include using ICT to support staff’s work in the library to find information for users, supporting reader development and learning, managing ICT and using ICT for efficiency and administration and are covered in the NOF and CILIP Public Libraries ICT Training Educator course.
latter includes a variety of learning approaches including face-to-face sessions and independent learning using the Internet.

Reports from library managers, trainers, the People’s Network and the NOF have emerged since training began in 2000 commenting on the successes and the difficulties encountered with the training. Problems have included finding the time to both train staff and provide a service (Sharpe 2001b). In Sunderland, for example, Sharpe noted that the seven modules of the ECDL involved a great deal of staff commitment at the same time as having to maintain present levels of customer service. There was also concern about sustaining the training following the distribution of the NOF funds for staff employed at a later date but who were still required to possess the basic skills expressed in the Expected Outcomes (Sharpe 2001a). The People’s Network considered the challenges posed in the first year of the training based on annual monitoring returns and found that staff shortages, vacancies and illness affected progress and it is assumed placed pressure on other staff, in line with Sharpe’s suggestion. In addition, managers found that estimates of completing training were often insufficient and practice time for staff had to be built in as illustrated by the example of Hertfordshire library service, “the pressures on staff at the front line means that these staff are finding that they need more time than we allow staff (for) this part of the training. In view of this we shall be asking to draw down the funding for the programme over four years, rather than the three originally planned” (The People’s Network 2003, no page number).

Successes of the NOF ICT training programme have included the increased confidence of staff and a shift in the culture in public libraries. A survey of training for Expected Outcomes 2-8, which included telephone interviews with 61 public library authorities in UK found “Boosted confidence levels and greater team spirit are evident though sharing the training experience” (Dodd et al 2002, p.5). Sharpe suggested that the programme of ICT training was instigating a “cultural change” in the library service as ICT was viewed as another tool for staff to use rather than something alien to books and reference materials (Sharpe 2001a), an idea confirmed by the People’s Network analysis of annual monitoring returns, “Cultural change - within some library services was highlighted as a very positive outcome of the first year of training. Reasons for this cultural shift from one of reactive dependency to proactive self-responsibility are attributed to the self-study approach to learning with CD-ROMs or content online” (The People’s Network 2003, no page number).
2.6 Summary

A review of the significant literature in relation to the aims and objectives of the study revealed in the general technological change and attitudinal literature, that:

- Technological change was upsetting for some individuals. Examples included the advent of automation in a variety of library environments;
- Attitudes were regarded as fundamental in the success of new ICT and were related to behaviour;
- Suitable attitude measurement models included the TAM based on the TRA;
- Attitudes might be affected by an individual's gender, age, previous computer use and training.

Specific to public libraries in the UK the literature revealed that:

- The Internet was installed in all public libraries in the UK by the end of 2002;
- Public library staff embarked on a national ICT training programme which commenced in 2000;
- Overall, in spite of pockets of good practice, the provision of ICT training for public library staff had been patchy and often ineffective.

2.7 Conclusion

The working lives of public library staff in the UK were impacted upon by a number of government reports and recommendations with *New Library* (LIC 1997) and *Building the New Library* (LIC 1998) making the greatest impact in terms of staff roles and use of ICT. Furthermore, the reports instigated a national ICT training programme to ensure staff were able to make effective use of ICT in libraries in both their own work and in assisting the public. Indicative research into staff attitudes and perceptions of ICT revealed that some staff were concerned about this direction whilst previous ICT training had been largely absent for many library workers.

It was suggested in a number of studies that the attitudes of staff to ICT were of value and that training affected attitudes for the better. An analysis of the relevant literature revealed that no comprehensive research into the attitudes of public library staff in the UK using a measurement model had taken place. Suitable measurement models for analysis of attitudes and ICT included that of the TAM, which had been applied in some information environments outside of the UK, as
noted in research on faculty attitudes to using the library “Few researchers in library and information science have used such approaches as the Theory of Planned Behaviour (TPB), the Technology Acceptance Model (TAM), and the more general Theory of Reasoned Action (TRA)” (Starkweather & Wallin 1999, p.642). In addition, the relationship between attitudes and training had been mainly inferred rather than investigated. These omissions in the research literature reinforced the proposal that investigation of the attitudes of public library staff to ICT focusing on the Internet using a measurement model and an exploration of the relationship between training and attitudes was an appropriate area of study which would add to the body of knowledge regarding the value of training and understanding of the role of staff attitudes in the public library workplace.
CHAPTER 3 RESEARCH METHODS

3.1 Introduction
The aim of this chapter is to consider the appropriate research methodologies required to fulfil the aims and objectives set out in Chapter 1. The data collection processes used are also described. In addition, the cleaning and screening of the data prior to analysis is illustrated, appropriate data analysis methods and the reliability and validity of the data explored.

Section 3.2 discusses the research methods appropriate to both the field and the study in greater detail. Both quantitative and qualitative research strategies including surveys, interviews and focus groups are explored whilst Section 3.3 explores the practicable ways of fulfilling the aims and objectives set out in Chapter 1.

The construction of the questionnaire as a means of data collection is presented in Section 3.4. The pilot survey, survey dissemination and recording of the results are detailed in this section and qualitative data collection is also discussed including interviews, focus groups and the online bulletin board.

Section 3.5 considers the appropriate analysis of the collected data and its reliability and validity including the data cleaning and screening processes. The chapter concludes with a summary of the appropriateness of the methodologies chosen and the data they have generated (Sections 3.6 and 3.7).

3.2 Research strategies relevant to the field
A review of the literature identified the pertinent issues in relation to the subject area of public library staff, attitudes to the Internet and training. Appropriate strategies for collecting data to fulfil the aims and objectives of the study included both quantitative and qualitative methods such as a survey, interviews and focus group interviews. An assessment of these strategies is presented in the following section.

3.2.1 Surveys
Moore (2000) argued that to ascertain what is happening, quantitative data techniques are appropriate, while qualitative data helps to explain why a particular phenomenon is happening. In the context of this study, a quantitative approach
established public library staff’s attitudes to the Internet whilst qualitative research offered insights as to why this was the case. Similarly, Denscombe stated that questionnaires can be used to discover both facts and opinions such as attitudes (1998) and were therefore highly appropriate in relation to the aims and objectives of the study.

To build a picture of staff attitudes to the Internet, the views of as many staff as possible were advantageous and a survey can generate vast amounts of quantitative data from large numbers of respondents (Denscombe 1998). Furthermore, a self-administered questionnaire is a cost effective method of questioning a large number of people as Moore noted, being “relatively easy to administer. They are flexible in that they can be used to collect a wide variety of data in a variety of different circumstances. And they are relatively cheap” (Moore 2000, p.108). Questionnaires can be delivered to a member of staff within an authority agreeable to distributing them amongst colleagues and the use of pre-addressed stamped envelopes used to encourage response (Moore 2000). Although Moore asserted self-completion questionnaires were not very good at exploring complicated issues, they are often popular with respondents because they can complete them when it is convenient and people can look at them before deciding to complete them (2000).

3.2.1.1 Attitude measurement

The majority of studies investigating attitudes in academic, public and school libraries used a self-formulated questionnaire, for example, Luquire (1983), Bothwell and Lovejoy (1987) and Dakshinamurti (1985). Research conducted in other types of organisation mainly involved use of existing measurement scales such as the TAM, for example, Al-Gahtani and King (1999) and Roberts and Henderson (2000). In addition, qualitative methods of exploring attitudes have been used in the information science literature. Larkin-Lieffers (2000), for example, used interviews to explore the attitudes of older adults using computer technology in public libraries in Canada. The study involved interviews with fewer than ten library users compared with Craghill et al (1989) who interviewed 40 staff at different levels to discover the impact of IT on staff deployment in UK libraries. As this study hoped to ascertain the opinions of a large number of staff, a quantitative approach was preferable.
A variety of scales used to explore attitudes to computers, ICT and the Internet were considered. The Computer Attitude Scale (CAS), for example, claimed to present an individual's general attitude toward working with computers with a total score based on three subscales; Computer Liking, Computer Confidence and Computer Anxiety (Loyd & Gressard 1984 in Woodrow 1991). Although the CAS is a well-validated and used scale, the statements appear dated and focus on more generalised fears about the threat of technology to society.

Suitable alternatives included the TAM, a measurement model which developed the TRA further with its inclusion of the constructs of perceived usefulness and perceived ease of use (see Section 2.4.3.3). The original TAM consisted of four subscales including perceived usefulness, perceived ease of use, behavioural intention and attitude. Behavioural intention was formulated in the TRA, which asserts that an individual's behaviour is determined by intention to perform the behaviour.

Recent TAM research has investigated the use of computer software including spreadsheets, word processing, and ICT such as e-mail and the Internet, for example, Wu and Farn (1999) and Lederer et al (2000).

In practical terms, the TAM had to focus on a specific programme or application in order to be relevant to public library staff and the tasks they were likely to perform, rather than computers in general. Specifically, using the TAM to explore public library staff's use of the Internet was appropriate because public library staff had to be proficient Internet users, as *Building the New Library Network* emphasised, "All public library staff should understand the basic structure and nature of the World Wide Web element of the Internet and should be able to use it to find information" (LIC 1998, p.80).

Research utilising the TAM has also included the measurement of external influences on attitudes such as organisational, situational and demographic variables, for example, Al-Gahtani and King (1999) and Agarwal and Prasad (1999). For the purposes of this research, the TAM was used to explore external variables influencing the attitudes of public library staff towards the Internet, such as gender, age, computer skills and training.
3.2.1.2 Training

A questionnaire was judged an appropriate format to gauge public library staff's opinions of the Internet training they had received. Initial ideas had focussed on finding an existing training scale in the same way that an attitude measurement scale had been located. Further investigation meant that this expectation was revised and a self-constructed training section was developed for insertion in a questionnaire. To determine the types of training to include in the questionnaire, this subject area formed part of the literature review (see Section 2.5).

According to the report *Training: An exploration of the word and the concept with analysis of the implications for survey design* (Campanelli & Channell 1994) training was understood by employees to refer to that which took place on formal courses and did not usually include self-initiated training. Similarly, Lobban noted, "Some employees may not acknowledge training that takes place at work – for many people ‘proper’ training involves attendance at a course" (Lobban 1997, p.16). For the purposes of this study a training section incorporated assistance and support provided by the organisation, formal, informal and self-initiated methods of training for use of the Internet.

3.2.2 Sampling

To be confident in the applicability of the findings it was hoped to survey a large number of respondents in at least ten authorities, “The bigger the sample, the more likely the results are to be representative of the whole population” (Moore 2000, p.105). When designing the research, it seemed sensible to limit this to England for reasons of practicality, as there were 148 authorities in England alone at that time. Rather than using sampling where library authorities or libraries were listed and chosen at random, stratified sampling was employed. Authorities were listed according to type of authority; London borough councils, metropolitan councils, county councils and unitary authorities and size; the largest, mid-point and smallest authorities. Within these variables, authorities were selected randomly and approached. As Denscombe noted, “the significant advantage of stratified sampling over pure random sampling is that the social researcher can assert some control over the selection of the sample in order to guarantee that crucial people or crucial factors are covered by it, and in proportion to the way they exist in the wider population” (1998, p.13). Details of the final sample of authorities involved in the research are given in Table 3.6.
3.2.3 Interviews and focus groups

To provide a supplementary perspective to staff attitudes towards the Internet and opinions of training, a manager within each of the library authorities involved who was responsible for ICT and/or training was interviewed. Interviews are appropriate for use in research exploring emotional issues and experiences (Denscombe 1998) and in this context investigating staff attitudes was potentially contentious if managers felt that a large proportion of staff were negative to ICT. Furthermore, interviews were useful as a follow-up approach to questionnaires. If authorities had sections of staff with negative attitudes or respondents had made comments in relation to specific issues, it was beneficial to gain the management and organisational perspective on these.

Semi-structured interviews on a one-to-one basis with managers seemed to be the most fitting approach as they provided an opportunity for the researcher to steer the discussion whilst permitting managers to talk about associated issues and concerns, “The researcher only has one person’s ideas to grasp and interrogate, and one person to guide through the interview agenda” (Denscombe 1998, p.114).

Although the survey provided an illuminating spotlight on staff attitudes and opinions, it was beneficial to expand on some issues in detail. Focus groups were considered an appropriate method to pursue this. Focus groups are “a small group discussion (often consisting of six to 12 participants), guided by a facilitator and used to gain an understanding of participants’ attitudes and perceptions relevant to a particular topic” (Gorman & Clayton 1997, p.143). They are a popular research method in library and information science and are particularly pertinent for the exploration of feelings and attitudes; “The focus group technique... has been used extensively to ascertain the perceptions and feelings of participants around a particular area of inquiry” (Chase & Alvarez 2000, p.358). Focus groups can be used to explore the background behind people’s thoughts and experiences (Morgan 1998), in this context, notions of the Internet in the library and experiences of using it.

Gibbs argued that focus groups are useful “when there are power differences between the participants and decision-makers or professionals, when the everyday

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3 Gorman and Clayton noted that focus groups are “growing in popularity and have much to offer the investigator in an information organisation” (Gorman & Clayton 1997, p.16).
use of language and culture of particular groups is of interest, and when one wants to explore the degree of consensus on a given topic” (Gibbs 1997, no page number). It could be argued that taking front line staff away from the workplace and providing them with an opportunity to air their views without the presence of management encouraged a certain degree of honesty.

The focus groups provided an environment in which staff were able to share their experience of ICT, the Internet and training with the researcher. Purposive sampling was used where staff questioned were representative of the various types of library staff in terms of post and type, “This is one chosen by researchers to include representatives from within the population being studied who have a range of characteristics relevant to the research project” (Gorman & Clayton 1997, p.127).

3.2.4 Online focus groups

A focus group conducted in the electronic environment, an online focus group (OFG), is a small but growing research strategy (Chase & Alvarez 2000). Although principally a market research tool, online focus groups have been used in the information science sphere. Gaiser (1997) suggested the use of Internet relay chat (IRC) groups and multi-user dimensions (MUDs) as appropriate spaces to conduct focus groups whilst Chase and Alvarez utilised conferencing software in their study (2000). Online focus groups were considered a useful way to supplement the qualitative data generated from the focus groups. Whilst acknowledging this method might exclude those wary of computers, it might capture the views of staff confident with ICT, as Chase and Alvarez warned “the OFG may not be appropriate as it automatically excludes non-computer participants” (2000, p.365).

The survey was considered an appropriate channel to advertise the online focus group providing a brief description of the exercise. Interested respondents could respond by entering their email address if they required more information. This also provided some indication as to how many respondents might take part for planning purposes.

Appropriate methods to conduct the online focus group included ‘Internet chat’ such as the MSN messaging service, which displays instant messages on registered users PC screens. Alternatively, Gaiser suggested the use of bulletin boards (1997). He noted that there were limitations to this method in that users must have access to
3.2.5 Triangulation

The use of different research methods to collect data on the same issue adds value to the research, as Denscombe explained, “Using multi-methods produces different kinds of data on the same topic. The initial and obvious benefit of this is that it will involve more data, thus being likely to improve the quality of the research” (Denscombe 1998, p.84). Perhaps the greatest benefit is that findings from use of the different methods can be corroborated and the validity of the data enhanced whilst avoiding “the presumption that use of triangulation can prove that the data or analyses are absolutely correct” (Denscombe 1998, p.86). Gorman and Clayton suggested that ideally, multiple methodologies used should be both qualitative and quantitative, such as interviews and descriptive statistics (1997).

In this study, validity was enhanced with multi-methods, including documentary analysis for Chapter 2, a survey of staff, which produced data of a mainly quantitative nature while interviews with managers and staff, focus groups and a bulletin board with staff generated qualitative data.

3.3 Fulfilling the objectives of the study

The aims and objectives of the study are presented in Chapter 1. This section explores means of fulfilling the objectives. The aims of the research included the measurement of public library staff’s attitudes towards the Internet in order to gain an understanding of the factors influencing both positive and negative attitudes. In addition, staff opinions of the training received for Internet use were recorded and the relationship between attitudes and the training was explored.

3.3.1 Objective 1: Measure the attitudes of public library staff to ICT, focussing on the Internet

To adequately measure the attitudes of public library staff, a measurement scale was required. Much of the attitudinal research in the library and information sphere in the UK had inferred the state of worker’s attitudes, for example, Craghill et al (1989), whereas self-constructed measurement scales had been utilised in international research, such as those by Idowu (1999), Luquire (1983) and Yaacob (1992). Walster (1994) suggested applying Fishbein and Ajzen’s model of attitudes to library behaviours. In contrast, research in MIS employed existing measurement models to explore individual’s attitudes, Al-Gahtani and King (1999), for instance,
used a variation of the TAM to explore attitudes in relation to information technology amongst university students. In the knowledge that scales in other fields of research are well established and validated, this objective developed from the creation of an attitudinal measurement scale to adaptation of an existing scale which was included in a questionnaire.

An intention of the research was to understand whether negative attitudes to the Internet prevented staff from using it. The definition of attitude provided by the TRA (Ajzen & Fishbein 1980) suggested attitude exerts an influence on actual behaviour. Models such as the TPB and the TAM based on the TRA were therefore meaningful measurement models. Through the results of a questionnaire which incorporated an amended version of the TAM it was hoped to provide a picture of the state of attitudes held by public library staff in a variety of public libraries in England in relation to the Internet. The survey was processed and analysed using the Statistical Package for the Social Sciences (SPSS) version 10 whilst factor analysis was performed to reduce the amended TAM into factors suitable for more detailed analysis.

3.3.2 Objective 2: Investigate the influences on public library staff's attitudes to the Internet

Studies in fields as diverse as psychology, education, management information systems, human-computer interaction and information science have discovered that attitudes to ICT may be influenced by the demographic characteristics of respondents and the organisational context in which they work. Variables can be divided into two groups, the first being those that can be considered demographic characteristics and the second consisting of organisational aspects. Demographic variables include gender, age and education whilst organisational variables might include place of work, position within an organisation, type of post, previous computer experience, years of service, management style and the introduction of change.

Librarianship is a female dominated profession\(^4\), numerically, and it is expected that the attitudes of men and women towards ICT might differ since it is well documented that women are generally less favourably inclined towards information technology and computers than men (Brosnan 1998). Other influencing variables include age, which according to Biddiscombe might also affect ICT training (1997).

\(^4\) "Women still form 78 per cent of the membership of the CILIP" (Ritchie 2000, p.69).
Building the New Library Network (LIC 1998) specified that staff not employed in regular work would be ineligible for NOF ICT training funds subsequently it is imagined that the attitudes to ICT and experiences of training of flexible workers might differ to those of permanent workers since these workers are traditionally least likely to receive training (Goulding & Kerslake 1996; Jones 1999; Garrod 1998).

Questions exploring both the demographic and organisational details of respondents were included in a questionnaire. These data were then analysed to detect relationships and explore differences between demographic and organisational variables and staff attitudes to the Internet and the relationship between attitudes and training. In addition, focus group interviews with staff and interviews with managers were both valuable ways of exploring the influence and importance of training.

3.3.3 Objective 3: Consider the potential effects of public library staff's positive and negative attitudes to the Internet

In drawing a picture of the current state of public library staff's attitudes to the Internet, the research hoped to understand what attitudes actually affect. If, as the TRA postulates, attitudes influence intentions and subsequent behaviour, it is reasonable to assume that one of the main effects of negative attitudes would be an unwillingness to perform ICT related tasks in the public library. Public library staff's intention to use the Internet was explored in the survey. An amended version of the TAM with a section of statements asking respondents to consider their intention to use the Internet in the future and the frequency of that use was included in the questionnaire; this is termed 'behavioural intention'.

3.3.4 Objective 4: Record public library staff's opinions of Internet training including the NOF ICT training

Staff opinions of the training they had received for use of the Internet were recorded. A training section incorporated in the questionnaire recorded staff opinions of a variety of training methods, assistance and support that provided them with the skills to use the Internet in the library. Training issues and concerns arising from the survey were then pursued in focus group interviews with cross-sections of staff. In addition, managers provided additional information pertaining to the training programmes followed in their authority and their individual perspectives on
the value and relevance of Internet training for staff.

3.3.5 Objective 5: Explore the relationship between attitudes to the Internet and training

A review of the relevant literature suggested that training eradicates negative attitudes to ICT and increases the confidence of staff when using ICT at work, for example, Igbaria et al (1995).

The relationship between public library staff’s attitudes to the Internet and the training they received was explored using both the quantitative and qualitative data gathered from the survey, interviews and focus groups.

3.4 Data collection

3.4.1 Questionnaire design and structure

The design and structure of the questionnaire used in a survey of staff is detailed in the following section as one means of data collection.

3.4.1.1 Front cover

The front page of the questionnaire (page 1 see Appendix I) included background information about the purpose of the study and return address, confidentiality, instructions and thanks, in line with suggestions by Denscombe (1998).

3.4.1.2 You and Your Role in the Library

This section included questions relating to staff’s gender, age and education and their role in the library (pages 2-3 of the questionnaire). In relation to age, a question asking respondents to indicate their date of birth was judged too personal although this conflicted with suggestions by Fink (1995). Age groups were used in the questionnaire ranging from under 18 to over 65. In terms of educational attainment, choices ranged from GCSEs and their equivalent to MPhil/PhD, including levels of university education, as librarians are required to possess an undergraduate degree, a postgraduate qualification or professional qualification. The use of other, please specify was inserted for respondents whose qualifications were not listed.

In a library context, respondents’ place of work, posts and their nature - full or part time was useful when considering the differences and similarities between
individuals. Length of time working in libraries and type of post were both factors that affected ICT training, according to Biddiscombe (1997). Current post included Librarian, Library Assistant and other. These best represented the main library titles. The use of other, please specify was used to encourage those with different titles to identify themselves.

The nature of library posts included full time, part time and casual. In addition, both full and part time were broken down to include permanent and temporary in acknowledgement of the flexible nature of much of the library profession (Goulding & Kerslake 1996).

From personal experience, suitable lengths of time employed in the library sector ranged from under one year to more than 20 years. Types of library included branch, central, county, mobile, city and other. In general, public library authorities have a central library with smaller libraries in the authority, often referred to as branch or county libraries. The use of other, please specify was appropriate for those working in different locations such as the authority headquarters or in posts with a more peripatetic role.

3.4.1.3 You, Computers and the Internet

This section (page 3 of the questionnaire) aimed to establish respondents' level of computer skills by asking them to rate their own computer proficiency. Responses were on a five-point Likert scale ranging from 1, poor through to 5, excellent. A five-point Likert scale was also used for the all the TAM and training sections, scales developed by Rensis Likert to enable respondents to answer questions about the intensity of their attitudes without a researcher present (Revision Notes 2003). Respondents considered statements and where they placed themselves in relation to an attitude or opinion. Current attitudinal research generally uses five and seven-point Likert scales although Fink suggested that self-administered questionnaires should use a four or five-point scale (1995).

Respondents were asked to indicate how long they had been using the Internet at work. Research such as that by Thompson et al (1994) and Igbaria et al (1995) suggested that familiarity with ICT affected attitudes. A question about frequency of Internet use was also used to gauge how often staff in different posts and libraries were using the Internet. In terms of length of time using the Internet, the range ran
from *less than six months* to *longer than four years*. At the time of the survey, some libraries were only just receiving PCs with Internet access whilst some authorities, mainly in central libraries, had had Internet access PCs since 1998 (DCMS 2000a). The frequency of Internet use included options ranging from *daily* to *never*. It was felt that asking respondents to indicate frequency in terms of hours was rather a taxing question, especially if it varied greatly on a daily basis.

3.4.1.4 Amended TAM Section: perceived usefulness, ease of use and behavioural intention

This section (pages 4-5 of the questionnaire) explored respondents' perceptions of the usefulness, ease of use and intention to use the Internet at work (Tables 3.1, 3.2 and 3.3). It seemed appropriate to keep the TAM groups of statements together as they were set out in other research. Davis and Venkatesh (1996) re-tested TAM after it was suggested bias might be a problem in the grouped form. Use of similar items grouped together might artificially inflate the high reliability and validity of the TAM. They found that this was not the case, however, and suggested researchers using the TAM continue with the grouped format.

To prevent respondents simply selecting a response without really reading the scale items, Oppenheim suggested the randomisation of scales, “In setting up these scales, the location of the positive end should be randomised, so as to counteract response set due to position” (1966, p.206). Similarly, it was also useful to adjust the statements so that those with both negative and positive tones were within the same set and the statements included in the perceived ease of use section included seven statements that were reversed and were negative rather than positive in tone (page 4).

There was concern that the statements making up perceived usefulness were irrelevant to members of staff who primarily demonstrated how to use the Internet to the public rather than in any other capacity. According to *Building the New Library Network*, a training priority for front line staff—who constitute 80% of public library employees, is navigation of the Internet, because staff need to support and assist “members of the public to perform basic ICT operations” (LIC 1998, p.5).
To clarify this issue postings were made to two Internet JISC Mail Lists, LIS-PUBLIBS and LIS-LINK during July and August 2001. The posting asked respondents to consider what they and staff considered the Internet to be, what they were using it for in the library and whether librarians were using it in different ways to library assistants. The postings elicited nine relevant responses, which included public library managers and librarians. In addition, a session of observation was undertaken at a large Nottinghamshire County Council library.

To many library workers the term Internet would seem to include both the Internet and the WWW. Of the responses received, one librarian stated that they personally did not understand the difference between the Internet and the WWW whilst another said that the Internet was everything they found through Internet Explorer. This was also the case in a focus group study of university students, "Respondents used the term 'Internet' and 'World Wide Web' interchangeably" (D'Esposito & Gardner 1999, p.460). For the purposes of this research the term Internet would appear to be the most useful since it is more widely used even if the understanding of it is not always technically correct.

Public library staff, according to this small snapshot, were using the Internet for a wide range of purposes. The Internet was used for reference and enquiries; bibliographical tasks such as ordering stock, inter-library loans, checking bibliographic details, co-operation with other libraries and communication, for example, both personal and professional email. Professional awareness was another use of the Internet, such as subscribing to relevant mail lists. The full range of potential perceived usefulness statements were retained for use in the questionnaire.

The following three tables indicate the source of the adapted statements making up the perceived usefulness, perceived ease of use and behavioural intention subsections of the amended TAM (Tables 3.1, 3.2 and 3.3 respectively):
### Perceived Usefulness Statements

<table>
<thead>
<tr>
<th>Statement</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using the Internet improves the quality of the work I do</td>
<td>Davis 1989</td>
</tr>
<tr>
<td>Using the Internet gives me greater control over my work.</td>
<td>Davis 1989</td>
</tr>
<tr>
<td>Using the Internet enables me to accomplish tasks more quickly</td>
<td>Davis 1989</td>
</tr>
<tr>
<td>Using the Internet supports critical aspects of my job</td>
<td>Davis 1989</td>
</tr>
<tr>
<td>Using the Internet improves my job performance</td>
<td>Davis 1989</td>
</tr>
<tr>
<td>Using the Internet enhances my effectiveness on the job</td>
<td>Davis 1989</td>
</tr>
<tr>
<td>Using the Internet makes it easier to do my job</td>
<td>Davis 1989</td>
</tr>
<tr>
<td>Using the Internet increases my productivity</td>
<td>Davis 1989</td>
</tr>
<tr>
<td>Overall, I find using the Internet useful in my job</td>
<td>Davis 1989</td>
</tr>
</tbody>
</table>

Table 3.1 Perceived usefulness items

### Perceived Ease of Use Statements

<table>
<thead>
<tr>
<th>Statement</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>I find the Internet awkward to use</td>
<td>Davis 1989</td>
</tr>
<tr>
<td>It is difficult to learn how to use the Internet</td>
<td>Davis 1993</td>
</tr>
<tr>
<td>Using the Internet is often frustrating</td>
<td>Davis 1989</td>
</tr>
<tr>
<td>I find it easy to get the Internet to do what I want it to do</td>
<td>Davis 1989</td>
</tr>
<tr>
<td>The Internet is rigid and inflexible to use</td>
<td>Davis 1989</td>
</tr>
<tr>
<td>It is easy for me to remember how to perform tasks using the Internet</td>
<td>Davis 1989</td>
</tr>
<tr>
<td>Using the Internet requires a lot of mental effort</td>
<td>Davis 1989</td>
</tr>
<tr>
<td>My use of the Internet is clear and understandable</td>
<td>Davis 1993</td>
</tr>
<tr>
<td>I find it takes a lot of effort to become skilful at using the Internet</td>
<td>Davis 1993</td>
</tr>
<tr>
<td>Overall, I find the Internet easy to use</td>
<td>Davis 1993</td>
</tr>
<tr>
<td>It will be impossible to use the Internet without expert help</td>
<td>Davis 1993</td>
</tr>
</tbody>
</table>

Table 3.2 Perceived ease of use items

### Behavioural Intention

<table>
<thead>
<tr>
<th>Statement</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>I always try to use the Internet to do a task whenever it has a feature to help me perform it</td>
<td>Chau 1996</td>
</tr>
<tr>
<td>I always try to use the Internet in as many cases/occasions as possible</td>
<td>Chau 1996</td>
</tr>
<tr>
<td>I intend to increase my use of the Internet in the future</td>
<td>Agarwal &amp; Prasad 1999</td>
</tr>
<tr>
<td>I will use the Internet on a regular basis in the future</td>
<td>Moon &amp; Kim 2001</td>
</tr>
<tr>
<td>I will frequently use the Internet in the future</td>
<td>Moon &amp; Kim 2001</td>
</tr>
<tr>
<td>I strongly recommend others to use the Internet</td>
<td>Moon &amp; Kim 2001</td>
</tr>
</tbody>
</table>

Table 3.3 Behavioural intention items
3.4.1.5 Amended TAM section: subjective norm

Subjective norm was defined as a “person's perception that most people who are important to him think he should or should not perform the behaviour in question” (Fishbein & Ajzen 1975, p.302 in Venkatesh & Davis 2000, p.187) and was originally explored in the TPB but excluded from the TAM by Davis et al (1989). They found subjective norm had no significant effect on intentions over and above perceived usefulness and ease of use. However, in 2000 Venkatesh and Davis considered an extension of TAM, named TAM2, which concentrated on the antecedents of perceived usefulness including concepts of social influence such as subjective norm, voluntariness and image and the authors argued that subjective norm could affect intention to use, perceived usefulness and image (Venkatesh & Davis 2000).

Subjective norm has been found to exert a greater influence on women than men and individuals in the early stages of technology adoption (Venkatesh & Morris 2000). Women dominate the public library profession and the survey was undertaken at a time when use of the Internet was new to some staff. Subsequently, the two statements were inserted in the amended TAM section after behavioural intention and before attitudes to allow for further investigation of their influence (Table 3.4).

<table>
<thead>
<tr>
<th>Subjective Norm</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>People who influence my behaviour at work think that I should use the Internet</td>
<td>Venkatesh &amp; Morris 2000</td>
</tr>
<tr>
<td>People who are important to me at work think that I should use the Internet</td>
<td>Venkatesh &amp; Morris 2000</td>
</tr>
</tbody>
</table>

Table 3.4 Subjective norm items

3.4.1.6 Amended TAM section: attitudes

In the final TAM, Davis removed the attitude construct based on the reasoning that the effect of perceived usefulness on intention was only partially mediated by attitude towards using the system in question (Davis & Venkatesh 1996). Other research, however, has included attitude. Lederer et al (2000) conducted research into use of the WWW and noted that a large number of studies included attitudes and found that it has an effect on behavioural intention, for example, Davis (1989),
Taylor and Todd (1995a), Mathieson (1991) and Morris and Dillon (1997). A section on attitudes was included in the questionnaire (Table 3.5). The five-attitudinal statements differed from the remainder of the TAM with the use of a semantic differential scale for scoring. This scale, developed by Osgood (Osgood et al. 1957) was a development of the Likert scale and considers the meanings individuals give to words. Three of the statements were affective responses to use of the Internet while two were perceptions of its need in the public library.

<table>
<thead>
<tr>
<th>Attitudes</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative/Positive</td>
<td>Igbaria 1993, Teo et al 1999</td>
</tr>
<tr>
<td>Unpleasant/Pleasant</td>
<td>Igbaria 1993, Al-Gahtani &amp; King 1999</td>
</tr>
<tr>
<td>Unenjoyable/Enjoyable</td>
<td>Igbaria 1993, Al-Gahtani &amp; King 1999,</td>
</tr>
<tr>
<td></td>
<td>Teo et al 1999</td>
</tr>
<tr>
<td>Unnecessary/Necessary</td>
<td>Wolski &amp; Jackson 1999</td>
</tr>
<tr>
<td>Optional/Required</td>
<td>Wolski &amp; Jackson 1999</td>
</tr>
</tbody>
</table>

Table 3.5 Attitude items

3.4.1.7 Training/Assistance/Support section

The training section (pages 6-7) was entitled, Training/Assistance/Support to encourage respondents to think of the less formal methods of help for the Internet they had received.

Research by Al-Gahtani and King (1999) using the TAM included a section on training. Respondents were asked to assess nine items and indicate the extent to which these had contributed to an increase in knowledge. Scoring of the methods was on a five-point Likert scale from 1, none to 5, extremely extensive. In the likelihood that respondents to this questionnaire had received more than one method of training for the Internet, this seemed a useful approach to adopt. The questionnaire asked staff to consider how useful each method was in gaining the skills required to use the Internet. This was also based on recommendations by Campanelli and Channell (1994) that a useful way of researching training involves asking individuals how they acquired the skills they needed for work. To ascertain what type of training staff had received for the Internet, one column asked respondents to insert a tick if they had received it. This would be more time efficient than asking respondents to state yes or no in relation to each method. To
record staff opinions of the training an additional column asked staff to rate the usefulness of the training from 1, poor to 5, excellent. To minimise confusion a brief description of each type of training was included in the questionnaire; for example, on-the-job training was described as ‘another member of staff explained features as part of work day’ (see Appendix I).

3.4.1.7.1 On-the-job, Induction and Cascade

Based on the literature review and personal experience in the public library workplace as library assistant, similar types of training were grouped together. The first three types of training were informal methods traditionally used in libraries, on-the-job, induction and cascade training.

On-the-job training was defined as “Training undertaken at the place of work while the employee is simultaneously contributing to the employee’s business. Typically it involves verbal instruction regarding equipment, procedures and working methods” (Bennett in Goulding & Kerslake 1996, p.82).

Cascade training involves training perhaps one or a few members of staff who then pass their knowledge onto colleagues. Jones et al noted in their study of training that it was wholeheartedly adopted by some library authorities (Jones et al 1999). Cascade methods were used by some authorities in receipt of the DCMS/Wolfson funds to expand ICT facilities in English public libraries to train staff how to use ICT (DCMS 2000a). The term ‘trickle down’ was also used here based on Daniels’ account of training non-professional college staff in the UK (Daniels 1995).

Induction training is the training offered to an individual when new to a job or organisation, in a library context this might involve health and safety procedures, for example, or how to use the library management system.

3.4.1.7.2 In-house and External

Williamson cited both external and internal courses as types of training in the library environment (Williamson 1993). In-house training “often takes the form of non-accredited courses, organised and tailored by the library and information service or its parent organisation to meet their particular needs; they may be run by internal or external trainers” (Goulding & Kerslake 1996, p.84). The questionnaire included in-house training undertaken both on and off site run by internal providers whereas external training refers to a course delivered off site with an external provider.
3.4.1.7.3 Mentoring/Coaching
Mentoring and coaching are methods often utilised as a staff development tool in libraries (Nankivell & Shoolbred 1996) where a senior member of staff assists a junior member of staff in their career plans and progress. The Learning Line programme included access to a tutor for online support, which might also be considered coaching and *Building the New Library Network* noted that mentors and tutors should be used for staff development (LIC 1998).

3.4.1.7.4 Newsletters
From personal experience, newsletters detailing recent ICT initiatives and staff training were made available to staff in Nottingham City Libraries. Morris and Dyer noted the value of written communications, for instance, bulletins, as means of effective communication between management and staff (Morris & Dyer 1998).

3.4.1.7.5 Reading
The use of manuals for staff use was specified in a DCMS report evaluating use of funds for ICT infrastructure (DCMS 2000a) and Sykes' review of automation in an academic library (1991, see also Quinn 1995). In addition, Williamson included guided reading in his list of types of training in the library environment (Williamson 1993).

3.4.1.7.6 Meetings and Seminars
Staff might acquire knowledge about use of the Internet from attendance at general staff meetings within the library workplace. Similarly, planning meetings might be used to introduce new ICT (Quinn 1995). Staff might also attend meetings for continuing professional development on ICT issues, such as those provided by CILIP. The Learning Line programme included staff seminars where an outline of the course was provided.

3.4.1.7.7 Support
Support is not training but might constitute part of the organisational culture of a library. A report by BECTa found that the two most popular methods of staff training were a combination of a short course with online support in the workplace and in-house courses (LIC 1998). In light of this and the tutor support offered in the Learning Line programme, support included both personal and online methods from either managers or colleagues in emails or discussions. The latter were also mentioned by Williamson as a potential training method (Williamson 1993).
3.4.1.7.8 Self-study

A section on self-study or self-learning (Williamson 1993) or self-education (Biddiscombe 1997) was included in the questionnaire. *New Library: the People’s Network* (LIC 1997) expected staff to engage in self-directed learning which though new to some was already part of the then Library Association’s Continuous Professional Development framework for qualified staff and included activities such as reading, attending meetings and open learning (Jones et al 1999).

Self-study might include learning, training or practising in time before the library opened in the morning, during a quiet period, time off the counter or in ‘work protected time’ allocated by managers in staff timetables for learning/training. Learning how to use the Internet before the library opened to the public was a method known from personal experience. Sharpe also noted that some library authorities adjusted opening hours to allow a regular NOF training session (Sharpe 2001b). Learning in spare time was an approach mentioned in the study by Jones et al (Jones et al 1999) and public libraries in Bradford, according to the DCMS, designated machines in some libraries for staff to ‘surf’ (DCMS 2000a). Similarly, the People’s Network website notes in its section on best practice that “building in practice time at work for staff to apply new and evolving skills” was a useful approach to meet the NOF ICT Expected Outcomes (The People’s Network 2003).

Other methods of self-study used by library authorities detailed in the DCMS report included tutorials, instruction packs and machines for staff to use (DCMS 2000a). The section therefore included learning in spare time/time off the desk using notes provided by the library, books and tutorial packages such as Web Wise.

Attending a course at one’s own cost was also included in this section. This was a form of external training but with the distinction that individuals paid for it themselves and attended classes outside working hours. Campanelli and Channell (1994) discovered that most people’s understanding of training did not usually include self-initiated or funded learning. In light of comments from *New Library: the People’s Network* (LIC 1997) in relation to staff engaging in their own learning, it was significant to gauge how many staff pursued training and learning at their own cost away from the workplace.

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3.4.1.8 Back Cover

The final page of the questionnaire (page 8) asked interested respondents to consider participation in an online focus group. Respondents were able to write their email address if they required further information. Finally, over half a side of A4 with lines was set aside and staff were invited to comment on either the questionnaire itself or its content. Respondents were thanked again and directed to return the questionnaire using the pre-printed envelope.

3.4.2 Pilot

The objective of the pilot was to produce a questionnaire that public library staff would find relevant and easy to complete to encourage participation. The pilot questionnaire consisted of eight pages printed double-sided on four sheets of white A4 paper. Although initial plans had aimed for fewer pages, the questionnaire had lots of white space and according to Litwin, a shorter cramped questionnaire is not necessarily the better option, “If respondents have trouble reading the words on the page, they will not have much energy left to think about the meaning of the questions” (1995, p.62). The front page of the questionnaire asked staff to note how long it took to complete and to state this, while the final page of the questionnaire asked staff to write down any problems they encountered when completing the questionnaire.

Bell noted that it is better to pilot the questionnaire on the same type of population as those in the main study (1987) and the manager of a local central library agreed to participate and lent the cooperation of staff. The pilot questionnaire was delivered on Friday 1st March with a closing date of March 18th 2002; a completion date was suggested in an attempt to encourage responses. Sixty copies of the pilot were printed for distribution and the manager was supplied with the appropriate amount of pre paid envelopes to encourage completed staff returns. Twenty-six completed questionnaires were received representing a response rate of 43.3% and the data was analysed using SPSS.

Following the pilot stage, a number of amendments were made to the questionnaire in order to improve its overall appearance and relevance to public library staff. A small number of respondents had written remarks next to the TAM section (pages 4 and 5) to qualify their ratings and one respondent suggested leaving some room to make comments. A small lined section inviting respondents to add comments was
subsequently added beneath the perceived usefulness and perceived ease of use sections (page 4).

In relation to questions used to collect information about staff post and place of work, seven respondents had indicated that they were senior library assistants in response to question 4; current post (page 2). The post of Senior Library Assistant was added as a potential response to question 4. In addition, there was some confusion over place of work (question 7) and the choices in this section were simplified from five to four types of library and other.

A number of respondents had noted that they demonstrated the Internet to library users rather than using it themselves. The manager of the library participating in the pilot confirmed this usage. A question asking respondents to indicate which phrase best described their feelings about helping the public use the Internet was included in the final questionnaire (question 11, page 3). This question included responses on a five-point Likert type scale ranging from 1, very negative to 5, very positive.

The order of the Likert scale in the TAM and training sections was altered after consultation with another member of academic staff. It was noted that individuals find a scale that starts at 1 to 5 reading left to right easier to follow than if it runs 5 to 1, left to right. It was also more apparent that the higher the score the greater the level of agreement.

It was felt, based on a reading of the literature and the response to the pilot questionnaire, that use of a completion date was not crucial in order to achieve a high response rate. Furthermore, a return date would have to be written by hand on each questionnaire and might actually hinder responses if the delivery of the parcel to the authority was subject to any delay. The decision not to include a return date might be responsible for the high level of responses although the time taken to complete the questionnaire might also have contributed to this as it was calculated from the pilot survey that the average time taken to complete the questionnaire was ten minutes.

---

5 "While a deadline will usually reduce the time from the mailing until the returns being arriving, it appears that it does not increase response, and may even reduce response" (StatPac Survey Software 2003, no page number).
3.4.2.1 Reliability of the pilot survey

The reliability of the pilot instrument was calculated using Cronbach’s coefficient alpha available from SPSS. The perceived usefulness scale had good internal consistency with a Cronbach alpha coefficient of 0.92. The perceived ease of use scale has internal consistency of 0.66, which is under the recommended level for reliability of 0.7 but only by a small degree (Pallant 2001). The removal of items that would increase the alpha included three possible statements that add to the study, such as the mental effort required to use the Internet and help required using the Internet and it was decided to keep all the items and to consider reliability of the scale in the final analysis. Both the behavioural intention and subjective norm scale had good internal consistency with Cronbach alpha coefficients of 0.79 and 0.94, respectively. The attitude scale also had good internal consistency with a Cronbach alpha coefficient of 0.89. Unfortunately, the small number of respondents to the pilot meant that factor analysis could not be performed.

3.4.3 Survey

Following pilot analysis and amendments a number of potential authorities based on size and type of authority were identified representative of the various types of authorities that exist in England - unitary, metropolitan, county and London boroughs of small, medium and large size.

Between the months of April and July 2002, 26 authorities were contacted by means of letter, telephone and email although the research was also publicized in an issue of the UKOLUG Newsletter Online (and print) volume 13 (3) which elicited the involvement of two additional authorities. A total of 14 public library authorities became involved in the research (see Table 3.6). This figure included eight authorities permitting all of their staff to be surveyed and six who allowed a proportion of staff to be involved.

A total of 1870 questionnaires were distributed to the relevant authorities from June to September 2002. For most authorities, distribution involved sending a parcel of questionnaires and accompanying pre-printed postage paid addressed envelopes to the individual agreeing to distribute to staff within the authority. Three authorities requested that the required numbers of questionnaires be sent to individual libraries within the authority complete with a covering letter (see Appendix II). By November 2002, 964 completed questionnaires were received which represented a
final response rate of 51.6%.

Anonymity and confidentiality were promised to those involved in the study and participants were informed that their authority would be referred to as *a large metropolitan authority*, for example, in any publications. Respondents who recorded their email address on the back page of the questionnaire for details of online focus groups were not anonymous but their anonymity in the actual study and other publications remained.

In subsequent chapters, staff quotes from the survey are referred to by *post, gender, type of post, type of library, authority code: survey comments*, for example, library manager, female, full time permanent, branch, Authority I: survey comments.
Quotes appear as written by respondents in the questionnaires.

The characteristics of authorities involved in the survey are as follows:
<table>
<thead>
<tr>
<th>Coding</th>
<th>Authority Characteristics</th>
<th>Involvement</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Small unitary council in the East Midlands</td>
<td>All staff</td>
<td>52.9%</td>
</tr>
<tr>
<td>B</td>
<td>West Midlands County Council library service with almost 200 library staff</td>
<td>Proportion of staff (100)</td>
<td>58%</td>
</tr>
<tr>
<td>C</td>
<td>Large West Midlands Metropolitan council with more than 30 libraries</td>
<td>All staff</td>
<td>52%</td>
</tr>
<tr>
<td>D</td>
<td>Unitary authority in the South East of England, with more than 15 libraries and over 100 library staff</td>
<td>Proportion of staff (30)</td>
<td>76.6%</td>
</tr>
<tr>
<td>E</td>
<td>Large unitary authority also in the Yorkshire and Humberside region with over 20 libraries</td>
<td>All staff</td>
<td>39.5%</td>
</tr>
<tr>
<td>F</td>
<td>Yorkshire and Humberside unitary council with over ten libraries</td>
<td>All staff</td>
<td>35%</td>
</tr>
<tr>
<td>G</td>
<td>London Borough authority that employs over 150 staff in over 15 libraries</td>
<td>All staff</td>
<td>42.5%</td>
</tr>
<tr>
<td>H</td>
<td>Metropolitan authority in the South West with more than 100 staff</td>
<td>All staff</td>
<td>56%</td>
</tr>
<tr>
<td>I</td>
<td>English Unitary Council in the East Midlands with more than ten libraries</td>
<td>All staff</td>
<td>50.6%</td>
</tr>
<tr>
<td>J</td>
<td>County Council library service in the East of England with more than 50 libraries</td>
<td>Proportion of staff (50)</td>
<td>70%</td>
</tr>
<tr>
<td>K</td>
<td>Unitary authority in the East with ten libraries</td>
<td>All staff</td>
<td>43.9%</td>
</tr>
<tr>
<td>L</td>
<td>West Midlands County Council that has over 20 libraries</td>
<td>Proportion of staff (30)</td>
<td>86.7%</td>
</tr>
<tr>
<td>M</td>
<td>London Borough authority with ten libraries</td>
<td>Proportion of staff (30)</td>
<td>83.3%</td>
</tr>
<tr>
<td>N</td>
<td>County Council situated in the South West of England with over 30 libraries</td>
<td>Proportion of staff (25)</td>
<td>76%</td>
</tr>
</tbody>
</table>

Table 3.6 Types of public library authority participating in the survey including responses

### 3.4.4 Interviews and focus groups

Interviews with managers in the authorities responsible for training and/or ICT and focus groups consisting of public library staff were undertaken to supplement the data generated by the survey. Eight managers agreed to be interviewed but only two public library authorities were able to assist with focus groups. At the time of this second stage of the research public libraries were busier than ever organising the installation of the People’s Network by the end of 2002 and managing the NOF ICT...
training. In addition, a number of authorities indicated that they were carrying out a Best Value exercise or restructuring. It was noted that there could be problems in organising focus groups, "Organising focus group interviews usually requires more planning than other types of interviewing as getting people to group gatherings can be difficult and setting up appropriate venues with adequate recording facilities requires a lot of time" (Gibbs 1997, no page number). It was worth asking managers, however, in the hope that a focus group could be used to inform any decision-making or evaluation processes they themselves were undertaking. To solicit involvement repeated follow-ups were made by letter, email and telephone.

An interview schedule was sent via email to each manager before the interview to enable the manager to prepare and ensure detailed responses to the questions (see Appendix IV for sample schedule of questions). Permission was also requested for the researcher to tape record the interview for transcription purposes and it was anticipated that each interview would last less than an hour.

Managers interviewed in the study were representative of those involved in the survey including four managers from unitary authorities (small to large), two metropolitan authorities (medium and large), one London borough (medium) and one county authority (large) (Table 3.7). In subsequent chapters, quotations from interviews with managers are referred to as Manager statistical authority code: management interviews.

<table>
<thead>
<tr>
<th>Coding</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Small unitary council in the East Midlands</td>
</tr>
<tr>
<td>B</td>
<td>West Midlands County Council library service with almost 200 library staff</td>
</tr>
<tr>
<td>C</td>
<td>Large West Midlands Metropolitan council with more than 500 staff</td>
</tr>
<tr>
<td>D</td>
<td>Unitary authority in the South East of England, with more than 15 libraries and over 100 library staff</td>
</tr>
<tr>
<td>E</td>
<td>Large unitary authority in the Yorkshire and Humberside region with over 20 libraries</td>
</tr>
<tr>
<td>F</td>
<td>Yorkshire and Humberside unitary council with over ten libraries</td>
</tr>
<tr>
<td>G</td>
<td>London borough authority that employs over 150 staff in over 15 libraries</td>
</tr>
<tr>
<td>H</td>
<td>Metropolitan authority in the South West with more than 100 staff</td>
</tr>
</tbody>
</table>

Table 3.7 Authorities involved in management interviews
Interviews with managers responsible for ICT and/or training in the authority lasted between 45 and 70 minutes. Following each interview the researcher transcribed the tape recordings. The use of interviews enabled deeper exploration of the issues such as attitudes and confidence and the managers explained the ICT training undertaken in some detail, which helped shed light on some staff evaluations of the training.

From the questionnaire responses, it appeared that some staff were not happy about the help they were expected to give the public in their use of the Internet and this issue was explored in focus groups with staff. In addition, a question on training was appropriate as this was very much in the minds of staff at present and it was hoped to further probe opinions of the training they had received, which for many staff was solely that provided by the New Opportunities Fund.

Authorities participating in the focus group stage of the research included one large unitary authority and one London borough authority (Table 3.8). In addition, one unitary authority permitted brief interviews with a range of front line and senior staff. Questions were based on similar lines to those used in the focus groups (see Appendix V). In subsequent chapters, quotations from focus groups are referred to by post, gender, type of post, type of library, authority code: focus groups, for example, Senior library assistant, female, full time permanent, branch, Authority G: focus groups.

<table>
<thead>
<tr>
<th>Coding</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Large unitary authority in the Yorkshire and Humberside region with over 20 libraries</td>
</tr>
<tr>
<td>G</td>
<td>London borough authority that employs over 150 staff in over 15 libraries</td>
</tr>
</tbody>
</table>

Table 3.8 Authorities involved in focus groups

All interview and focus groups transcripts were sent to managers and participants for verification and all were invited to respond if there were any points that had been misunderstood. Only one manager responded with a correction, which was of a grammatical nature.

3.4.5 Online bulletin board
Survey respondents were asked on the final page of the questionnaire to enter their email address if they were interested in participating in an online focus group or
required further information. During the research stage of the interviews and focus groups, the researcher prepared for this exercise. Some staff had indicated on the questionnaire that they would not have the opportunity to participate because of time constraints. Furthermore, use of MSN Chat required downloading and registration for the software and for staff using a PC at work this might prove difficult. An online bulletin board was an alternative approach suggested by Gaiser (1997), which permits users to contribute when it is convenient and participants are merely required to register with the host.

The researcher located a suitable host, ezboard, who provided a free bulletin board that was private with admission by invitation only. This was in line with the spirit of confidentiality promised in the survey and would, it was hoped, encourage staff to be open about their views. Seventy emails were sent inviting staff to join and participate in the bulletin board. This was achieved by adjusting an invitation email produced by ezboard (see Appendix VI). On joining the board, users were directed to read a message from the moderator detailing the aims of the board and issues of netiquette. The moderator posted a number of training and attitude questions to stimulate discussion in line with the rest of the research based on the recommendations of Chase and Alvarez who noted “It is as important to use a well-constructed guide in the online environment. The guide should contain the clearly defined objectives and a set of three to five open-ended questions” (Chase & Alvarez 2000, p.364).

Unfortunately, 14 emails were returned undelivered due to errors with addresses and defunct accounts. Nine days later, a second invitation was sent to 57 staff informing them that the bulletin board would expire in 12 days to encourage further participation. At the close of the account, eight staff joined the forum and six messages were posted. In subsequent chapters comments from the online bulletin board will be referred to as follows: post, library, authority coding (if known): bulletin board comments, for example, Library assistant, branch: bulletin board comments.

3.5 Data analysis

3.5.1 Data input and recording

Quantitative data from the survey was entered into SPSS from June to November 2002. Qualitative comments made by respondents on the questionnaires were
recorded separately using the same identification number found on the
questionnaire with comments from the bulletin board and mini interviews with staff.
Interviews with managers and focus groups were recorded and transcribed.

3.5.2 Cleaning and screening of the data

According to Pallant, it is important to screen and clean data before analysis to
ensure errors do not affect calculations (2001). Screening and cleaning the
questionnaire data involved a three-step process of checking for errors using either
the frequencies or descriptive statistics options in SPSS, where minimum and
maximum answers were displayed. Answers that were out of range were located
and then corrected by referring back to the original paper questionnaire.

3.5.3 Data analysis methods

3.5.3.1 Quantitative

Preliminary data analysis included the production of descriptive statistics to
describe the characteristics of the respondents in this study. Descriptive statistics
can include use of the mean, median and mode and when analysing ordinal data the
median is the most fitting value whilst the mode is appropriate for use with nominal
data. The median “is the point between the lower and upper halves of the
distribution” (Phillips 2000, p.29) appropriate because ordinal data creates order
amongst the categories. In contrast, the mode is “simply the point with the greatest
frequency” (Phillips 2000, p.31) and was used for the nominal data, which has no
underlying order among the categories, generated by the questions on gender,
current post, type of post and place of work, other training, accreditation and
monitoring.

Appropriate statistical analysis techniques to explore relationships among variables
include correlation and factor analysis. In this study the majority of variables
analysed with SPSS were ordinal thus when calculating the correlation co-efficient,
Gamma (Γ) was used. Gamma is an appropriate measure of a relationship between
variables as the small number of rankings (in most instances from one to five), can
influence the results found for Spearman's Rho, “The Gamma statistic is preferable
to Spearman Rho or Kendall Tau when the data contain many tied observations”
(The Statistics Homepage 2003, no page number). The strength of Γ can be
understood where 0.2 - 0.3 indicates a moderate relationship, 0.4 - 0.5 a strong
relationship and 0.5 - 0.6 and higher suggest a very strong relationship (Weil 2003).
Based on these criteria, \( r \) values less than 0.4 are omitted from the results chapters.

For relationships that include a nominal variable, for example, current post, nature of post, place of work and gender, the chi square statistic was an appropriate test of association. In terms of significance, probability values of 0.05 or smaller are reported.

Statistical techniques to compare groups including the Mann-Whitney U test and one-way analysis of variance (ANOVA) were suitable examinations. The Mann-Whitney U test compares median values on two variables of interest, for example, whether men and women differ in their evaluations of training and is the appropriate test for non-parametric data - data based on ordinal variables. Analysis of variance tests for significant differences between means of multiple groups and assesses whether there are overall significant differences between the groups being compared. One-way analysis of variance is appropriate for use with two or more groups such as the five ratings for training and one continuous variable, for example, the factor scores calculated during factor analysis. Employment of factor analysis to reduce the amended TAM to continuous variables permitted the use of parametric tests such as one-way analysis of variance, which would not normally be used with ordinal data. Factor analysis is an appropriate method of data reduction which takes a large set of variables, in this study, the five sections of the amended TAM and reduces the data to a smaller set of components or factors for further statistical analysis (Cohen 2001), “The main applications of factor analytic techniques are: (1) to reduce the number of variables and (2) to detect structure in the relationships between variables, that is to classify variables” (The Statistics Homepage 2003, no page number).

Post hoc tests such as Tukey’s HSD test identify which particular combination of groups show significant differences. The effect size or strength of association “indicates the relative magnitude of the differences between means” (Pallant 2001, p.175) and can be illustrated with eta squared (\( \eta^2 \)). Eta squared “represents the proportion of variance of the dependent variable that is explained by the independent variable” (Pallant 2001, p.175). For example in relation to attitudes and training (see Chapter 5), \( \eta^2 \) represents the variance in the factor scores (usefulness, ease of use, intention and subjective norm) explained by the training ratings. According to Cohen (1998, in Pallant 2001), 0.01 = a small effect, 0.06 = a moderate effect whilst 0.14 = a large effect.
Correlations between the five TAM total scale scores were also considered. Total scores were achieved by reversing negatively worded items including a number of statements relating to ease of use and instructing SPSS to add together scores from all the items which made up the subscales, usefulness, ease of use, intention, subjective norm and attitudes. Relationships between the five scales could then be considered using Pearson’s correlation coefficient which provides, “a numerical summary of the direction and the strength of the linear relationship between two variables” ranging from \(-1\) to \(+1\) (Pallant 2001, p.110). Pearson’s is a suitable measure since the total scale scores are continuous variables despite the fact that they were derived from ordinal data.

The following table summarises the relevant statistical tests used in terms of the purpose of the analysis (Table 3.9):

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Appropriate test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploring relationships</td>
<td>Correlation</td>
</tr>
<tr>
<td></td>
<td>Chi-square</td>
</tr>
<tr>
<td></td>
<td>Factor analysis</td>
</tr>
<tr>
<td>Comparing groups</td>
<td>Mann-Whitney U Test</td>
</tr>
<tr>
<td></td>
<td>One-way analysis of variance</td>
</tr>
</tbody>
</table>

Table 3.9 Appropriate statistical tests used in the study

3.5.3.2 Qualitative

All qualitative analysis was undertaken manually, a decision based on the small number of interviews and focus groups, which had taken place. As the quantitative analysis was carried out using computer software it would be of benefit to carry out the qualitative analysis manually to give an “intimate familiarity with the data” (Moore 2000, p.149).

The eight management interviews were subject to content analysis. The procedure used was a mixture of that prescribed by Gillham (2000) and Krueger (1998) and involved careful reading of the interview transcripts, highlighting key statements followed by the creation of suitable categories for the responses to each question. The transcripts and statements were re-read several times until they were placed in categories deemed suitable and descriptions of these points were then written. This
process was also followed for analysis of the comments made by respondents in the survey, comments from the bulletin board and brief interviews with staff.

Data from the two focus groups were analysed and similarities and differences between the groups explored. Transcript-based analysis as described by Krueger (1998) was undertaken which involved transcribing the audiotapes of the two groups and analysing the tapes along with notes made during and after the discussions. Participants in the focus groups had also completed a one-page questionnaire requesting details of a demographic and organisational nature such as age, library worked in and post to provide some context to the comments made. To ensure that qualitative analysis was verifiable a number of steps were followed based on Krueger’s recommendations (Krueger 1998). Firstly, the focus group questions were sequenced to lead in to the key questions to give the group time to familiarise themselves with the situation. Secondly, the data were recorded and notes taken by the moderator. Thirdly, the data were coded with codes placed in the margins of the transcripts for later retrieval and grouping. The fourth step involved participants verifying what was said; at the end of the focus group, the researcher summarised the key points raised and participants were asked to confirm them. In addition, all participants were sent a paper copy of the transcript and encouraged to contact the researcher if there were any errors. Fifth, immediately after the interviews, the moderator recorded notes about the meeting including the atmosphere and the main points raised by the group. Finally, Krueger suggested sharing the reports with participants and stakeholders. Only one of the two groups asked for a report rather than just a transcription, this was sent to the manager who used it to consult with other management and respond to staff concerns.

3.5.4 Reliability and validity

3.5.4.1 Reliability

The reliability of the amended TAM scale was ascertained by measuring internal consistency – a method appropriate for scales with Likert type answers. This is an indicator as to how well the different items in a scale measure the same issue. Internal consistency is gauged using Cronbach’s coefficient alpha where “high correlations between alternative measures or large Cronbach alphas are usually signs that the measures are reliable” (Straub 1989, p.151). Litwin noted that even if using an existing survey instrument that has been tested for reliability it is important to test for internal consistency if it is used with a group of subjects not previously
investigated in studies (1995).

3.5.4.2 Validity

Although the TAM is a well-used and previously validated instrument, Straub (1989) warned against relying on this for validity. In this study, selected items making up the amended TAM model were drawn from previously used studies and Straub argued that "the more the format, order, wording, and procedural setting of the original instrument is changed, the greater the likelihood that the derived instrument will lack validated qualities of the original instrument" (1989, p.153). He suggested the measurement of the construct validity of the TAM using techniques such as confirmatory or principal components analysis. Factor analysis helps to confirm that a set of measures reflect latent constructs, in this study, usefulness, ease of use, intention, attitude and subjective norm.

3.5.5 Response rate

Moore advised those undertaking research in library and information science to aim for a response rate of 60% or above and to treat with caution response rates between 50 and 60% (2000). As Denscombe explained, "The main problem with a high non-response rate is that the researcher has no way of knowing whether those who did not respond were in some way different from those who did respond" (Denscombe 1998, p.20). One must consider whether non-response rate is a result of not making contact with certain individuals or because non-respondents refused to participate. Denscombe also suggested that in the case of a large-scale postal survey "it will not be uncommon to get a response rate as low as 15 per cent" (1998, p.21).

Consideration of similar research was a useful indicator as to the appropriateness of the response rate. Flatley's survey of rural librarians in the US had a response rate of 53% - of 655 questionnaires mailed, 345 were returned (2001) whilst Pors' survey of Internet filtering in Denmark had a high response rate of 83% although this might be explained by the length of the survey, which consisted of just one page (2001). Rosenthal and Spiegelman's study (1996) of Internet use amongst academic reference librarians in the US had a response rate of 29% while Janes' survey of public and academic reference librarians in the USA had a response rate of 41.86%; of 1548 forms sent out, 648 were received. In the latter example, the author noted that asking a member of staff to distribute questionnaires could be problematic as "it is possible that some heads of reference ignored the survey, chose
not to distribute them, distributed them only to certain members of their staff, actively or passively discouraged (or encouraged) people to respond” (Janes 2002, p.552).

The survey utilised in this study was returned with a response rate of 51.6% whilst this falls beneath Moore’s stipulation of 60% in light of the response rates of similar studies this would appear to be a satisfactory result. Admittedly staff with negative attitudes might have felt unwilling to complete an attitudinal survey but the substantial number of questionnaires returned in which respondents revealed their negativity and dislike of the Internet and ICT suggests that some staff did use the questionnaire as an opportunity to air their grievances.

3.6 Summary
Use of quantitative and qualitative research methods resulted in data suitable for use in the consideration of the study’s aims and objectives. Specifically:

- More than 900 completed questionnaires were received for analysis including over 50 full pages of qualitative comments;
- Eight interviews were undertaken with management figures responsible for ICT and/or training;
- Two focus groups with a cross-section of public library staff were held;
- Twelve brief interviews with staff in one authority were carried out;
- Comments were generated from an online bulletin board.

3.7 Conclusion
This chapter has deliberated upon the appropriate research strategies required to fulfil the aims and objectives set out in Chapter 1. A mixture of quantitative and qualitative strategies was deemed best to ascertain the attitudes of public library staff to the Internet and record opinions of training and provide some form of validity and reliability.
CHAPTER 4 RESULTS: ATTITUDES

4.1 Introduction
The aim of this chapter is to present an overview of the results of the Public Library Staff: Attitudes to ICT and ICT Training survey (see Appendix I), supplemented by interviews with public library managers, comments from focus groups and online bulletin boards with staff and qualitative comments from the questionnaires in relation to attitudes to ICT and the Internet. Training results are detailed and considered in Chapter 5.

Section 4.2 provides an overview of the characteristics of the survey respondents including demographic details such as gender and age, educational attainment, place of work, nature of post and length of time in public library service. This is followed in Section 4.3 with details of respondents' use of ICT including self-ratings of proficiency with computers; frequency of use of the Internet and attitudes towards the Internet based on responses to the amended version of the TAM statements.

In Sections 4.4 and 4.5, the factor analysis process is described and the results of statistical tests to explore relationships and differences between organisational and demographic variables with attitudes are considered. The reliability of the scales used in the TAM is also shown. Finally, a summary is provided of the main findings of the Chapter (Section 4.6) and the conclusion will highlight the main research results (Section 4.7).

4.2 Overview of respondents
The survey was completed by 964 respondents from a potential 1870 resulting in a response rate of 51.6%. The median value for the data in the survey derived from ordinal scales (characteristics that have an underlying order among them) is illustrated while the mode is shown for three of the four nominal measures (current post, nature of post and place of work).

4.2.1 Gender and age
Survey respondents included 795 females (82.6%) and 168 males (17.4%). The median age was between 45 and 54 years old (36.8%) (fig. 4.1).
4.2.2 Education

Respondents were asked to indicate the highest level of education they had completed. The median qualification completed was an undergraduate qualification attained by 25.2% of respondents (fig. 4.2). In total, 41.9% of respondents had attended university; including 16.7% in receipt of a postgraduate qualification. Professional qualifications from CILIP were noted by 4.1% of respondents.
4.2.3 Post

The modal post was that of library assistant held by 38.4% of respondents (fig. 4.3). Other significant sized groups included librarians (25.2%), senior library assistants (SLAs), including supervisors and branch administrators (19%) and managers (5.9%).

Figure 4.3 Respondents’ current library post
Exactly half of respondents worked on a full time permanent basis (50%) compared to 42.7% who were employed on a part time permanent contract. Fewer than seven per cent of respondents were employed purely on a temporary or casual basis (6.3% in total) (fig. 4.4). The modal type of post was full time permanent.

![Bar chart showing the nature of respondents' current post](chart.png)

**Figure 4.4 Nature of respondents’ current post**

### 4.2.4 Public library employment

The median length of time respondents were employed in public libraries was between 11 and 20 years (28.5%) (fig. 4.5). The smallest group of respondents had worked in public libraries for less than one year (7.8%).
4.2.5 Place of work

The majority of respondents worked in a branch library (53.3%) while over one third were employed in their authority’s central library (34.6%) (fig. 4.6). Less than five per cent of respondents worked in mobile libraries (3.3%) while a combined total of 8.7% worked in other libraries, which included the library headquarters, schools library service, housebound services, local studies and authority supply unit.
4.3 Attitudes towards ICT and the Internet

This section of the questionnaire aimed to discover how staff rated their skills at using computers generally. In relation to the Internet, they were asked to indicate how long they had been using it at work and the frequency of their usage. A further question asked staff to consider how they felt about helping the public use the Internet. This section helps to consider how attitudes to ICT and the Internet impact on current behaviour, future intention, assisting the public and the aspects of the Internet favoured by public library staff.

Attitudes towards use of the Internet at work were included in the amended TAM, an adapted five-section set of measurement scales, which also included perceived usefulness, perceived ease of use, behavioural intention and subjective norm.

4.3.1 ICT and the Internet; use, skills and helping the public

From a rating scale of poor through to excellent, the median self-rating of proficiency with computers was good (39.6%) whilst approximately one third felt that their proficiency was fair (30.4%) and a fifth judged it very good (20.1%) (fig. 4.7). At the extremes of the scale, 4.9% of staff felt their skill with computers was poor whereas five per cent of respondents judged their proficiency as excellent.
During interviews, three managers noted that staff had little or no prior ICT skills, which might have affected their reaction to the Internet in their workplace:

"We've got very low ICT skills within the [library] community so we started at a very low base" (Manager F: management interviews).

The median length of time staff had been using the Internet at work was longer than two years but less than three; 27% of respondents indicated this to be the case (fig. 4.8). Fourteen per cent of respondents had used the Internet at work for more than four years, the longest length of time stipulated in the questionnaire, whilst approximately ten per cent had used it for less than six months, the shortest period suggested. Forty-five staff indicated that this question did not apply to them because they did not have access to the Internet at work or were not required to use it (4.7%).
Figure 4.8 Length of time respondents had been using the Internet at work

The majority of respondents used the Internet on a daily basis (64.5%); this was the typical usage of the Internet at work (fig. 4.9). Using the Internet on a weekly basis was the frequency of almost one fifth of respondents (19.3%). Less frequent use was cited by 16.3% of respondents in total, including 5.2% who indicated that they never used the Internet at work and 7.8% who rarely used the Internet at work.

Figure 4.9 Frequency of respondents’ Internet use
Twenty-four staff indicated in the survey that they did not have access to the Internet at work, eight respondents worked on mobile libraries, while for 13 respondents, installation was due later that year (2002) in the branches. Some respondents intimated how they felt about that impending change and suggested that it would change their working day immensely:

"We don’t even have a catalogue to help us so once we are linked to the Internet our job should be made considerably easier enabling us to offer a much better service” (Library assistant, female, part time permanent, branch, Authority E: survey comments).

Some staff anticipated the computer’s arrival with excitement:

"We are still awaiting the installation of the People’s Network. I can’t wait! I’m sure it will change our work routine out of all recognition” (Senior library assistant, female, part time permanent, branch, Authority F: survey comments).

Thirty-four survey respondents rarely or never used the Internet at work. Those rarely using the Internet included five library assistants, three SLAs and one manager whilst those never using the Internet included two administrative workers, two senior library assistants/supervisors and 17 library assistants. This infrequent use related to the role the member of staff was required to undertake:

"I do not make use of the Internet at work. I only key in the screen saver code for others [members of the public] to use it” (Library assistant, female, part time permanent, central, Authority F: survey comments).

This was a source of frustration for some:

"I rarely use the Internet for work purposes other than looking for information on books. As a library assistant, most jobs are predictable, and using the Internet is rare and mainly used to find details of books. It seems like quite a narrow use of the Internet” (Library assistant, male, part time permanent, central, Authority K: survey comments).
The typical feeling in relation to helping the public use the Internet was *generally positive*, with the majority of those answering feeling that way (51.5%) (Fig. 4.10). Over one fifth of respondents, felt *equally negative and positive* (21.2%) whereas just less than a fifth felt *very positive* (19.3%). Those with negative feelings constituted less than ten per cent of respondents in total; 2.6% felt *very negative* and 5.4% were *generally negative* about this role at work. Thirty-seven staff indicated that they neither used the Internet at work nor helped the public and eight respondents did not answer this question possibly for the same reasons.

![Figure 4.10 Respondents' feelings about helping the public use the Internet](image)

According to the focus groups, mini-interviews and survey comments, respondents' feelings, particularly the more ambivalent and negative attitudes in relation to helping the public use the Internet, were related to the working order of equipment, the time involved in providing assistance and the wider implications of this role for jobs in the future, i.e. the demise of what some staff saw as traditional library roles such as book lending. The network available in the library could affect the assistance given by staff to the public in their use of the Internet and concerns expressed in the questionnaires included having to explain technical problems to the public and dealing with the subsequent frustration of customers:

"The Internet is not difficult to use in itself. However, often there seems to be problems with the server, or problems with the Internet, or problems with our
connection to the Internet. And at other times, the computer itself is not working properly. This can make the computer hard to use. This also can make the public trying to use the computer angry. They tend to blame staff and don't believe us when we say that it is a fault on the computer that our IT section will have to solve and not something we can rectify” (Branch administrator, male, full time permanent, branch, Authority G: survey comments).

Two managers were aware that hardware and technical issues in their authority might have shaped attitudes to ICT and the Internet in a detrimental way, as the following comment reveals:

“When things let you down and you’re in the middle of a complicated enquiry with a person who’s never been to the library before and the things break down, are switched off or frozen and they don’t feel yet confident enough to deal with that on the spot, or the response rate from the support staff isn’t immediate. When you’ve got somebody standing there, desperate to get their homework done by 5 o’clock, that sort of thing, then staff have to take that kind of pressure and they can blame it on computers very easily” (Manager C: management interviews).

More than 50 staff added qualitative comments to their returned questionnaires about assisting the public, suggesting perceived high expectations from the public in relation to the Internet which created pressure and additional demands on staff. Helping the public with ICT and the Internet was regarded as an additional task in an already busy day. Managers also appreciated that ICT was seen by staff as creating more work to perform. Manager H, for example, noted that the People’s Network had created another set of tasks for staff to perform and, at present, because of opening hours, this was in their own time. This was particularly problematic in one authority where library assistants had been downgraded prior to the introduction of the People’s Network and staff questioned why they should accept added responsibilities in light of this:

“Public who are not familiar with computers need a lot of help, which can be very time consuming. Whilst we are more than willing to help it is very difficult given our staffing levels” (Library supervisor, female, part time permanent, branch, Authority E: survey comments).
Though one manager appreciated staff concerns, they did not readily agree that the changes created more work:

"The fact that they already knew they were busy every day with things and suddenly we were asking people to do all of this, what they saw as extra, you had to convince them that it was only another way of doing what you'd always done, answer enquiries or helping people to find information and things like that. It was seen as an add-on in the beginning" (Manager D: management interviews).

Insufficient time appeared to be the greatest problem for staff when helping the public; participants in both focus groups alluded to this problem. Participants in Authority E noted that the public expected free tuition but this was not possible given staffing and time constraints although taster sessions were a useful opportunity to spend time assisting the public. Focus group participants from Authority G noted that the expectations of the public were high and time was spent dealing with bookings for the Internet, troubleshooting and guidance, but these extra responsibilities had not resulted in the employment of additional staff. Similarly, staff in Authority E discussed the fact that staff had to manage free printing and expressed concerns about the public accessing inappropriate material. A manager also observed this latter concern:

"One of the things that staff are very concerned with is if someone is in an unacceptable site then everybody else around them can see it and it's not easy for staff always to feel comfortable challenging these people which is what they actually have to do" (Manager F: management interviews).

Helping the public use ICT was regarded as an additional role, which some staff felt should result in better remuneration and it was the lack of the latter which had influenced some staff's attitudes to this role:

"I feel negative about using the Internet at work in the sense I am expected to advise/guide people who've never even used a computer and am paid significantly less than an adult education tutor, e.g. they would be paid approx £20 per hour for a 'internet for the terrified' course where they show a novice how to get online and set up an email account. I do this on a daily basis for £6 an hour" (Library assistant, female, full time permanent, branch, Authority E: survey comments).
Interestingly, one authority had decided that it was unfair to expect library staff to train library users and had employed a *learndirect* tutor for this purpose.

Negative feelings about public access to the Internet in the library were also related to the reality of public library change; the notion of what public libraries can and should provide is changing and this was upsetting for some staff. Similarly, some staff felt that the Internet was not being used as it was intended. Members of one focus group likened the Internet to a free telephone service and felt that email users were preventing other more deserving users from using the PCs. Annoyance was expressed that supposed legitimate users were prevented from using the Internet:

"I thought the People’s Network was supposed to be there for people to learn stuff and it’s all au pairs checking their emails, so people who do want to learn stuff and get on it, can’t” (Senior library assistant, full time, branch, Authority G: Focus groups).

Similarly, a number of survey respondents felt that the public library was becoming more like an amusement arcade:

"But the introduction of ICT for public use has been very poorly planned and implemented and has trivialised library staff rules to the extent that some feel we do nothing but pore over a booking diary all day long. The library service is in danger of becoming nothing more than a glorified Internet café” (Library assistant, male, full time permanent, central, Authority F: survey comments).

Conversely, more positive perceptions of helping the public use ICT were also found and some staff welcomed the wider accessibility of the Internet in public libraries. Staff in both focus groups were aware that some members of the public could not afford PCs at home and ICT raised the profile of the public library service to the wider community. This positive attitude appeared to be related to the satisfaction some staff experienced when library users made use of the Internet and the potential opportunities the People’s Network provided to the public:

"[The Internet is] a real plus for the library service because before it came in, it was all ‘Why have we got this? Why can’t we have more books?’ and you hear lots of that and it generally comes from the older people. Kids just say ‘great’. But once
it’s there and they’ll have a go at it and then they all want to use it again, and we’re really pleased” (Team leader, full time, branch, Authority E: focus groups).

4.3.1.1 Summary
This section has shown that many respondents considered their skills with computers were good or fair, suggesting that staff possessed average confidence with computers while a minority felt that their skills were poor. Although the most common length of time of using the Internet was between two and three years, many public library staff were just commencing Internet use at work at the time of the survey. Most staff used the Internet on a daily basis at work but a fair proportion of respondents used the Internet less frequently, including some staff that had never used the Internet at work. Generally, respondents felt positive about helping the public with the Internet although some reservations were expressed about this role and its implications.

4.3.2 The Technology Acceptance Model
This section describes respondents’ choices in relation to the perceived usefulness, perceived ease of use, behavioural intention, subjective norm and attitudes towards using the Internet at work scales based on the calculation of Likert scale scores.

4.3.2.1 Perceived usefulness of the Internet
Likert scale scores were calculated to compare respondent’s perceptions of usefulness by multiplying the number of respondents for each preference with the score for each statement, where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree and 5 = strongly agree.

For example, statement f: \((1 \times 37) + (2 \times 88) + (3 \times 219) + (4 \times 448) + (5 \times 120) = 3.6\)

For the statements in the section on the perceived usefulness of the Internet (fig. 4.11), Likert scores ranged from 3.2 for its control over work to 3.9 for overall usefulness. Respondents were more appreciative of the overall usefulness of the Internet to their work and its ability to both improve the quality of work produced and enhance their effectiveness. The usefulness of the Internet in terms of supporting critical aspects of the job, improving performance and making the job easier received slightly lower averages suggesting these aspects were testing on occasion. The value of the Internet in increasing productivity at work,
accomplishing tasks more quickly and giving greater control over their work was rated less favourably with scores of 3.2 for all three statements. Most scores, however, represented neither agree nor disagree with statements a, f and i nearing 4 representing agree, suggesting that while the Internet was seen as useful in the public library on occasion its usefulness was less apparent.

![Figure 4.11 Perceived usefulness Likert scale scores](image)

Over 50 respondents made comments relating to the usefulness of the Internet and whilst some aspects of the Internet were received favourably, others were less welcome. The general perception was that the Internet had proved a useful addition to existing services but could be a nuisance when access was affected by network problems, a difficulty noted by more than 60 respondents, which might explain why Likert scores were slightly lower for usefulness features such as productivity, control over work and accomplishing tasks more quickly than the remaining aspects. In addition, the sheer quantity of information available on the Internet
might make answering enquiries very time consuming.

Network problems plagued one large authority in particular and were one difficulty amongst many acknowledged by the manager. In addition, speed of access and firewalls were considered an annoyance by some and were perceived as affecting the rapidity with which staff were able to satisfy enquiries:

“There are sometimes issues around filtering large quantities of information or slow access speeds that can impact on work performance” (Assistant district manager, male, full time permanent, varies, Authority J: survey comments).

Positive evaluations of the usefulness of the Internet related to the increased amounts of information staff could utilise to answer enquiries as mentioned by staff in the questionnaires and focus groups. Similarly, managers felt that many of the positive reactions to ICT and the Internet were related to the benefits that they brought to library staff in providing quality service to the public. This was particularly pertinent for staff in branch libraries whose access to reference stock may have been limited in the past by cost:

“In many cases it’s helped them a lot because they’ve got access to resources they wouldn’t be able to have” (Manager B: management interviews).

The Internet also provided staff with the opportunity to check information and guarantee greater information accuracy:

“The Internet has opened up possibilities for us as Librarians for further checking for information and for bibliographic data” (Librarian, full time, branch and central, Authority E: focus groups).

4.3.2.2 Perceived ease of use of the Internet

In relation to perceived ease of use (fig. 4.12), respondents’ Likert scores ranged from 1.8 to 3.8. Statements a, b, c, e, g, i and k were reversed to prevent respondents from simply looking down a list of statements and choosing the same answer and it is the level of disagreement that is important. The Likert scores of 2.2, 2.1, 3.4, 2.3, 2.5, 1.8 and 2.1 respectively, suggest that using the Internet was not difficult for public library staff in terms of mental effort, memory, flexibility, skill
and assistance. However, respondents agreed that the Internet was frustrating as the statement’s score was 3.4 suggesting staff had a tendency to agree. Aspects of ease of use of the Internet including remembering how to use the Internet, clear and understandable use and easy to use overall, received Likert scores of 3.5, 3.5 and 3.8 respectively. Like overall usefulness, overall ease of use received the highest average score suggesting, on the whole, that staff agreed that the Internet was easy to use.

As discussed in the previous section, frustration with the Internet related to the problems some respondents encountered when using the Internet such as the system ‘going down’ or ‘crashing’. In addition, the presence of firewalls and filters, remembering and keying in registration passwords in conjunction with slow response times could make enquiries and assisting the public a stressful experience. These hindrances might make staff look less than professional when dealing with
enquiries. In some instances respondents indicated that accessing hard copy was often quicker.

Over one fifth of respondents agreed that it takes a lot of effort to become skilful at using the Internet (21.9%). In addition, respondents argued that effective use of the Internet required skill and the success of the Internet in answering enquiries was very much dependent on the skills of the individual using it:

"However the most important aspect of any Internet search is the ability to evaluate and select material from the vast amount of information on offer" (Librarian, male, full time permanent, central, Authority C: survey comments).

4.3.2.3 Behavioural intention to use the Internet

This section of six statements asked respondents to consider how often they expected and/or hoped to use the Internet in the future at work and how favourably disposed they were in terms of recommending its use to others.

The Likert scores for the six statements ranged from 3.1, for the statement I always try to use the Internet in as many cases/occasions as possible, suggesting mixed feelings, to 3.8 for I strongly recommend others to use the Internet, indicating agreement (fig. 4.13).
Figure 4.13 Behavioural intention Likert scale scores

The Likert score of 3.1 for the statement *I always try to use the Internet in as many cases/occasions as possible* suggests that respondents found this intention statement problematic. Indeed, although some respondents felt that the Internet offered opportunities some libraries may have lacked in the past, the Internet was merely one source of information amongst many a notion supported by the Likert score of 3.4 for the statement, *I always try to use the Internet to do a task whenever it has a feature to help me perform it.* The scores for these two statements intimate that staff would not use the Internet simply because it was available to them in the library, rather it was used if it was known to hold the relevant source for a particular enquiry. Sixteen respondents expressed opinions that the Internet was a supplementary source of information whereas 19 indicated that hard copy was preferable to the Internet for reasons of speed and accuracy.
"The Internet is a very useful tool and I find it indispensable for finding up to date information or that would be a bit specialised for books that we might have e.g. health/medical information. However I would not use it instead of books; the two types books/periodicals etc and the Internet are a compliment to each other and the nature of the enquiry decides the method of answering it" (Library assistant, female, full time permanent, branch, Authority C: survey comments).

For some staff, books were preferable to the Internet because they were felt to be more authoritative. A minority of respondents intimated that use of the Internet had increased because book stock had decreased and authorities were purchasing less reference works, which could be frustrating for some:

"I have no control over whether the Internet link is working. I have no control over what materials are still available in print, or still subscribed to by my borough" (Librarian, male, part time permanent, branch, Authority G: survey comments).

The lack of support for Internet use by some respondents might be because some imagined a conflict between the use of ICT and what they perceive to be the traditional roles of public libraries - book lending and reference. Six managers alluded to this problem, as the following comment made by one manager illustrates:

"So I think they see it, a lot of them see it, as a very useful resource but I think a lot of them are 'Well it's not part of my job'. And if it's a resource where they use a book they're more than happy with it but because it's an electronic resource it's perceived differently" (Manager E: management interviews).

Likert scores of 3.5, 3.6 and 3.7 for increased use, regular use and frequent use suggest that staff are happy to accept that their use of the Internet will grow in the future and that many staff are willing to use the Internet more frequently in the working day. Support for the statement recommending Internet use to others with a Likert score of 3.8 nearing agreement is a positive indication that public library staff are happy to recommend its use to both colleagues and library users.

4.3.2.4 Subjective norm

These two statements investigated the influence of peers on an individual’s technology adoption decisions. The Likert scores for both statements were very
similar, 3.3 and 3.4 (fig. 4.14) suggesting colleagues did influence respondent’s perceptions of the Internet at work to some degree.

A number of respondents did not complete this section on the basis that they neither had access to the Internet nor used it; whereas some respondents felt strong enough about this to indicate in the survey that other people did not influence them at work.

Figure 4.14 Subjective norm Likert scale scores

4.3.2.5 Attitude toward using the Internet

This section considered staff feelings about using the Internet at work including three statements that were emotional responses to its usage and two that were perceptions of its requirement at work. Respondents were asked to tick the box which best represented their opinion. Scoring in this section was based on a semantic differential scale.

The scores ranged from 3.8 to 4.0 (fig. 4.15), higher scores in comparison with those of the four remaining sections of the amended TAM. Respondents decided that their use of the Internet at work was quite positive (4.0) and quite necessary (4.0). In addition, although the scores for statements b, c and e might imply indifferent feelings, they are actually high scores suggesting that Internet use was quite pleasant, quite enjoyable and quite required.
Consideration of negative opinions revealed that fewer than five per cent of respondents judged their Internet use at work to be negative to some degree, for example, 0.8% thought it extremely negative while 4.1% felt it was quite negative in response to statement a.

These results were confirmed by findings from management interviews; six managers perceived staff views of ICT and the Internet in their authority to be mixed, including both positive and negative opinions. Within most authorities, it appeared that there were a large group of staff that were comfortable, even enthusiastic, about ICT and the Internet and a minority who were negative. These differing perceptions are illustrated in the following comments:

"Ambiguous. There has not been much experience of ICT" (Manager H: management interviews).

"Very positive overall" (Manager A: management interviews).

Reactions to the introduction of the Internet were diverse; three managers felt that staff had reacted positively while five stated that staff views included a mixture of both enthusiasm and resistance:
"It's mixed. Some libraries, the staff are desperate to have the People's Network in, and they're saying 'When's it going to be our turn?' 'When's it us?' Others are sort of 'I know it's going to come but I really don't want to know about it'. There is a definite difference" (Manager E: management interviews).

According to managers, staff held negative attitudes towards the Internet for a variety of reasons, which included a general fear of change, a perceived conflict between ICT and traditional public library services, undermining of existing skills, technical difficulties and problems related to public access to ICT such as library users accessing inappropriate content.

A minority of respondents themselves related their own negative attitudes about ICT and the Internet, which included a general aversion to using computers and the Internet:

"I do not enjoy working with computers or the Internet and find it very difficult to retain the information I have been given in order to use them. I would prefer not to use them" (Library assistant, female, part time permanent, branch, Authority C: survey comments).

"I am not bothered about using the Internet or aiding customers of their use of it" (Library assistant, female, casual, local studies, Authority I: survey comments).

Staff comments from the questionnaires and focus groups contributed a number of observations as to why colleagues might be resistant to ICT which ranged from defective equipment, little prior computer experience, age, insufficient time to practice, stress, panic, a lack of and badly organised training:

"Also, although library authorities are doing their best to train their staff in ICT I think they underestimate how difficult some staff who do not have much experience with computers find learning how to use them. A lot of us started working in libraries before most of the computers arrived. It can be very stressful trying to acquire a whole new range of skills in a very short time span. Particularly if it is not an area that you have an aptitude for" (Branch administrator, male, full time permanent, branch, Authority G: survey comments).
Twenty-five respondents made positive comments about the Internet, which related to its ease of use, the potential it offered to public libraries, improved confidence and the enjoyment experienced when using it. Words and phrases used to describe respondents’ opinions of Internet use at work included, *empowering, happy, essential, comfortable, valuable, powerful, support, crucial, brilliant, enjoy, comes in handy* and *asset.*

**4.3.2.6 Summary**

This section has described respondents’ attitudes to the Internet at work in the public library. The majority of respondents were positive about the Internet and enjoyed using it. A proportion of staff were frustrated by the speed of the Internet connection available in their library due to network, server or firewall restrictions but generally found the Internet easy to use and useful in their roles. Most staff hoped to continue to use the Internet on a regular basis in the library whilst others anticipated their use would increase with the introduction of more PCs. Staff did not always use the Internet simply because it was available in the library but because it was the most practicable source in a particular enquiry situation.

**4.4 Factor analysis and scale reliability**

This section describes factor analysis undertaken in relation to the attitude measurement scales used in the survey. Factor analysis is an appropriate method of data reduction which takes a large set of variables, in this case the five sections of the amended TAM and reduces the data to a smaller set of components or factors for further statistical analysis (Pallant 2001). In addition, the reliability of the five scales is detailed.

**4.4.1 Factor analysis**

The 33 items of the amended TAM used in the questionnaire were subjected to principal components analysis (PCA) using SPSS. Before performing this test, the appropriateness of the data for factor analysis was gauged. Examination of the correlation matrix revealed the occurrence of many coefficients of 0.3 and above. In addition, the Kaiser-Meyer-Oklin value was 0.94, which exceeded the recommended value of 0.6 (Kaiser 1970 in Pallant 2001) and the Bartlett’s Test of Sphericity (Bartlett 1954 in Pallant 2001) reached statistical significance, supporting the factorability of the correlation matrix.
Principal components analysis revealed the presence of six components with eigenvalues exceeding one, explaining 11.96 %, 3.89 %, 1.93 %, 1.33 %, 1.21% and 1.04 % respectively (Table 4.1). Consideration of the scree plot revealed a break around the fourth or fifth component (fig. 4.16). Based on Catell’s 1966 scree test it was decided to retain four components for further investigation (Pallant 2001). Varimax rotation was performed to assist in the interpretation of these four components. The rotated solution revealed that the four components had a number of strong loadings although not all variables loaded on only one component. The four-factor solution explained 57.88% of the variance with Component 1 contributing 23.9%, Component 2 contributing 15%, Component 3 contributing 13.4% and Component 4 contributing 5.6% (Table 4.2). The five-factor solution was rejected because the attitude statements did not load solely on one factor and the fifth factor in this example comprised only one statement. Pallant (2001) suggests that if factors have only one or two variables on them it is worth trying to rotate a different number of factors and in this instance four factors appeared to give the most satisfactory solution.

<table>
<thead>
<tr>
<th>Component</th>
<th>Total Eigenvalue</th>
<th>% of Variance</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11.955</td>
<td>36.226</td>
<td>36.226</td>
</tr>
<tr>
<td>2</td>
<td>3.891</td>
<td>11.792</td>
<td>48.019</td>
</tr>
<tr>
<td>3</td>
<td>1.930</td>
<td>5.848</td>
<td>53.867</td>
</tr>
<tr>
<td>4</td>
<td>1.325</td>
<td>4.014</td>
<td>57.880</td>
</tr>
<tr>
<td>5</td>
<td>1.209</td>
<td>3.662</td>
<td>61.543</td>
</tr>
<tr>
<td>6</td>
<td>1.037</td>
<td>3.141</td>
<td>64.684</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.

Table 4.1 Eigenvalues above one
Figure 4.16 Screeplot of the eigenvalues of the factors from SPSS

![Scree Plot](image)

<table>
<thead>
<tr>
<th>Component</th>
<th>Total</th>
<th>% of Variance</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7.886</td>
<td>23.896</td>
<td>23.896</td>
</tr>
<tr>
<td>2</td>
<td>4.937</td>
<td>14.962</td>
<td>38.858</td>
</tr>
<tr>
<td>3</td>
<td>4.415</td>
<td>13.379</td>
<td>52.237</td>
</tr>
<tr>
<td>4</td>
<td>1.862</td>
<td>5.644</td>
<td>57.880</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.

Table 4.2 Variance explained by the four factors

4.4.1.1 Naming the factors

Factor 1 included all the perceived usefulness statements and three attitudinal statements and accounted for 23.9% of the variance. The highest factor loadings included effectiveness, improving job performance, making it easier to do one’s job and improving quality of work whilst the attitudinal statements included whether use of the Internet was optional, necessary and positive at work (see Table 4.3). These aspects all suggested that the name, usefulness of the Internet at work, was appropriate.

Factor 2 accounted for 15% of variance, included all the perceived ease of use statements, and was renamed ease of use of the Internet at work. Factor 3 included
all the behavioural intention and two of the attitudinal statements; whether use of the Internet was pleasant and enjoyable, and accounted for 13.4% of variance. A suitable name for this factor was intention to use the Internet at work. Finally, factor 4 accounted for just 5.6% of the variance and included both subjective norm statements. It consequently remained entitled subjective norm.

The four factors extracted can be used in one-way analysis of variance (ANOVA) tests to explore relationships with other variables.
# Rotated Component Matrix

**Extraction Method:** Principal Component Analysis.  
**Rotation Method:** Varimax with Kaiser Normalization.  

a. Rotation converged in 6 iterations.

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>PU: enhances effectiveness on the job</td>
<td>.846</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU: improves my job performance</td>
<td>.845</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU: makes it easier to do my job</td>
<td>.843</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU: increases my productivity</td>
<td>.815</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU: improves quality of work</td>
<td>.807</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU: overall, useful in my job</td>
<td>.793</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU: supports critical aspects of my job</td>
<td>.778</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU: greater control over my work</td>
<td>.765</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU: accomplish tasks more quickly</td>
<td>.764</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A: unnecessary/necessary</td>
<td>.577</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A: negative/positive</td>
<td>.502</td>
<td>.440</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A: optional/required</td>
<td>.460</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEOU: it takes a lot of effort to become skillful at using the Internet</td>
<td></td>
<td>.737</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEOU: overall, find the Internet easy to use</td>
<td></td>
<td>.727</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEOU: awkward to use</td>
<td></td>
<td>.708</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEOU: difficult to learn how to use the Internet</td>
<td></td>
<td>.681</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEOU: use of the Internet is clear and understandable</td>
<td></td>
<td>.675</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEOU: using the Internet requires a lot of mental effort</td>
<td></td>
<td>.667</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEOU: easy to remember how to perform tasks using the Internet</td>
<td></td>
<td>.563</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEOU: find it easy to get the Internet to do what I want it to do</td>
<td></td>
<td>.527</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEOU: rigid and inflexible to use</td>
<td></td>
<td>.526</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEOU: impossible to use the Internet without expert help</td>
<td></td>
<td>.523</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEOU: using the Internet is often frustrating</td>
<td></td>
<td>.401</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bi: increase my use of the Internet in the future</td>
<td></td>
<td></td>
<td>.703</td>
<td></td>
</tr>
<tr>
<td>Bi: will use the Internet on a regular basis in the future</td>
<td></td>
<td></td>
<td>.656</td>
<td></td>
</tr>
<tr>
<td>Bi: frequently use the Internet in the future</td>
<td></td>
<td></td>
<td>.670</td>
<td></td>
</tr>
<tr>
<td>Bi: strongly recommend others to use the Internet</td>
<td></td>
<td></td>
<td>.642</td>
<td></td>
</tr>
<tr>
<td>Bi: always use in as many cases/occasions as possible</td>
<td></td>
<td></td>
<td>.641</td>
<td></td>
</tr>
<tr>
<td>A: unpleasant/pleasant</td>
<td></td>
<td></td>
<td>.570</td>
<td></td>
</tr>
<tr>
<td>A: not enjoyable/enjoyable</td>
<td></td>
<td></td>
<td>.405</td>
<td>.505</td>
</tr>
<tr>
<td>Bi: always use if feature to help me</td>
<td></td>
<td></td>
<td>.508</td>
<td></td>
</tr>
<tr>
<td>SN: people who influence my behaviour at work think I should use the Internet</td>
<td></td>
<td></td>
<td></td>
<td>.756</td>
</tr>
<tr>
<td>SN: people important to me at work think I should use the Internet</td>
<td></td>
<td></td>
<td></td>
<td>.711</td>
</tr>
</tbody>
</table>

**Table 4.3 Rotated component matrix of the four-factor solution**
4.4.2 Reliability of the TAM

All five items constituting the TAM in this study reported good reliability. The following table illustrates the Cronbach's coefficient alpha for the five sections of the TAM for the current study compared to that found in other studies for comparison purposes (Table 4.4)

<table>
<thead>
<tr>
<th>TAM sub scales</th>
<th>Cronbach alpha coefficient</th>
<th>This study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived usefulness scale</td>
<td>0.95 (8 items)</td>
<td>0.95 (9 items)</td>
</tr>
<tr>
<td>Perceived ease of use scale</td>
<td>0.87 (4 items)</td>
<td>0.85 (11 items)</td>
</tr>
<tr>
<td>Behavioural intention scale</td>
<td>0.90 (2 items)</td>
<td>0.87 (6 items)</td>
</tr>
<tr>
<td>Subjective norm scale</td>
<td>0.90 (2 items)</td>
<td>0.92 (2 items)</td>
</tr>
<tr>
<td>Attitude scale</td>
<td>0.90 (4 items)</td>
<td>0.82 (5 items)</td>
</tr>
</tbody>
</table>

Table 4.4 Reliability of the TAM sub scales

4.5 Influences on attitudes to ICT and the Internet: an analysis

Section 4.5 considers the aims of the study in relation to attitudes to ICT and the Internet including what might affect attitudes such as previous computer experience, gender, age, type of library worked in and length of time in public libraries. The relationship between attitudes and training will be considered in Chapter 5.

Only significant results are reported. Details of the outcomes of the tests are given, followed by a summary of effects (see Section 3.5.3 for a summary of the tests used). The full implications of the results are discussed in Chapter 6.

4.5.1 Demographical influence: gender and ICT

In terms of proficiency with computers, the same percentage of men and women rated their proficiency as poor (4.8%) whilst far more women than men thought it was fair (33.1% to 17.9%) (fig. 4.17). A similar proportion of males and females rated their proficiency as good (38.7% and 39.8% respectively) but more men than women thought they were very good and excellent (26.8% to 18.7% and 11.9% to 3.55% respectively). From this it would appear that men rated their computer proficiency more highly than women in the study. Using chi squared analysis, there was a significant association between the variables gender and proficiency $\chi^2 = 34.5; df = 4; p < 0.001, n = 959$. 

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In terms of length of time using the Internet, 23.8% of men had been using the Internet at work for longer than four years compared to 11.9% of women (fig. 4.18). Similarly, more men than women had been using the Internet longer than three years but less than four (19.5% to 16.6%). More women than men had been using the Internet for the remaining lengths of time, for example, 10.9% of women have been using the Internet for less than six months compared to 7.3% of men. There was a significant association between the variables gender and length of time using the Internet, $\chi^2 = 19.0; \text{df} = 5; p < 0.01, n = 905$. 

Figure 4.17 Gender and computer proficiency
A Mann-Whitney U test for gender and usefulness of the Internet, found that women’s median usefulness scores were lower than men’s, 386.92 compared to 446.86, z = -2.9, p < 0.005 suggesting women did not perceive the Internet to be as useful as men.

4.5.2 Demographical influence: age and ICT

There was a negative relationship of moderate strength between age and computer proficiency, $\Gamma = -0.4$, $p < 0.001$, $n = 959$. Age helps to explain nearly 14% of the variance in respondents’ scores on the computer proficiency scale. A third, 33.3%, of 18-24 year olds judged their proficiency to be excellent compared to 2.9% of the 55-64 age group (fig. 4.19). Similarly, 12.2% of the 55-64 group judged their proficiency to be poor compared with 2.8% of the 25-34 group.
One-way analysis of variance was used to explore differences between age groups and factor scores. This statistical method is appropriate for use with two or more groups such as the six age groupings and one continuous variable; the factor scores calculated during factor analysis.

There were statistically significant differences for age with both ease of use and intention but not with usefulness and subjective norm.

Using the age groups stipulated in the questionnaire a statistically significant difference in mean attitude scores for the six age groups ($F(5, 789) = 9.1$, $p < 0.001$) was found (fig. 4.20). Post-hoc comparisons using the Tukey HSD test indicated that the mean ease of use scores for 18 to 24 and 25 to 34 year olds ($M = 0.57, SD = 1$ and $M = 0.4, SD = 0.97$) were significantly higher than those aged 35 to 44, 45 to 54 and 55 to 64 years ($M = 0.04, SD = 0.97, M = -0.14, SD = 0.97$ and $M = -0.2, SD = 1$) whilst respondents under 18 years old ($M = 0.22, SD = 1.4$) did not differ significantly from any other age group. The effect size was medium, $\eta^2 = 0.06$, indicating that age accounted for six per cent in the variance of ease of use scores.
Statistically significant differences in mean intention scores for the six age groups were found ($F (5, 789) = 2.5, p < 0.1$) (fig. 4.21). Post-hoc comparisons using the Tukey HSD test indicated that the mean intention scores for 18 to 24 year olds ($M = 0.44, SD = 1.05$) were significantly higher than those aged 45 to 54 and 55 to 64 years ($M = 0.05, SD = 1.00, M = -0.11, SD = 0.93$) whereas respondents under 18 years old, 25 to 34 and 35 to 44 ($M = 0.70, SD = 0.75, M = -0.06, SD = 1.00, M = -0.01, SD = 1.01$) did not differ significantly from any other age group. The effect size was small, $\eta^2 = 0.02$, therefore age accounted for just two per cent in the variance of intention scores.
Age was referred to by a small number of respondents in the questionnaires, focus groups, brief interviews and interviews with managers. There was an assumption by some that older staff found using ICT more difficult than younger staff and that older colleagues held negative attitudes because the introduction of the Internet undermined their status and knowledge:

“We find that new young staff coming in, have no problem with ICT and pick it up incredibly quickly. There is just no barrier there” (Librarian, Authority H: bulletin board comments).

Focus group participants from Authority G noted that some staff were “physically terrified” perhaps because they had worked in libraries a long time:

“A lot of people came into libraries before the computers. It seems to them that it’s suddenly taken priority and they are forgetting about the books, that we have other roles. It’s got to be computer related, it takes precedence” (Senior library assistant, full time, branch, Authority G: focus groups).

Three managers suggested that older staff had more negative attitudes to the Internet, and the quantitative data results certainly suggest that older staff had inferior computer skills compared to younger colleagues and were less likely to see themselves using the Internet, as the following extract demonstrates:

“People come into the profession wanting to do service originally because they liked reading and books naturally, and there are some categories of staff who work in a library in order to avoid the sort of technological things. The fact that information is there and the pleasure of reading and the pleasure of finding out information and dealing with enquiries means that they had a unique role that has been undermined by the potential of the Internet” (Manager C: management interviews).

4.5.3 Demographical influence: education and ICT

One-way analysis of variance was used to explore differences between educational attainment groupings and factor scores and found a statistically significant difference between educational attainment and usefulness and ease of use but not with intention and subjective norm.
Analysis found an effect of education on usefulness of the Internet scores, $F(6, 781) = 12.5 \ p < 0.001$ (fig. 4.22). Post-hoc comparisons using the Tukey HSD test indicated that the mean scores of those with other qualifications and AS/A levels ($\bar{M} = -0.27, \ SD = 0.66$, $\bar{M} = -0.10, \ SD = 0.96$) were lower than respondents with postgraduate qualifications ($\bar{M} = 0.47, \ SD = 0.87$). Staff with GCSE/O levels ($\bar{M} = -0.35, \ SD = 1.02$) had lower scores than those with undergraduate or postgraduate qualifications ($\bar{M} = 0.19, \ SD = 0.95$, $\bar{M} = 0.47, \ SD = 0.87$). Staff with NVQs and professional qualifications did not differ significantly from any other staff ($\bar{M} = -0.01, \ SD = 0.87$, $\bar{M} = 0.11, \ SD = 0.77$). The effect size was medium, $\eta^2 = 0.10$, which meant that education explained ten per cent of the variance in usefulness scores.

![Figure 4.22 Education and usefulness](image)

Analysis also found an effect of education on ease of use of the Internet at work scores, $F(6, 781) = 3.9 \ p < 0.001$ (fig. 4.23). Post-hoc comparisons using the Tukey HSD test indicated that the mean ease of use scores of those with GCSE/O levels ($\bar{M} = -0.20, \ SD = 1.05$) were significantly lower than respondents with NVQs, undergraduate and postgraduate qualifications ($\bar{M} = 0.34, \ SD = 0.97$, $\bar{M} = 0.18, \ SD = 0.95$, $\bar{M} = 0.14, \ SD = 0.82$). Staff with other, AS/A levels and professional qualifications did not differ significantly from any other staff ($\bar{M} = -0.23, \ SD = 1.09$, $\bar{M} = 0.10, \ SD = 1.06$, $\bar{M} = -0.22, \ SD = 0.87$). The effect size was medium, $\eta^2 = 0.03$, which meant that education explained three per cent of the variance in ease of use scores.
4.5.4 Organisational influence: current post and ICT

The five categories of post used in Section 4.2.3 were combined to form four including librarian, senior library assistant, library assistant and other. The number of managers in the sample was small and this group were added to other in order to conduct tests for relationships between current post and other variables.

Current post was significantly associated with computer proficiency, $\chi^2 = 55.67; \text{df} = 12; p < 0.001, n = 959$. The largest proportion of library assistants (37%) rated their proficiency as fair, whilst the largest group of librarians (43%) decided their computer skills were good and nine per cent of assistants felt their skills were poor compared to only 1.2% of librarians (fig. 4.24).
There was also a significant association between current post and length of time using the Internet at work; $\chi^2 = 127.63$, df = 15, $p < 0.001$, $n = 905$. Library assistants’ use of the Internet was more recent than that of librarians; 19.1% of library assistants had been using the Internet for less than six months compared to 4.5% of SLAs and 2.1% of librarians (fig. 4.25). Twenty three per cent of librarians had been using the Internet longer than four years compared to 7.6% of library assistants and 11.3% of SLAs.
The majority of librarians, SLAs and other staff used the Internet on a daily basis; 84.4%, 68.7% and 73.5% respectively, compared to 44.6% of library assistants (fig. 4.26). Approximately 11% of library assistants never used the Internet at work compared to 1.2% of librarians. Library assistants constituted the largest group of respondents who used the Internet on a weekly, fortnightly and monthly basis; 48.6%, 53.3% and 68.8% respectively. Current post and frequency of Internet use were significantly associated, $\chi^2 = 137.613$, df = 9, p <0.001, n = 947. Internet use on a weekly, fortnightly and monthly basis was combined to form one group - *infrequently* in order to carry out the chi-square test of association.
Figure 4.26 Current post and frequency of Internet use

Survey respondents commented about Internet use and library assistants in the main indicated that they did not use the Internet at work because it was not appropriate in their role, which might account for their less frequent usage at work. Comments from library assistants included:

"I do not use the Internet in connection with my job" (Library assistant, female, part time permanent, Authority I: survey comments).

"As a library assistant, I do not personally use the Internet at work" (Library assistant, female, full time permanent, central, Authority E: survey comments).

Feelings about helping the public categories were recoded for the purposes of chi square analysis. Very negative and generally negative became negative whilst generally positive and very positive became positive. Current post and feelings about helping the public use the Internet were significantly associated, $\chi^2 = 54.59$, df = 6, $p < 0.001$, $n = 918$.

The majority of librarians, SLAs, library assistants and other posts felt positive, to some degree, about helping the public although it was noticeable that this majority was far larger for librarians than it was for library assistants, 80.6% compared to 58.4% respectively (fig. 4.27). Library assistants constituted 66.7% of those who
felt very negative and 58% of those who felt generally negative about this role. Almost 40% of other respondents felt very positive about this role compared to 24.1% of librarians, 16.3% of SLAs and 10.2% of library assistants.

Figure 4.27 Current post and feelings about helping the public use the Internet

As noted in Section 4.3, some staff felt negative about helping the public because of time pressures, problems with the network and dealing with the frustrations of the public when problems arose. For front line staff, work duties necessarily involve a great deal of interaction with the public on the issues counter and reference desk. Some respondents felt that assisting the public with the Internet was a hindrance, which prevented them from fulfilling their other roles:

"It can be time consuming showing people how to access sites when you have a lot of other work to do" (Senior library assistant, female, full time permanent, branch, Authority G: survey comments).

"Helping the public use the Internet is sometimes hampered by the fact that you have other library duties to perform and cannot allocate sufficient time to new Internet users" (Library assistant, female, part time permanent, mobile, Authority E: survey comments).
One-way analysis of variance was used to explore differences between current post and factor scores. There was a statistically significant difference between current post and usefulness but not with intention, ease of use and subjective norm. An effect of current post on usefulness scores, $F(3, 791) = 26.1, p < 0.001$ was found. Post-hoc comparisons using the Tukey HSD test indicated that the average usefulness score for librarians ($M = 0.45, SD = 0.81$) was significantly higher than that of SLAs, library assistants and others ($M = -0.10, SD = 0.88, M = -0.28, SD = 1.0$ and $M = 0.09, SD = 0.99$) while library assistants ($M = -0.28, SD = 1.0$) were lower than others ($M = -0.09, SD = 0.99$) (fig. 4.52). The impact of current post on usefulness calculated using $\eta^2$ was 0.09, a medium effect, thus post explained nine per cent of the variance in usefulness scores.

4.5.5 Organisational influence: type of post and ICT

Categories in this section were reduced for the purposes of cross tabulations; part time permanent, casual and part time temporary were all grouped together to form part time whilst full time temporary joined full time permanent to become full time. There was a significant association between type of post and computer proficiency; $\chi^2 = 39.1, df = 4, p < 0.001, n = 956$, length of time using the Internet at work; $\chi^2 = 74.9, df = 5, p < 0.001, n = 904$ and frequency of Internet use; $\chi^2 = 90.73, df = 5, p < 0.001, n = 945$. 

Figure 4.28 Post and usefulness
Full time staff perceived their computer proficiency to be better than that of part time staff. More part time staff judged their skills *poor* and *fair* compared to full time staff, 7.3% to 2.9% and 37% to 24.5%, whereas more full time staff felt they were *good*, *very good* and *excellent* compared to part time staff, 41.7% to 37.2%, 23.9% to 15.8% and 6.9% compared to 2.7% respectively (fig. 4.29).

![Figure 4.29 Type of post and proficiency with computers](image)

Nearly 16% of part time staff had been using the Internet at work for less than six months compared to 5.9% of full time staff (fig. 4.30). There was a significant association between type of post and length of time using the Internet at work; $\chi^2 = 74.86$, df = 5, $p < 0.001$, $n = 904$. 
Nearly half of the part time staff used the Internet on a daily basis (48.7%) compared to over three quarters of full time staff (77.7%) (fig. 4.31). This may be because some part time staff did not have the opportunity to use the Internet on a daily basis, for example, if they worked for a small number of full days. Part time staff also constituted the greatest percentage of respondents using the Internet on a less frequent basis including weekly, fortnightly, monthly, rarely and never.
A Mann-Whitney U test for type of post and attitudes found that full time respondents' median scores on both usefulness and ease of use were higher than those of part time staff. Full time staff rated the usefulness of the Internet far more favourably than part time staff; 433.42 compared to 350.66, \( z = -5.1, p < 0.001, n = 793 \) whereas the difference in mean ease of use scores is smaller; 419.70 compared to 368.12, \( z = -3.1, p < 0.01, n = 793 \).

### 4.5.6 Organisational influence: place of work and ICT

For contingency table tests and chi square analysis, the category of mobile was combined with other to form group sizes suitable for statistical analysis: branch, central and other.

It appeared that staff in central libraries rated their proficiency more highly than staff in branch and other libraries. Nearly ten per cent of central staff felt their proficiency was excellent compared to 2.7% of branch staff and 1.8% of other staff (this category included staff who worked in more than one library, housebound services, schools, supply unit, mobiles and headquarters). On the other hand, similar proportions of staff in central, branch and other libraries judged their computer skills as good, 38.1%, 40.4% and 39.5% respectively (fig. 4.32). There was a significant association between library worked in and proficiency with computers, \( \chi^2 = 42.3, df = 8, p < 0.001, n = 958 \).

![Figure 4.32 Place of work and proficiency with computers](image-url)
There was a significant association between place of work and length of time using the Internet at work, $\chi^2 = 49.0$, df = 10, $p < 0.001$, n = 904. Staff in central libraries were more likely to have been using the Internet for longer than four years compared to staff in the branches and other libraries, 22.9% compared to 9% and 10.2% respectively. Staff working in other libraries, including mobiles, were more likely to have only recently learnt how to use the Internet; 18.4% had been using the Internet for less than six months compared to 11.3% of branch staff and six per cent of central staff (fig. 4.33).

![Figure 4.33 Place of work and length of time using the Internet](image)

There was also a significant association between place of work and frequency of Internet use, $\chi^2 = 42.584$, df = 2, $p < 0.001$, n = 946. Frequency of Internet use categories were combined here in order for chi square analysis to be carried out, thus weekly, fortnightly, monthly, rarely and never became infrequently. Nearly three quarters of those working in central libraries used the Internet on a daily basis compared to 64% of those in branch libraries and 39.6% in other libraries. The latter category included respondents working in mobile libraries and the schools library service, which may account for the lower daily usage as the majority of mobile and schools library service staff surveyed indicated that they were awaiting Internet access (fig. 4.34).
Figure 4.34 Place of work and frequency of Internet use

One-way analysis of variance was conducted to explore differences between place of work and attitudes. There was a statistically significant difference between place of work with ease of use and intention but not with usefulness or subjective norm.

A one-way analysis of variance found an effect of place of work on ease of use scores, $F(2, 791) = 13.4$, $p < 0.001$, $n = 793$. Tukey’s follow-up comparisons found that respondents working in branch and other libraries ($M = -0.12$, $SD = 1.01$, $M = -0.03$, $SD = 1.02$) had lower ease of use scores than those in central libraries ($M = 0.27$, $SD = 0.96$) (fig. 4.35). The impact of type of library worked in on ease of use was small, $\eta^2 = 0.03$, thus place of work accounted for only three per cent in the variance in ease of use scores.
A one-way analysis of variance also found an effect of place of work on intention scores, $F(2, 791) = 4.7, p < 0.01, n = 793$. Tukey’s follow-up comparisons found that respondents working in branch and central libraries ($M = -0.02, SD = 0.93, M = 0.05, SD = 1.04$) had higher intention scores than those in other libraries ($M = 0.32, SD = 1.14$) (fig. 4.36). The impact of place of work on intention was small, $\eta^2 = 0.01$, accounting for just one per cent in the variance in intention scores.

Figure 4.35 Place of work and use of case

Figure 4.36 Place of work and intention
There was a negative relationship of strong significance between proficiency with computers and frequency of Internet use at work, $\Gamma = -0.45$, $p < 0.001$, $n = 944$. Computer proficiency helps to explain over 20% of the variance in respondents' frequency of Internet use at work scores. The poorer staff's computer proficiency, the less frequently they used the Internet. Of those who judged their proficiency to be poor, 43.2% used the Internet *rarely* compared to 20.5% of that group who used it on a *daily* basis (fig. 4.37).

There was a very strong positive relationship between proficiency with computers and feelings about helping the public use the Internet, $\Gamma = 0.60$, $p < 0.001$, $n = 915$. Computer proficiency helped to explain over 35% of the variance in respondents' feelings about helping the public use the Internet at work. The more negative respondents felt about this kind of assistance the lower their computer proficiency. Of those whose proficiency was *excellent*, 68.1% felt *very positive* about this role in contrast with 2.3% whose proficiency was *poor* (fig. 4.38).
There was a correlation between the statement, *Using the Internet at work is negative/positive* and computer proficiency, $\Gamma = 0.53$, $p < 0.001$, $n = 914$. Of those rating themselves as *excellent*, 63.8% felt *extremely positive* whilst 2.1% were *extremely negative* (fig. 4.39). The value of Gamma suggests a very strong relationship between computer proficiency and attitude; skill helps to explain almost 30% of the variance in attitude scores.
Similarly, with the statement *using the Internet at work is unpleasant/pleasant* and computer proficiency there was a relationship, $\Gamma = 0.44$, $p < 0.001$, $n = 909$. Of those who rated their proficiency as *poor*, 51.3% said their use of the Internet at work was *neither unpleasant nor pleasant* while 46.8% of those who felt their proficiency was *excellent* judged their use to be *quite pleasant* (fig. 4.40). Again, this relationship was strong.

![Figure 4.40 Computer proficiency and attitude](image)

A one-way analysis of variance found an effect of skill on ease of use scores, $F (4, 789) = 41.4$, $p < 0.001$, $n = 793$. Tukey’s follow-up comparisons found that respondents whose proficiency was *poor* ($M = -1.3, SD = 1.2$) had lower ease of use scores compared to staff who rated their skills as *fair*, *good*, *very good* and *excellent* ($M = -0.37, SD = 0.89, M = 0.08, SD = 0.89, M = 0.52, SD = 0.9$ and $M = 0.83, SD = 1.0$) (fig. 4.41). Similarly, the mean ease of use scores of staff who felt their computer skills were *fair* ($M = -0.37, SD = 0.89$) were significantly different from those whose skills were *good*, *very good* and *excellent* ($M = 0.08, SD = 0.89, M = 0.52, SD = 0.90$ and $M = 0.83, SD = 1.0$) and scores for those rating their computer skills as *good* ($M = 0.08, SD = 0.89$) were significantly different from staff who felt their PC skills were *very good* and *excellent* ($M = 0.52, SD = 0.9$ and $M = 0.83, SD = 1.0$). The effect size, $\eta^2 = 0.2$, was a very large effect therefore computer proficiency explained 20% in variance in ease of use scores.
In addition, a one-way analysis of variance found an effect of skill on subjective norm scores, $F(4, 789) = 4.2$, $p < 0.01$, $n = 793$. Tukey's follow-up comparisons found that respondents whose proficiency was poor and fair ($M = 0.34$, $SD = 1.00$ and $M = 0.16$, $SD = 0.97$) had higher subjective norm scores than staff that rated their skills as excellent ($M = -0.31$, $SD = 1.15$) (fig. 4.42). The mean subjective norm scores of staff who felt their computer skills were fair ($M = 0.16$, $SD = 0.97$) were also significantly higher than those whose skills were good ($M = -0.08$, $SD = 0.97$) whilst the scores of those whose skills were very good did not differ significantly from any other groups. The effect size, $\eta^2 = 0.02$, was a small effect and suggested that computer proficiency explained just two per cent of variance in subjective norm scores.
4.5.8 The influence of experience: length of time using the Internet and ICT

There was a very strong negative relationship between frequency of Internet use at work and length of time using the Internet at work, \( r = -0.61, p < 0.001, n = 906 \). The negative relationship is simply a result of the way in which the responses were coded. Length of time using the Internet helps to explain over 35% of the variance in respondents' frequency of use which suggests that the longer one has been using the Internet at work, the more frequently one uses the Internet. Of those using the Internet for more than four years, 89.8% used the Internet on a daily basis compared to 1.6% of this group who rarely used it (fig. 4.43). Conversely, the largest proportion of those using the Internet for less than six months used the Internet rarely (39.8%). No significant differences were found using one-way analysis of variance and length of time using the Internet at work with attitudes, as all tests violated the homogeneity of variance assumption according to the Levene test.
All the managers interviewed agreed that attitudes to ICT and the Internet had changed over the last few years with most expressing the opinion that staff had grown, or were growing, more positive. This was a result of training, experience and an appreciation of the contribution the Internet makes to the public library service:

"There's a definite change in attitudes, the longer they've had the People's Network; this facility that people come in to use" (Manager E: management interviews).

Some staff's attitudes had shifted from negative to positive:

"Some people have blossomed hugely; people who thought they would hate it are now the biggest exponents of use of the Internet, that's really been a pleasure to see" (Manager C: management interviews).

Furthermore, it was hoped that in the future this positive change would continue:

"So I think as people realise they can use it to develop and support the work of the library like developing the website and development work I think the attitude will change again" (Manager B: management interviews).
4.5.9 The influence of experience: frequency of Internet use and ICT

There was a strong negative relationship between frequency of Internet use and feelings about helping the public use the Internet, $\Gamma = -0.48$, $p < 0.001$, $n = 911$. Again, this negativity was merely a result of the scale direction used in the questionnaire. The more frequently respondents used the Internet, the more positive their perception of this role with use explaining almost one quarter (23%) of variance in feelings. Of those who used the Internet on a daily basis, 25.8% were very positive compared to 0.5% who were very negative (fig. 4.44). Similarly, of those who never used the Internet 25% were very negative compared to 8.3% who were very positive.

One-way analysis of variance found an effect of frequency of Internet use at work on intention scores, $F(5, 788) = 8.8$, $p < 0.001$, $n = 793$, but not with the other three factors. Tukey’s follow-up comparisons found that respondents who used the Internet on a daily or weekly basis ($M = 0.11$, $SD = 0.97$ and $M = -0.10$, $SD = 0.91$) had higher intention scores than those who used it rarely and never ($M = -0.56$, $SD = 1.15$ and $M = -1.00$, $SD = 1.30$) (fig. 4.45). The effect size, $\eta^2 = 0.06$, was a small effect with frequency of use explaining six per cent of the variance in intention scores.
In order to understand the relationship between actual usage and the aspects of the TAM, individual analysis of the TAM statements and frequency of use were considered. According to the values of Gamma ($\Gamma$), usage was strongly related to all five of the attitude statements, all of the nine perceived usefulness statements and four of the six intention statements. However, with subjective norm and the perceived ease of use statements, relationships were either weak or insignificant. This suggests that usage was more strongly associated with perceptions of the usefulness of the Internet, one’s attitude towards its use and intention rather than its ease of use or the influence of one’s colleagues. The following table illustrates the strong relationships between usage and the TAM (Table 4.5):
<table>
<thead>
<tr>
<th>TAM statement</th>
<th>Gamma (Γ)</th>
<th>Sig.</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PU: improves quality of work</td>
<td>-0.57</td>
<td>p&lt;0.001</td>
<td>913</td>
</tr>
<tr>
<td>PU: greater control over my work</td>
<td>-0.43</td>
<td>p&lt;0.001</td>
<td>908</td>
</tr>
<tr>
<td>PU: accomplish tasks more quickly</td>
<td>-0.47</td>
<td>p&lt;0.001</td>
<td>907</td>
</tr>
<tr>
<td>PU: supports critical aspects of my job</td>
<td>-0.46</td>
<td>p&lt;0.001</td>
<td>902</td>
</tr>
<tr>
<td>PU: improves my job performance</td>
<td>-0.51</td>
<td>p&lt;0.001</td>
<td>907</td>
</tr>
<tr>
<td>PU: enhances effectiveness on the job</td>
<td>-0.52</td>
<td>p&lt;0.001</td>
<td>908</td>
</tr>
<tr>
<td>PU: makes it easier to do my job</td>
<td>-0.48</td>
<td>p&lt;0.001</td>
<td>908</td>
</tr>
<tr>
<td>PU: increases my productivity</td>
<td>-0.43</td>
<td>p&lt;0.001</td>
<td>907</td>
</tr>
<tr>
<td>PU: overall, useful in my job</td>
<td>-0.64</td>
<td>p&lt;0.001</td>
<td>911</td>
</tr>
<tr>
<td>BI: always use if feature to help me</td>
<td>-0.42</td>
<td>p&lt;0.001</td>
<td>890</td>
</tr>
<tr>
<td>BI: will use the Internet on a regular basis in the future</td>
<td>-0.46</td>
<td>p&lt;0.001</td>
<td>909</td>
</tr>
<tr>
<td>BI: frequently use the Internet in the future</td>
<td>-0.53</td>
<td>p&lt;0.001</td>
<td>905</td>
</tr>
<tr>
<td>BI: strongly recommend others to use the Internet</td>
<td>-0.41</td>
<td>p&lt;0.001</td>
<td>904</td>
</tr>
<tr>
<td>A: negative/positive</td>
<td>-0.57</td>
<td>p&lt;0.001</td>
<td>915</td>
</tr>
<tr>
<td>A: unpleasant/pleasant</td>
<td>-0.49</td>
<td>p&lt;0.001</td>
<td>911</td>
</tr>
<tr>
<td>A: not enjoyable/enjoyable</td>
<td>-0.50</td>
<td>p&lt;0.001</td>
<td>910</td>
</tr>
<tr>
<td>A: unnecessary/necessary</td>
<td>-0.61</td>
<td>p&lt;0.001</td>
<td>913</td>
</tr>
<tr>
<td>A: optional/required</td>
<td>-0.53</td>
<td>p&lt;0.001</td>
<td>909</td>
</tr>
</tbody>
</table>

Table 4.5 Strong relationships between usage and TAM statements

4.5.10 The influence of experience: feelings about helping the public use the Internet and ICT

There was a very strong correlation between my use of the Internet at work is negative/positive with feelings about helping the public, $\Gamma = 0.74$, $p < 0.001$, $n = 894$. Seventy one per cent of those who felt very positive about helping the public felt extremely positive towards use of the Internet at work (fig. 4.46). Conversely, 15.8% of those who felt very negative about this assistance also felt extremely negative about Internet use at work.
The suggestion that positive attitudes affect the service provided to the public was reflected in comments made by managers. Negative attitudes to ICT and the Internet were regarded as problematic because those holding them might influence colleagues and the public and their attitude could affect the service given to library users. This view was expressed by five of the eight managers interviewed. Typical concerns are illustrated in the following comment:

"It’s very difficult if a member of staff has got a negative attitude towards IT. Generally they give out the wrong impressions to the public and we have had complaints coming from members of the public saying that ‘Isn’t it a shame all these books thrown away to make way for the computers’ or ‘Why are we letting children on to the computers to play games’. Sometimes I think it’s probably the negative attitude of the member of staff, rather than saying ‘Well this is a service, this is what we’re offering’ instead it’s ‘Yes I agree, isn’t it terrible’ which isn’t really putting over the positive image that we’re trying to portray” (Manager B: management interviews).

One-way analysis of variance was conducted to explore the impact of feelings about helping the public use the Internet on the four factors. A statistically significant difference at the p < 0.001 level in mean factor scores for the five feelings groups (F (4, 772) = 6.68, p = 0.000) was found solely with subjective norm.
Post-hoc comparisons using the Tukey HSD test indicated that the mean subjective norm scores of those who felt *generally negative* about helping the public \( (M = 0.37, \text{SD} = 1.06) \) were higher than those who were *generally positive* \( (M = -0.13, \text{SD} = 0.95) \) (fig. 4.47). Similarly, mean subjective norm scores of those who felt *equally negative and positive* \( (M = 0.27, \text{SD} = 0.97) \) were also higher than those feeling *generally positive* and *very positive* \( (M = -0.13, \text{SD} = 0.95, M = 0.07, \text{SD} = 1.1) \). In contrast, respondents who were *very negative* did not differ significantly from any other group \( (M = 0.02, \text{SD} = 1.00) \). This would appear to suggest that the more negative staff felt about this role, the more likely they were influenced by their colleagues. The effect size, calculated using \( \eta^2 \), was 0.03, a small effect suggesting that three per cent in the variance of feelings about helping the public was attributable to subjective norm.

![Figure 4.47 Feelings about helping the public and subjective norm](image)

**Figure 4.47 Feelings about helping the public and subjective norm**

### 4.5.10.1 Section summary

The use of one-way analysis of variance has illustrated that a number of demographic and organisational variables appear to be related to the average scores of respondents on the four factor scales, extracted during factor analysis. The following table (Table 4.6) provides a summary of the significant analysis of variance tests including the percentage of variance in mean attitude scores attributable to the various characteristics of staff. The largest differences were found with the educational attainment and current post of staff with perceptions of the
usefulness of the Internet at work whilst respondent’s ratings of their computer proficiency explained 20% of the variance in opinions of the ease of use of the Internet.

<table>
<thead>
<tr>
<th>Variable</th>
<th>U</th>
<th>EOU</th>
<th>I</th>
<th>SN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>6%</td>
<td>2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational attainment</td>
<td>10%</td>
<td>3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current post</td>
<td>9%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Place of work</td>
<td>3%</td>
<td>1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proficiency with computers</td>
<td>20%</td>
<td>2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of time using the Internet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency of Internet use</td>
<td></td>
<td>6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feelings about helping the public use the Internet</td>
<td></td>
<td></td>
<td>3%</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.6 Mean factor scores and influencing variables

4.5.11 Experience, skill and ICT: correlations between the TAM scales

Using the total scores for each of the scales, relationships between the scales were investigated using Pearson product-moment correlation coefficient. Correlations between attitudes and the other four scales ranged from \( r = 0.27, \text{df} = 872, p < 0.001 \) to \( r = 0.70, \text{df} = 877, p < 0.001 \) indicating that relationships between the five aspects of the TAM ranged from small to large (Table 4.7). Broken lines in Figure 4.48 represent the weaker relationships between the five subscales.

Attitudes towards use of the Internet at work accounted for 49.6% of variance on the perceived usefulness scale, 42.9% on behavioural intention, 20.3% on the perceived ease of use scale and only 7.2% on subjective norm. Similarly, perceived usefulness accounted for 41% on total behavioural intention, 12.3% on perceived ease of use and 12.3% on total subjective norm scores.

Perceived ease of use accounted for 15.4% of behavioural intention whilst behavioural intention accounted for 17.6% of variance in scores of subjective norm. There was no relationship between perceived ease of use and subjective norm.
The greatest correlation was between perceived usefulness and attitude; \( r = 0.70, \) df = 877, \( p < 0.001 \) and accounted for 49.6\% of variance in total scores. This strong positive relationship suggested that the higher staff rated the perceived usefulness of the Internet, the more positive their attitude to its use. There was also a strong relationship between behavioural intention and both attitude and perceived usefulness \( r = 0.66, \) df = 859, \( p < 0.001 \) and \( r = 0.64, \) df = 845, \( p < 0.001, \) respectively, suggesting that the more positive staff attitudes were and the more they valued the usefulness of the Internet, the more they intended to use the Internet at work.

<table>
<thead>
<tr>
<th>Correlations</th>
<th>total perceived usefulness</th>
<th>total perceived ease of use</th>
<th>total behavioural intention</th>
<th>total subjective norm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>total perceived usefulness</strong> Pearson Correlation</td>
<td>.350*</td>
<td>.393*</td>
<td>.419*</td>
<td>.269*</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>860</td>
<td>839</td>
<td>849</td>
<td>874</td>
</tr>
<tr>
<td><strong>total perceived ease of use</strong> Pearson Correlation</td>
<td>.640*</td>
<td>.038</td>
<td>.419*</td>
<td>.269*</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.266</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>847</td>
<td>855</td>
<td>849</td>
<td>874</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.7 Correlations between the TAM sub scales
4.6 Summary

This section detailed the relationships between variables and the difference in means between groups in order to ascertain what affects attitudes to ICT and the Internet. Relationships included gender, age, current post, type of post, place of work and frequency of Internet use with computer proficiency according to contingency tables and correlations. Other significant relationships included current post, frequency of Internet use, computer proficiency and attitude with feelings about using the Internet. Type of post, current post, computer proficiency, place of work and length of time using the Internet were all significantly associated with frequency of Internet use. There were also relationships between gender, current post, place of work and type of post with length of time using the Internet at work.

Using one-way analysis of variance, in relation to the four factors derived from the amended TAM, there were significant differences in mean usefulness scores with educational attainment and current post. In addition, there were differences in median usefulness scores with gender and type of post detected using a Mann Whitney U test. There were significant differences in mean ease of use scores with age, education, type of post, place of work and computer proficiency and there were differences in median ease of use scores with type of post detected using a Mann
Whitney U test. With intention to use the Internet at work scores, there were significant differences with age, frequency of Internet use and place of work. Two variables with significant differences in mean subjective norm scores were feelings about helping the public use the Internet and computer proficiency.

4.7 Conclusion

The attitudes of most respondents were positive towards using the Internet at work but they were not overwhelmingly in favour of the Internet. For some, the Internet was a distraction from what public libraries should be doing. In addition, use of the Internet was beset in some authorities by technical problems. Helping the public use the Internet was generally regarded as a positive experience although finding the time to assist library users was difficult.

Attitude was highly related to perceptions of usefulness, intention and ease of use of the Internet at work. Furthermore, attitude was significantly related to actual usage.
CHAPTER 5 RESULTS: TRAINING

5.1 Introduction

The aim of this chapter is to give an overview of the results of the Public Library Staff: Attitudes to ICT and ICT Training survey (see Appendix I) in relation to training. Survey results will be supplemented by comments from interviews, focus groups, an online bulletin board and questionnaires.

Section 5.2 will detail and explore respondent’s opinions of the training, support and assistance received for use of the Internet at work whilst Section 5.3 will consider the relationships between training and other variables using appropriate statistical analysis.

Section 5.4 looks at the relationships between the four factors extracted during factor analysis and training using one-way analysis of variance. Managers’ perceptions of the relationship between attitudes and training are also considered.

Section 5.5 includes a summary and Section 5.6 a conclusion, which highlights the main research results.

5.2 Training for the Internet

The questionnaire for public library staff included a section in which respondents were asked to indicate if they had received a particular method of training, assistance or support for use of the Internet. In addition, respondents were requested to state their opinion of its value in gaining the skills required to use the Internet at work using a five-point Likert scale ranging from 1, poor, 2, fair, 3, good, 4, very good to 5, excellent.

As the data in this section of the questionnaire were derived mainly from ordinal scales (characteristics that have an underlying order among them) with just three nominal measures (other training, accreditation and monitoring) use of the mean is not appropriate, rather the median (most typical) value for these measures and the mode for the nominal variables is presented.

5.2.1 On-the-job, induction and cascade

Informal training methods are popular in the public library sphere (see Section 2.5.4). More respondents had on-the-job training for the Internet than either cascade
or induction training. The median rating for all methods was three, representing good with more than 40% of respondents expressing this opinion in relation to each method. Although these methods have their drawbacks (see Section 2.5.4) they were popular with respondents for learning how to use the Internet. Opinions of on-the-job training were better than cascade; 27.8% thought the former was very good (fig. 5.1) compared to 18.9% of those receiving the latter (fig. 5.3).

![Figure 5.1 On-the-job training](image)

![Figure 5.2 Induction training](image)
Two of the managers interviewed noted that public library staff were used to on-the-job training. Staff undergoing ICT training also helped one another at work and co-operation between staff had been a positive part of the learning process:

"We’ve got staff from different libraries, who actually get to communicate a lot more. Often they’re part timers, they’re in and out, they don’t get to meet each other very much and when they do it’s just sort of in passing it’s not really in a work context, it’s much more social, whereas this made people a lot more focussed on a particular job to do, a particular task to meet, they were working together and supporting each other. I think that’s strengthened the teamwork and that’s really useful" (Manager A: management interviews).

Respondents themselves also appreciated the value of helping colleagues in an informal manner:

"In my job we work as a team and help each other and pass on tips and information constantly" (Assistant librarian, female, part time permanent, central, Authority H: survey comments).

5.2.2 Formal courses
Respondents were asked to indicate whether they had learnt to use the Internet through attendance at formal courses. These included in-house courses on or off site
with an internal or external trainer and external training (figs. 5.4, 5.5, 5.6 and 5.7). More respondents attended a course for the Internet off site with an external trainer than any other formal method, 35.4% (fig. 5.7).

The median rating for all types of internal and external course was three, good. More than one tenth of respondents thought their external training was excellent (11.4%) whilst only 4.4% thought it was poor. Similarly, 14.5% rated in-house training off site with an internal trainer as excellent (fig. 5.6). In contrast, more than one tenth of those receiving in-house training on site with an external trainer rated this method as poor (10.7%) (fig. 5.5).

![Figure 5.4 In-house course on site with internal trainer](image)
Figure 5.5 In-house course on site with external trainer

Figure 5.6 In-house course off site with internal trainer
Outcome one of the NOF ICT Expected Outcomes is typified by the European Computer Driving Licence (ECDL) qualification, an option many public library authorities have chosen for their staff. Eleven of the 14 authorities involved in the survey undertook ECDL while three pursued an acceptable equivalent. The latter included one authority that used City and Guilds and two that followed the Learning Line. ECDL includes a module (number seven) for use of the Internet. Ratings for formal courses include ratings of the ECDL. In some authorities, ECDL was carried out at a local college (external) or arranged externally by the council IT unit (in-house course provided off site by internal trainer).

In addition, some staff also used a CD-ROM of the ECDL with which to practice in work time, ratings of which are included in the section on self-study (see Section 5.2.6). Ninety-three respondents also indicated that they had received ECDL as a form of other training (see Section 5.2.8).

For some respondents a formal course such as the ECDL, Learning Line or City and Guilds followed as part of the NOF ICT training had been a positive experience. Some staff praised the quality of the teaching and courses run by known personnel were also viewed as an advantage:
"I thought the courses were good, I think, because they're run by (Authority G) staff, the staff that we work with. I felt more confident. I thought they were really good, very interesting. I must say though I feel more confident. I was always a bit wary of them and my confidence has increased" (Senior library assistant, full time, branch, Authority G: focus groups).

Staff in Authority E praised their authority for thinking through the best course of training for staff and choosing tutor led programmes. NOF ICT training had involved undertaking the ECDL at a local college. Training was monitored and suggestions put into place to improve training for other staff. In addition, training was undertaken slowly to give all staff the opportunity to pass. Staff were also impressed with the quality of the notes produced to assist use of ICT and the provision of laptop PCs to enable staff to practice:

"I think the way that the management's looked at how the training went the first year and what could they do better you know they've altered it as they've gone along, that's been a good thing" (Services officer, full time, mobiles; Authority E: focus groups).

Formal training has raised the confidence of some respondents in terms of what they could personally achieve and some staff felt able to consider trying using software packages new to the library. Similarly, training also gave respondents the confidence to help the public:

"The course tutor was very encouraging [Learning Line], and pointed out on the first seminar that the course was also an opportunity to explore an area of ICT you were interested in but never really had the time to explore. And now instead of a basic IT course, I am currently working on a website" (Support officer, central, Authority C: bulletin board comments).

"I feel now that confidence and competence come together. I'm finding now in my work that I'm doing things that I'm not afraid now to experiment" (Team librarian, full time, central, Authority F: staff interviews).

The managers interviewed echoed these sentiments and felt that the success of the NOF ICT training was the improved confidence of staff to use ICT:
"I've seen some very good successes where people who came on the first courses were absolutely petrified and had a lot of problems. I've gone back to see them a year later, eighteen months later, and they're doing wonderful things with spreadsheets that they wouldn't even have imagined doing, so it's obviously given them the confidence to do things and experiment themselves" (Manager B: management interviews).

In contrast, a number of respondents were critical of the formal training they had received because of its timing; in some instances training began after the PCs were installed whilst others were trained before the equipment was installed:

"Learning Line training as part of People's Network/NOF; long after the horse had bolted!" (Librarian, male, full time permanent, central, Authority C: survey comments).

"Enjoy it; problem is we don't use it" (Library assistant, part time, branch, Authority F: staff interviews).

For some individuals, the training experience was simply a waste of time. One authority in particular appeared to have experienced problems with the delivery of the training via *learndirect* and a number of respondents expressed anger and frustration about this process as the following comment illustrates:

"Training in own work time for ECDL was set up with Learndirect - a disaster, so emergency training at authority IT centre was set up and the minimum was provided to get us through the modules" (Librarian, female, full time permanent, branches, Authority I: survey comments).

5.2.3 Other informal training methods

Staff were asked to consider both formal and informal methods of training for use of the Internet. Informal methods might include assistance and support in the form of newsletters produced by the authority or ICT manager and the use of a mentor to offer guidance throughout the ICT installation or training process.

Over 150 staff indicated that they had some help from a mentor either at a set time or on a more casual basis. The median rating for these was three, representing *good*. 
Almost one fifth of respondents who had a mentor they communicated with at a set time felt that this support was excellent (19.1%) although a similar proportion also judged it fair (fig. 5.8). More than a quarter of respondents in receipt of mentoring on an informal basis reasoned that it was very good (25.2%).

![Figure 5.8 Mentoring at a set time](image)

![Figure 5.9 Mentoring as and when](image)
In Authority E, the manager discussed the mentoring role during the interview. Authority E had opted for ECDL externally because staff had low ICT skills and distance learning was not regarded as an appropriate method for staff. Sending supervisors on year one of the training programme had proved beneficial because they were able to reassure subsequent groups of staff going and undertake a mentor/tutor role.

Two hundred and seventy five staff had received a newsletter produced internally by the library (fig. 5.10). The median rating for the usefulness of newsletters was also three; 36.7% thought they were good.

![Figure 5.10 Newsletters]

**5.2.4 Reading**

Reading was an additional method of informal learning for use of the Internet whether undertaken at one’s own instigation or on the suggestion of colleagues or managers. In addition, some libraries provided Internet manuals or instruction notes for staff use.

The median ratings awarded for all three methods of training were three; good. Almost one third of respondents read about the Internet for their own interest and almost half of this group deemed this approach good (47.3%) whilst a further 30%
thought it was very good (fig. 5.12). Reading suggested by managers and colleagues received the largest percentage of poor ratings in this section - 8.3% (fig. 5.11) compared to 1.1% for reading undertaken for one’s own interest and 4.6% for reading using a manual provided by the library (fig. 5.13).

![Figure 5.11 Reading suggested by managers and colleagues](image-url)

![Figure 5.12 Reading undertaken for own interest](image-url)
5.2.5 Meetings, seminars and staff support

Attendance at staff meetings where managers and colleagues discussed current ICT issues was another informal training method for use of the Internet. Some of the NOF ICT training programmes such as the Learning Line included use of seminars of a more formal nature. Support might also come from managers and colleagues in emails or in discussions and conversations whether in person or, in the case of the Learning Line programme, online. These more informal methods of learning about the Internet could be important in helping staff improve both skills and confidence.

The median score for all four methods was three, *good*. Fewer than 100 staff indicated that they had attended staff seminars and nearly one tenth felt they were *poor* (8.7%) (fig. 5.15). More than 150 respondents had attended staff meetings, which included informal learning about the Internet (fig. 5.14). This method was judged *good* by 44.7% of staff while similar proportions felt they were *fair*, 24.2%, and *very good*, 22.4%.

Only three per cent of those involved in discussions with colleagues thought this method was a *poor* way of gaining Internet skills, the smallest percentage within the training group (fig. 5.17). Almost half of respondents judged support in the form of emails and discussions as *good* (45.9% and 47.5% respectively) (figs. 5.16 and
Figure 5.14 Staff meetings

Figure 5.15 Staff seminars
5.2.6 Self-study

This section of self-study methods included learning to use the Internet at home, or on a course at one's own instigation. In addition, use of the Internet in the workplace in work protected time or when the opportunity arose using a variety of training materials was evaluated by respondents.
The median ratings for all forms of self-study were three, *good*, with the exception of self-study at home whose median rating was four, *very good*. Over half (53.7%) of respondents indicated that they had learnt at home on a family or friend’s PC (fig. 5.18). Almost one fifth of this group felt that this was an *excellent* way to learn how to use the Internet (16.2%) while nearly a third thought it was *very good* (31.1%). Only 0.2% judged this approach *poor*.

Respondents whose Internet skills were a result of their own attempts included those that felt rather proud of having learnt by themselves and staff who simply preferred to learn at home:

"*Most of what I know regarding the Internet I taught myself. I also used mailing lists/discussion boards and other websites*" (Librarian, female, full time permanent, central, Authority H: survey comments).

A small number of respondents had taught themselves how to use the Internet because there had been no opportunities for formal training:

"*I never had any real training on how to use the Internet; I just picked it up as I went along. As a part-timer I feel left ‘til last on all aspects of training*" (Information assistant, female, part time permanent, information bureau, Authority C: survey comments).

One hundred and fifty four respondents had attended a course for their own interest and at their own cost (16% of respondents) (fig. 5.19). This method of self-study included the largest proportion of respondents rating a method *very good* (35.1%) and *excellent* (20.1%).

Learning at work was another form of self-study. In the questionnaire, this included learning when the library was closed (5.6% of all respondents, fig. 5.20) and learning in spare time off the desk generally (41.3% of all respondents, fig. 5.21). Learning in the library received the greatest proportion of those rating a method as *poor* in this section (7.4%) although the majority felt this approach was *good* (51.9%).
Figure 5.18 Self-study at home

Figure 5.19 Course for own interest
Learning in one’s spare time was rated well, although not as emphatically as study at home or on a course, with more than a fifth in each instance judging this approach *fair* (22.4% general, 28% with notes, 23.3% with a tutorial and 20.6% with books, figs. 5.21, 5.22, 5.23 and 5.24 respectively). This was balanced, however, by similar proportions rating these methods, *very good* (23.9%, 20%, 24.7% and 16.5% respectively). More than half of respondents who learnt how to
use the Internet in spare time off the desk using books provided by the library, judged this method good (54.1%).

Figure 5.22 Learning in spare time using notes

Figure 5.23 Learning in spare time using a tutorial package
5.2.7 Training projects and activities

Survey respondents rated the value of projects/activities set by training providers conducted in work or personal time. This latter method is very much an initiative that has arisen directly from the NOF ICT training and includes tasks incorporated in the Learning Line and NOF/CILIP programmes. This section might also include respondent's ratings of formal training activities for ECDL and City and Guilds.

In total 50.4% of all respondents had undertaken a project set by the training provider in work and personal time with 66.5% of these carried out in work time (figs. 5.25 and 5.26). The median ratings for both activities were three, *good*. Opinions of the two methods were very similar with projects undertaken in own time faring slightly better than those in work time; 49.1% rated those in own time as *good* compared to 42.1% of projects in work time.
5.2.8 Other training

Three hundred and six respondents indicated that they had received a form of training for use of the Internet in addition to those methods stipulated in the questionnaire (fig. 5.27). This question did not include a rating of the training received.
From respondents who specified what the other training entailed, responses were recoded and calculated. NOF training was numerically the largest group here including Learning Line, ECDL, City and Guilds, CLAIT and NOF training (56.4% of total group) possibly because they did not feel the descriptions in the questionnaire accurately reflected the nature of their training. Almost one fifth of this group had learnt to use the Internet at home, in spare time and in past employment (17.3%).

![Figure 5.27 Other training](image)

**5.2.9 Accreditation**


Five hundred and thirty two respondents (55.2% of all respondents) indicated that at least one form of training for the Internet was accredited or that they received a certificate or qualification upon completion (fig. 5.28). Two hundred and nine staff
(21.7%) did not think any of their training was accredited or they did not receive a certificate or qualification.

Three hundred respondents stated that their NOF ICT training was accredited (fig. 5.29) and the ECDL qualification was identified by the majority of these (76.7%).

![Accreditation Received](chart)

**Figure 5.28 Accreditation**

![Accredited courses/qualification](chart)

**Figure 5.29 Accredited courses/training**
A few respondents who undertook the Learning Line programme, a NOF funded course, pointed out that their course merited a certificate but this was not a qualification:

"Just certificate; it would have been nice to be a qualification" (Library assistant, female, part time permanent, branch, Authority C: survey comments).

5.2.10 Monitoring and evaluation

Comments made by respondents to the question asking for details of monitoring and evaluation of Internet training were analysed and broken down into a number of categories to enable more detailed quantitative analysis. Initial coding categories had included 1, yes, 2, no and 9, missing. Further coding resulted in 1, yes, general comments, 2, no, 3, ECDL, 4, Learning Line, 5, more than one course monitored, 6, in-house/management records, 7, NOF and related training, 8, do not know/not sure, 9, missing and 10, college/university course.

Over 60% of respondents indicated, that at least one form of Internet training they had undertaken was monitored and/or evaluated (fig. 5.30). This awareness was reflected in the comments made by respondents in the survey. Training was monitored and evaluated by completing evaluation forms, completion rates, authority statistics, taking exams and tests, correspondence with tutors by email, attendance records, progress folders, training databases, learning agreements, appraisals, training plans, personnel records and self-monitoring forms; a variety of internal and external means. Some respondents pointed out that although their training had been recorded it had not been evaluated.
A small number of cynical comments were made reflecting some respondents' perception of this process. There was some anger that management had not appreciated the effort staff had made:

"Apart from acknowledging the formal training our authority does not realise the effort staff have put into helping themselves and each other" (Senior library
One respondent noted that although management monitored training this would not lead to a wage increase:

"I can notify personnel but don't think I'll get a pay rise!" (Senior library assistant, female, part time permanent, branch, Authority C: survey comments).

Another felt that monitoring training was merely a public relations exercise:

"So that the council can fly the 'investors in people' flag" (Library assistant, female, full time permanent, branch, Authority E: survey comments).

Seven respondents mentioned that informal training and self-study went unrecorded. Only formal training was recorded as typified by the following comment:

"No, most of it informal training; as and when" (Librarian, female, part time permanent, central, Authority C: survey comments).

In total, 130 staff (13.5%) stated that the NOF ICT training had been recorded. This figure is open to interpretation given that many respondents (53.6%) did not stipulate what form of training was actually monitored and based on figures for training and accreditation it is likely that this figure is much higher.

5.2.11 Untrained staff

Forty-one respondents received no training for the Internet of any kind; this represents 4.3% of total respondents. One respondent was not going to attend training because they were due to retire in 2003 whereas many others knew when they were due to attend NOF ICT training:

"I have never used the Internet. Training is due to start mid July for all library staff" (Senior library assistant, female, part time permanent, branch, Authority H: survey comments).
Untrained staff included 40 women and one man. The majority were library assistants (58.5%) and the group included six librarians and five SLAs. The majority of those without training were part time permanent staff (63.4%). The largest groups worked in branch libraries (41.5%), central (24.4%), mobiles (9.8%) and the schools library service (9.8%).

The computer proficiency of staff without Internet training was lower than that of the total sample (fig. 5.32). The median was two; fair, compared to three; good overall (see Section 4.3.1).

![Figure 5.32 Computer proficiency of untrained staff](image)

Almost half of those without Internet training did not use the Internet at work whilst almost a quarter had been using it for less than six months (fig. 5.33). Notably 12.5% had been using it for longer than two years but less than three without any Internet training.
In spite of their lack of training, 17.1% of this group used the Internet at work on a daily basis (fig. 5.34). By far the greatest proportion never used the Internet at work, 61% in total.

Regardless of the number of respondents who indicated that they did not use the Internet at work and could not therefore answer the question about helping the
The largest proportion of staff without training were *generally positive* about this role (fig. 5.35). The proportion of those with negative feelings, however, was much larger than that of the total sample suggesting that training alleviated some staff’s negative feelings about helping the public use the Internet in the library.

![Figure 5.35 Untrained staff’s feelings about helping the public use the Internet](image)

The attitudes of respondents without any training included only one negative response. However, the number of respondents without training who completed this section was low which might affect the results. Admittedly, almost half chose not to answer the question on the basis that they did not use the Internet and their views might all be negative. Of those that responded to the questions, the majority held mixed attitudes; 52.9% thought it was *neither unpleasant nor pleasant*, 50% *neither unenjoyable nor enjoyable* compared to 41.2% who judged it *neither negative nor positive* (figs. 5.37, 5.38 and 5.36). Almost one third actually felt that it was *extremely positive* (29.4%).
Figure 5.36 Untrained staff’s attitudes to the Internet at work

Figure 5.37 Untrained staff’s attitudes to the Internet at work
5.2.12 Views of training

Opinions of Internet training, assistance and support according to modal ratings were generally good. Survey respondents were encouraged to make comments in relation to the content of the questionnaire and many commented on the training. Criticisms of training were more forthcoming than positive evaluations, possibly because of the nature of an anonymous and confidential questionnaire to a stranger. More than 20 survey respondents expressed criticisms of training which included training not tailored to individual’s needs, the compulsory nature of training, ‘too little, too late’ and criticisms of specific training methods.

5.2.12.1 Time and availability of PCs

Concerns about finding the time to practice Internet and ICT skills were expressed by many respondents and noted in both focus groups. Some staff seemed annoyed that they had little time to practice their skills at work:

“Branch work does not always offer regular need for access to the Internet so practice is difficult” (Library manager, female, full time permanent, branches, Authority I: survey comments).

The availability of PCs was another problem affecting staff’s ability to practice. Participants in the focus group from Authority E noted that there had not been
enough PCs available for staff to use in the first year of training:

"I know some of the first felt more of a struggle because they didn't have the facilities to do it everywhere at the right time. It was impossible to do it like that" (Librarian, full time, branch and Central, Authority E: focus groups).

A minority of staff had negative training experiences because it commenced after the PCs had arrived:

"Formal training I received via the Learning Line was really too little too late. It would have been of more use before or just after libraries had the Internet access, rather than equipment arriving and staff being told to get on with it!" (Senior library assistant, female, full time permanent, branch, Authority C: survey comments).

The availability of PCs to practice was particularly problematic in authorities where training had taken place before installation. Three managers interviewed had difficulties timing the training with funds from NOF with the installation of PCs from the People's Network. Libraries were not permitted to undertake training until they had PCs, though some had already started training before installation:

"So that was a disadvantage because there was a break in the training, people who are doing the ECDL now have felt that they have had a long gap between Clait and that and again that's down to the fact that it's external funding so that's a slight problem" (Manager A: management interviews).

The issue of time was paramount whether that was to practice, attend college or take the tests. This problem was amplified if travelling to the college or test centre took a lot of time. Participants in Authority G were concerned about the time required to sit exams and travel to test centres and in a rural authority, such as Authority E, a great deal of time was taken up travelling to the centres:

"Training manuals and programmes designed to help staff learn are quite useless if you don't get given the time to use them. When you are sent on courses, you may have worked part of the day before the course; the journey to the centre may take 1-2 hours. Then you have to journey back to work in some cases if you are working
until 8 pm. This is not ideal for staff as you are exhausted and will not learn well” (Senior library assistant, female, full time permanent, branch, Authority G: focus groups).

Authority G had found that staff taking the CILIP NOF training course for Expected Outcomes 2-8, were not completing their work because of time pressures, which was creating a backlog of staff waiting to be trained. Staff in the focus group echoed this sentiment arguing that it was difficult to find the time to complete training programmes whilst trying to provide a service to the public:

“There are 33 Outcomes, which is too much, and can be a bit tedious. Thirty-three are difficult to do when you’ve got two trolleys worth of shelving to do. If the shelving needs doing then you do that. So it’s hard to enter the Outcomes. I’ve only entered 21 Outcomes, because by the time I get home, the last thing I want to do is switch on the computer and start entering my Outcomes” (Senior library assistant, full time, branch, Authority G: focus groups).

Managers E, G, H and D observed that it was sometimes difficult for staff to find the time to practise for college and exams. Managers H and D had advocated scheduling practice time for some staff:

“If you’re an SLA it’s very difficult to go and shut yourself away because your staff are always wanting you or something comes up or you need to go on the counter so that was quite an issue. What we said was if you were our operations staff, our non-professional staff, it should be timetabled into your timetable each week, that you had time to do the training” (Manager D: management interviews).

The stress of trying to fit training and travelling in a small time frame might be exacerbated by the fact that staff absences placed additional responsibilities on colleagues:

“There’s also no enthusiasm, I mean we’ve been given an opportunity to learn something, something useful to take away to a new job, but there’s no enthusiasm, it’s ‘Oh my God’, it’s a pressure, it’s a stress we could do without. There’s not enough time to do it, there’s not enough staff to let you go” (Senior library assistant, full time permanent, branch, Authority G: focus groups).
Three managers had also found the practicalities of finding relief staff to cover staff attending external training troublesome:

"I suppose the down side of it is that you've got to keep the service running and it's how many staff we can release at any one time from any library. That causes some logistical problems" (Manager E: management interviews).

The comment made by one respondent in light of these difficulties was particularly apt:

"I have come to the conclusion that the most important resources are time and an available PC" (Librarian, male, full time permanent, central, Authority C: survey comments).

5.2.12.2 Training preferences

Criticisms of specific training methods included both formal and informal training and projects. These criticisms appeared to be a result of individual learning preferences as one respondent, for example, simply did not enjoy self-directed learning whilst another respondent preferred learning on-the-job to attending a course:

"I found one-to-one training from a member of staff or tutor far more helpful than the ECDL training - which has been via 'Electric Paper' CD-ROM. I find it very difficult to learn practical things via a teaching package - either CD or book" (Library assistant, female, part time permanent, local studies, Authority I: survey comments).

"Whilst the short college course was very good - by far the best method was 'hands on' experience of actually answering specific enquiries and by hints and suggestions from colleagues" (Librarian, female, full time permanent, central, Authority C: survey comments).

Managers noted that it had been difficult finding training approaches that all staff liked. Although most authorities surveyed had undertaken the ECDL at college or learning centres, a number of staff had found attending classes and taking exams difficult. Manager A accepted that the NOF ICT training was awkward for staff.
who had not had any formal education for a number of years but the training had proved beneficial to staff:

"It is an imposed training, something that you've got to do, and it's like going back to school for a lot of people, having to sit a qualification, and the training's not so bad it's the exam at the end of it, passing the modules in the ECDL that people do find difficult. That is a big turn off for a lot of people" (Manager A: management interviews).

In Authority D, staff had initially undertaken the ECDL course by distance learning using a CD-ROM, but it became apparent after the first year that staff were not completing the course. Consequently, staff attended college and undertook the various ECDL modules on a monthly basis and took exams to illustrate their competence. Manager D also felt that some staff had resented taking exams:

"I'm sure there's lots of people who've hated, loathed doing the exam, they haven't minded doing the training but they've really hated doing the exam. But that was a decision that was made that if you were going to do it, you had to prove to NOF that you'd done it and surely the only way you could prove it to them was for them to finally achieve that. I wouldn't say it's always been popular" (Manager D: management interviews).

Authorities B and C had opted for the same training programme, the Learning Line, which involved elements of online self-directed learning. In both authorities this decision had been made for reasons of efficiency in terms of both time and money. Authority B, for example, had opted for this approach to minimise the impact on the service and staff were given two hours a week within work time to undertake the programme. However, some staff found it difficult to contact their tutor in work hours, which led to frustration because they had limited time in which to practice:

"I know it has been very frustrating for people who can't get hold of their tutor during the day because they're only tutoring out of work hours. So that was one of the drawbacks" (Manager B: management interviews).

Manager B acknowledged that some staff had found this newer approach unattractive and would have preferred classroom-based learning:
“There were quite a lot of people who liked to do it at their own pace provided there’s a support mechanism there for them. But it just wasn’t realistic to send people away to college to do it” (Manager B: management interviews).

Manager C felt that the provision of training online - an element of the Learning Line programme, had opened up possibilities for the future provision of training to such a large number of staff:

“We’ve learnt about learning styles and we’ve learnt that with good tutoring it’s amazing what people can achieve. We’ve had some very good tutors amongst our own staff - real stars, and we’ve just learned that online learning styles are possible really” (Manager C: management interviews).

5.2.12.3 Imposed training

Some respondents resented the fact that training was compulsory. This resentment was alluded to in the questionnaires, focus groups and interviews with managers:

“Taking ECDL was compulsory, which I think should not happen” (Clerk, female, full time permanent, Authority I: survey comments).

Two managers felt that their staff did not have negative attitudes to ICT but some of them did have negative attitudes towards the training, for example, some of the older staff were unhappy about the training and had left the public library service rather than do it:

“There were still people that can’t understand or accept why we’re having to do it; this attitude ‘books, libraries, we’re not to do with IT’ and I’ve even had people retire rather than do it; took early retirement rather than having to do NOF” (Manager B: management interviews).

Similarly, for staff already in possession of Internet skills, the NOF ICT training seemed repetitive and some staff disliked having to attend whilst others resented having to train with colleagues who had no prior Internet experience:
"The training did not address the training needs of individuals; it offered the same content regardless of existing skills. I have a positive attitude towards ICT and clearly expressed training needs which the course did nothing to fulfil" (Children's librarian, female, full time permanent, Authority C: survey comments).

5.2.12.4 Overall value of NOF ICT training for the Internet

Participants in the focus groups expressed mixed opinions as to the value of the training they had received for the Internet. This mixture reflects the ratings and comments expressed by respondents to the survey. Staff from Authority E noted that at times, the training had been difficult, but they felt that the authority had been good at trying to improve the training over the course of time. In Authority G, staff were quite critical of the training arguing they had been rushed through it, although a minority acknowledged that it had improved their confidence.

Managers' perceptions of the NOF ICT training also included a combination of views and feelings about its value and usefulness. Most agreed that it had been successful in changing attitudes and improving confidence but at the same time, it was hard work, problematic and some staff had not enjoyed it:

"Yes, yes and I think you'll see from those comments that people feel it has as well [changed attitudes]. It might not have been at the time there's been a lot of anguish and a lot of agony and a lot of tears through it but I think in the end it has" (Manager D: management interviews).

"It has been a long haul and hard work for those delivering it. For some staff it was a real problem as their capabilities were not what they should be, and the training had to be altered to adapt for these" (Manager H: management interviews).

Overall, the numbers of staff passing exams and completing courses was promising and repaid the effort invested:

"It's gone pretty well really, generally speaking there's loads of testimonies to how great it's been" (Manager C).
5.3 Influences on training: an analysis

A number of analyses were performed to ascertain which variables affected respondent’s views of the training they had received. Only significant results are reported. Details of the outcomes of the tests are given, followed by a summary of effects (see Section 3.5.3 for a summary of the tests used). The full implications of the results are discussed in Chapter 6.

5.3.1 Gender and training

A Mann-Whitney U test was conducted to compare the self-study at home median ratings of males and females. There was a significant difference in scores for females (M = 248.68) and males (298.38, p = 0.002). On consideration of ratings, more women judged learning at home to be poor, fair or good while more men thought it was very good and excellent (fig. 5.39).

![Figure 5.39 Gender and self-study at home](image)

Use of a Mann-Whitney U test also found a significant difference in median ratings of learning on the library PC in spare time off the desk between males and females. There was a significant difference in scores for females (M = 191.18) and males (233.13, p = 0.003). More women rated learning on a library PC in spare time/time off desk as poor, fair or good and more men rated it very good and excellent (fig. 5.40).
5.3.2 Computer skills

Using correlations, a strong relationship of high significance was detected between self-study at home on a family or friend’s computer and computer proficiency, $\Gamma = 0.53$, $p < 0.001$, $n = 516$. Computer proficiency helps to explain over 28% of the variance in respondent’s ratings of this form of training for the Internet. Of respondents rating self-study at home as excellent, 64.5% rated their proficiency as excellent compared to 20% who judged their proficiency to be poor (fig. 5.41).
A relationship was also found between computer proficiency and self-study in spare time off the desk, \( r = 0.42, p < 0.001, n = 396 \). Computer proficiency helps to explain 17.6% of variance in ratings of self-study in spare time. Fifty percent of those who rated their proficiency as \textit{excellent} also rated this method \textit{excellent}. In contrast, 62.5% of those who rated their skill as \textit{poor} judged this method \textit{fair} (fig. 5.42).
5.3.3 Feelings about helping the public use the Internet

A number of relationships were found based on the $\Gamma$ statistic between feelings about helping the public use the Internet and self-directed study methods as the following section illustrates.

Five strong relationships were found between training methods and feelings about helping the public use the Internet. Reading suggested by managers and colleagues ($\Gamma = 0.40$, $p < 0.001$, $n = 108$) (fig. 5.43), learning in spare time using a tutorial package ($\Gamma = 0.47$, $p < 0.001$, $n = 291$) (fig. 5.44), learning in spare time ($\Gamma = 0.50$, $p < 0.001$, $n = 392$) (fig. 5.45), learning in spare time using library notes ($\Gamma = 0.55$, $p < 0.001$, $n = 150$) (fig. 5.46), and when the library was closed ($\Gamma = 0.73$, $p < 0.001$, $n = 54$) (fig. 5.47). In relation to the latter, 44.4% of those who felt very positive about helping the public use the Internet regarded learning when the library was closed as excellent (fig. 5.48). Feelings about helping the public help to explain 16%, 22.1%, 25%, 30.3% and 53.3% of variance in ratings of self-directed training respectively.

![Figure 5.43 Feelings about helping the public use the Internet and ratings of reading](image-url)
Figure 5.44 Feelings about helping the public use the Internet and ratings of tutorial package

Figure 5.45 Feelings about helping the public use the Internet and ratings of learning on library PC
5.3.4 Accreditation

There was a significant relationship between type of post and accreditation, according to Yates' Correction for Continuity, which was used because these variables constitute a 2 x 2 table, $\chi^2 = 4.11$, df = 1, $p < 0.01$, $n = 738$. Interestingly the majority of staff whose training was accredited were full time and yet full time
staff constituted the majority of those whose training was not accredited.

![Accreditation and type of post](image)

**Figure 5.48 Accreditation and type of post**

5.3.5 Monitoring

There was a significant association between current post and monitoring of training, $\chi^2 = 312.98$, df = 3, $p < 0.01$, $n = 770$. Library assistants constituted the greatest proportion of those whose training was both recorded (30.9%) and not recorded (43.6%).
5.4 Internet training and attitudes

One-way analysis of variance was used to compare differences in attitudes towards the Internet amongst the different groups of staff based on their ratings of training received. Only significant results are reported and details of the outcomes of the tests are given, followed by a summary of effects. The full implications of the results are discussed in Chapter 6.

5.4.1 On-the-job, induction, cascade

Statistically significant differences between mean ratings for on-the-job training and usefulness, ease of use and intention to use the Internet at work were found but not with subjective norm. There were significant differences in mean ratings for both induction and cascade training with usefulness and ease of use.

5.4.1.1 On-the-job

A one-way analysis of variance found an effect of on-the-job ratings on usefulness scores, \( F(4, 541) = 8.5, p < 0.001, n = 545 \). Tukey’s follow-up comparisons found that respondents rating on-the-job training as poor \((M = -0.55, SD = 0.86)\) had lower usefulness scores than those who rated this method as good or excellent \((M = 0.09, SD = 0.86, M = 0.53, SD = 0.93)\), and the scores of those who rated on-the-job training as fair \((M = -0.23, SD = 0.94)\) differed from those who rated on-the-job as good, very good and excellent \((M = 0.09, SD = 0.86, M = 0.24, SD = 0.89, M = \)
Respondents who rated on-the-job training as *good* (*M* = 0.09, *SD* = 0.86) had significantly different usefulness scores from those who felt it was *excellent* (*M* = 0.53, *SD* = 0.93). Six per cent of the variance in usefulness scores was explained by on-the-job training based on an effect size of $\eta^2 = 0.06$.

![Figure 5.50 On-the-job training and usefulness](image)

One-way analysis of variance found an effect of on-the-job ratings on ease of use of the Internet at work scores, $F(4, 541) = 4.7$, $p < 0.01$, $n = 545$. Tukey’s follow-up comparisons found that respondents rating on-the-job training as *fair* (*M* = -0.32, *SD* = 1.02) had lower ease of use scores on average than those who rated on-the-job as *very good* or *excellent* (*M* = 0.15, *SD* = 0.91, *M* = 0.21, *SD* = 0.95) (fig 5.51). There were no significant differences in average scores between respondents who rated on-the-job training *poor* or *good* (*M* = -0.27, *SD* = 0.87, *M* = -0.04, *SD* = 0.88). The effect size was medium, $\eta^2 = 0.08$, thus eight per cent of the variance in ease of use was explained by on-the-job training.
There was also an effect between on-the-job ratings and intention, $F (4, 541) = 3.5$, $p < 0.01$, $n = 545$. Tukey's follow-up comparisons found that respondents rating on-the-job training as fair, good and very good ($M = -0.11$, $SD = 0.95$, $M = -0.03$, $SD = 0.88$, $M = 0.04$, $SD = 1.01$) had lower intention scores on average than those who rated on-the-job as excellent ($M = 0.49$, $SD = 0.88$) (fig. 5.52). There were no significant differences in scores between respondents who rated on-the-job training as poor ($M = -0.14$, $SD = 1.17$). The effect size was medium, $\eta^2 = 0.1$, which meant that ten per cent of the variance in intention was explained by on-the-job training.

**Figure 5.51 On-the-job training and ease of use**

**Figure 5.52 On-the-job training and intention**
5.4.1.2 Induction

One-way analysis of variance found an effect of induction ratings on usefulness of the Internet at work scores, $F(4, 138) = 3.82, p < 0.01, n = 142$. Tukey’s follow-up comparisons found that respondents rating induction training as poor and fair ($M = -0.34, SD = 0.86, M = -0.25, SD = 0.94$) had lower usefulness scores on average than those who rated induction as very good ($M = 0.51, SD = 0.77$) (fig. 5.53).

There were no significant differences in average scores between respondents who rated induction training good and excellent ($M = 0.09, SD = 0.88$ and $M = 0.37, SD = 1.35$). The effect size was medium, $\eta^2 = 0.1$, thus ten per cent of the variance in usefulness was explained by induction training.

![Figure 5.53 Induction training and usefulness](image)

Similarly, one-way analysis of variance found an effect of induction ratings on ease of use of the Internet at work scores, $F(4, 138) = 3.10, p < 0.1, n = 142$. Tukey’s follow-up comparisons found that respondents rating induction training as fair and good ($M = -0.41, SD = 1.24, M = -0.10, SD = 0.88$) had lower ease of use scores on average than those who rated induction as excellent ($M = 1.07, SD = 1.07$) (fig. 5.54). There were no significant differences in average scores between respondents who rated induction training poor and very good ($M = 0.08, SD = 1.23, M = 0.05, SD = 0.81$). The effect size was moderate, $\eta^2 = 0.08$, thus induction training explained eight per cent of the variance in ease of use scores.
5.4.1.3 Cascade

One-way analysis of variance found an effect of cascade ratings on ease of use of the Internet at work scores, $F(4, 350) = 3.75, p < 0.01, n = 354$. Tukey's follow-up comparisons found that respondents rating cascade training as poor, fair, good and very good ($M = -0.20, SD = 1.23, M = -0.05, SD = 0.92, M = 0.6, SD = 0.80, M = 0.09, SD = 0.93$) had lower ease of use scores on average than those who rated it excellent ($M = 0.81, SD = 1.01$) (fig. 5.55). The effect size was small, $\eta^2 = 0.04$, thus cascade training explained four per cent of the variance in ease of use scores.
5.4.2 Formal courses

There were statistically significant differences in mean scores for all three in-house training courses with intention whilst respondents who undertook in-house training conducted off-site with an internal trainer had significant differences in mean ease of use scores. In contrast, no significant differences in mean attitude scores were detected amongst those who had undertaken external training.

5.4.2.1 In-house: course provided on site by internal trainer

One-way analysis of variance found an effect of in-house training ratings on intention to use the Internet at work, \( F(4, 206) = 2.90, p < 0.1, n = 210 \). Tukey’s follow-up comparisons found that respondents rating in-house training as fair \((M = -0.32, SD = 0.90)\) had lower intention scores on average than those who rated in-house as excellent \((M = 0.45, SD = 0.68)\) (fig. 5.56). There were no significant differences in average scores between respondents who rated in-house training as poor, good or very good \((M = -0.24, SD = 1.75, M = 0.06, SD = 0.96, M = 0.18, SD = 0.83)\). The effect size was moderate, \( \eta^2 = 0.06 \), thus in-house training accounted for six per cent of the variance in intention scores.

![Figure 5.56 Internal training and intention](image)

5.4.2.2 In-house: course provided on site by external trainer

Similarly, with training provided on site but with an external trainer, the only significant difference in attitudes was with intention \( F(4, 197) = 3.46, p < 0.01, n = \)
Tukey's follow-up comparisons found that respondents rating in-house training with an external trainer as poor ($M = -0.14$, $SD = 1.20$) had lower intention scores on average than those who rated in-house as fair, very good and excellent ($M = -0.11$, $SD = 0.95$, $M = 0.04$, $SD = 1.00$, $M = 0.49$, $SD = 0.88$) (fig. 5.57). There were no significant differences in average scores between respondents who rated in-house training as good ($M = -0.24$, $SD = 1.8$). The effect size was moderate, $\eta^2 = 0.07$, as a result in-house training accounted for seven per cent of the variance in intention scores.

![Figure 5.57 Internal training and Intention](image)

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5.4.2.3 In-house: course provided off site by internal trainer

One-way analysis of variance was conducted to explore the impact of in-house training on all four factors and found significant differences with ease of use and intention to use the Internet at work.

An effect of in-house training ratings was found with ease of use, $F (4, 158) = 4.7$, $p < 0.01$, $n = 162$. Tukey's follow-up comparisons found that respondents rating in-house training as poor ($M = -0.08$, $SD = 1.2$) had lower ease of use scores on average than those who rated in-house as fair and excellent ($M = 0.37$, $SD = 0.86$, $M = 0.23$, $SD = 0.65$). Those rating it good and very good ($M = -0.08$, $SD = 0.98$, $M = -0.05$, $SD = 0.82$) did not differ significantly from any other groups. The effect size was moderate, $\eta^2 = 0.11$, indicating that this method of training accounted for 11% of variance in ease of use scores.
There were also significant differences with in-house training ratings and intention, $F(4, 158) = 4.6, p < 0.01, n = 162$. Tukey’s follow-up comparisons found that respondents rating in-house training as *poor* ($M = -0.73$, $SD = 0.98$) had lower intention scores on average than those who rated in-house as *fair* and *very good* ($M = 0.40$, $SD = 1.00$, $M = 0.34$, $SD = 0.73$) (fig. 5.59). Those rating it *good* and *excellent* ($M = -0.10$, $SD = 0.93$, $M = 0.12$, $SD = 1.20$) did not differ significantly from any other groups. The effect size, $\eta^2 = 0.1$ was moderate, indicating that this method of training accounted for ten per cent of the variance in intention scores.
5.4.3 Other informal training methods

No significant differences were detected with either ratings of mentoring and reading with attitudes using one-way analysis of variance.

5.4.4 Meetings, seminars and support

5.4.4.1 Seminars

No significant differences in mean attitude scores and ratings of meetings were found, however, differences were found with seminars and usefulness, but not with ease of use, intention or subjective norm. One-way analysis of variance found an effect of seminar ratings on usefulness of the Internet, $F(4, 78) = 3.5$, $p < 0.1$, $n = 82$. Tukey's follow-up comparisons found that respondents rating seminars as *poor* ($M = -0.67$, $SD = 1.19$) had lower usefulness scores on average than those who rated them *very good* and *excellent* ($M = 0.61$, $SD = 0.60$, $M = 1.13$, $SD = 1.17$) (fig. 5.60). Those rating them *fair* and *good* ($M = 0.35$, $SD = 0.93$, $M = 0.21$, $SD = 0.92$) did not differ significantly from any other groups. The effect size was large, $\eta^2 = 0.15$, indicating that this method of training accounted for 15% of variance in usefulness scores.

![Figure 5.60 Seminars and usefulness](image)

5.4.4.2 Support

One-way analysis of variance found an effect of email ratings on ease of use of the Internet, $F(4, 251) = 4.74$, $p < 0.0001$, $n = 255$. Tukey's follow-up comparisons
found that respondents rating emails as fair, good and very good (M = -0.27, SD = 1.10, M = 0.07, SD = 0.82, M = 0.09, SD = 0.93) all had lower ease of use scores on average than those who rated them excellent (M = 0.93, SD = 0.94). Staff rating this approach as poor (M = 0.25, SD = 1.10) did not differ significantly from any other groups (fig. 5.61). The effect size was moderate, $\eta^2 = 0.08$, thus support in the form of emails accounted for eight per cent in the variance in ease of use scores.

Figure 5.61 Email and ease of use

One-way analysis of variance found an effect of discussion ratings on usefulness of the Internet, F (4, 285) = 6.1, p <0.001, n = 289. Tukey’s follow-up comparisons found that respondents rating discussions as poor (M = -0.29, SD = 0.69) had lower usefulness scores on average than those who rated them very good (M = 0.52, SD = 0.74) whilst respondents rating discussions as fair (M = -0.17, SD = 0.94) had significantly different scores from those rating them as good and very good (M = 0.27, SD = 0.81, M = 0.52, SD = 0.74). Staff rating them excellent (M = 0.34, SD = 1.30) did not differ significantly from any other groups (fig. 5.62). The effect size was medium, $\eta^2 = 0.08$, thus support in the form of discussions accounted for eight per cent in the variance in usefulness scores.
In addition, one-way analysis of variance found an effect of discussion ratings on ease of use of the Internet, $F(4, 285) = 4.7, p < 0.01, n = 289$. Tukey’s follow-up comparisons found that respondents rating discussions *fair* ($M = -0.33, SD = 0.82$) had lower ease of use scores on average than those who rated them *very good* and *excellent* ($M = 0.20, SD = 0.87, M = 0.61, SD = 0.79$) while those rating discussions as *poor* and *good* ($M = -0.37, SD = 1.50, M = -0.03, SD = 0.91$) did not differ significantly from any other groups (fig. 5.63). The effect size was medium, $\eta^2 = 0.06$, thus support in the form of discussions accounted for six per cent in the variance in ease of use scores.
5.4.5 Self-study

There were significant statistical differences between self-study at home ratings and mean usefulness and ease of use scores. In addition, there were significant statistical differences between self-study in spare time using a tutorial ratings and mean usefulness, ease of use and intention scores. With study in spare time using notes, there were significant differences between ratings and intention scores whilst the ratings of study in spare time using books had significant differences with usefulness scores. No significant differences in mean attitude scores were detected amongst staff who had attended a course at their own cost or who had learnt on library PCs when the library was closed.

5.4.5.1 Learning on a family or friend's PC

One-way analysis of variance found an effect of self-study ratings on usefulness of the Internet, $F (3, 450) = 5.7, p < 0.01, n = 453$. Tukey's follow-up comparisons found that respondents rating self-study at home *fair* and *good* ($M = -0.15, SD = 0.99, M = -0.01, SD = 0.87$) had lower usefulness scores on average than those who rated them *very good* ($M = 0.35, SD = 0.94$), while those rating self-study at home *excellent* ($M = 0.21, SD = 1.0$) did not differ significantly from any other groups (fig. 5.64). No respondents rated this method of training as *poor*. The effect size was small, $\eta^2 = 0.04$, indicating that self-study accounted for just four per cent of variance in usefulness scores.

![Figure 5.64 Self-study and usefulness](image)

**Figure 5.64 Self-study and usefulness**
Similarly, an effect of self-study ratings was found with ease of use of the Internet scores, \( F(3, 450) = 16.9, p < 0.01, n = 453 \). Tukey’s follow-up comparisons found that respondents rating self-study at home as *fair* \( (M = -0.38, SD = 1.10) \) had lower ease of use scores on average than those who rated it *good*, *very good* and *excellent* \( (M = 0.04, SD = 0.86, M = 0.24, SD = 0.92, M = 0.67, SD = 0.79) \), whilst respondents rating self-study at home *good* and *very good* \( (M = 0.04, SD = 0.86, M = 0.24, SD = 0.92) \) differed significantly from those rating it *excellent* \( (M = 0.67, SD = 0.79) \) (fig. 5.65). Self-study accounted for six per cent of the variance in ease of use scores according to a medium effect size of \( \eta^2 = 0.06 \).

![Figure 5.65 Self-study and ease of use](image)

5.4.5.2 Learning on a library PC in spare time

One-way analysis of variance found an effect of self-study in spare time on a library PC rating on usefulness, ease of use and intention scores. In relation to usefulness of the Internet at work scores, \( F(4, 343) = 8.5, p < 0.001, n = 347 \), Tukey’s follow-up comparisons found that respondents rating self-study in spare time as *poor* \( (M = -0.86, SD = 0.80) \) had lower usefulness scores on average than those who rated it *fair*, *good*, *very good* and *excellent* \( (M = -0.06, SD = 0.79, M = 0.13, SD = 0.86, M = 0.28, SD = 0.78, M = 0.64, SD = 1.00) \). Respondents rating self-study on the library PC as *fair* and *good* \( (M = -0.06, SD = 0.79, M = 0.13, SD = 0.86) \) differed significantly from those rating it *excellent* \( (M = 0.64, SD = 1.00) \) (fig. 5.66). The effect size was medium, \( \eta^2 = 0.09 \), therefore this method of self-study accounted for
nine per cent of the variance in usefulness scores.

One-way analysis of variance found an effect of self-study in spare time ratings on ease of use of the Internet at work scores, $F (4, 343) = 14.7, p <0.001, n = 347$. Tukey’s follow-up comparisons found that respondents rating self-study in their spare time as poor ($M = -0.56, SD = 0.6$) had lower ease of use scores on average than those who rated it very good and excellent ($M = 0.31, SD = 0.92, M = 0.79, SD = 0.77$) whilst those rating self-study in spare time as fair ($M = -0.06, SD = 0.79, M = 0.13, SD = 0.86$) differed significantly from those rating it good, very good and excellent ($M = 0.03, SD = 0.87, M = 0.31, SD = 0.92, M = 0.79, SD = 0.77$) (fig. 5.67). Finally respondents rating this approach good ($M = 0.03, SD = 0.87$) were significantly different from those who rated it excellent ($M = 0.79, SD = 0.77$). The large effect size, $\eta^2 = 0.15$, suggests that learning on the library PC accounted for 15% of the variance in ease of use scores.
One-way analysis of variance found an effect of self-study in spare time ratings on intention scores, F (4, 343) = 4.7, p < 0.01, n = 347. Tukey's follow-up comparisons found that respondents rating self-study in spare time as fair, good and very good (M = 0.06, SD = 0.93, M = -0.11, SD = 0.88, M = 0.13, SD = 1.0) had lower intention scores on average than those who rated it excellent (M = 0.66, SD = 0.88), while those rating self-study in spare time as poor (M = -0.04, SD = 1.2) did not differ significantly from any of the other groups (fig. 5.68). This method of study accounted for just five per cent of the variance in intention scores based on the effect size, $\eta^2 = 0.05$. 

Figure 5.67 Self-study on library PC and ease of use

Figure 5.68 Self-study on library PC and intention
5.4.5.3 Learning on a library PC in spare time using notes

One-way analysis of variance found an effect of the ratings of self-study in spare time using notes on intention scores, \( F(4, 124) = 3.1, p < 0.1, n = 128 \). Tukey’s follow-up comparisons found that respondents rating self-study in spare time using notes as poor (\( M = -0.15, SD = 1.9 \)) had lower intention scores on average than those who rated it very good (\( M = 0.54, SD = 1.1 \)) (fig. 5.69). Those rating self-study in spare time as fair, good and excellent (\( M = 0.10, SD = 1.00, M = -0.03, SD = 0.84, M = 0.37, SD = 0.9 \)) did not differ significantly from any of the other groups. The effect size was medium, \( \eta^2 = 0.09 \), therefore this method of learning how to use the Internet accounted for nine per cent of the variance in intention scores.

![Figure 5.69 Self-study on library PC using notes and intention](image)

5.4.5.4 Learning on a library PC in spare time using a tutorial

One-way analysis of variance found that there was an effect of self-study in spare time using a tutorial ratings on usefulness of the Internet at work scores, \( F(4, 239) = 4.2, p < 0.01, n = 243 \). Tukey’s follow-up comparisons found that respondents rating self-study in spare time using a tutorial as poor and fair (\( M = -0.44, SD = 0.94, M = -0.20, SD = 0.94 \)) had lower usefulness scores on average than those who rated it very good (\( M = 0.36, SD = 0.9 \)) (fig. 5.70). Those rating self-study in spare time as good and excellent (\( M = 0.05, SD = 0.87, M = 0.24, SD = 0.85 \)) did not differ significantly from any of the other groups. Learning on the library PC using a
tutorial accounted for seven per cent of the variance in usefulness scores according to the effect size, $\eta^2 = 0.07$.

One-way analysis of variance found an effect of self-study in spare time using a tutorial ratings on ease of use of the Internet at work scores, $F(4, 239) = 3.82$, $p < 0.001$, $n = 243$. Tukey's follow-up comparisons found that respondents rating self-study in spare time using a tutorial as *fair* ($M = -0.36$, $SD = 1.10$) had lower ease of use scores on average than those who rated it *excellent* ($M = 0.83$, $SD = 0.66$) (fig. 5.71). Those rating self-study in spare time as *poor*, *good* and *very good* ($M = 0.12$, $SD = 1.30$, $M = 0.09$, $SD = 0.91$, $M = 0.03$, $SD = 0.87$) did not differ significantly from any of the other groups. The effect size was medium, $\eta^2 = 0.06$, thus this method of study accounted for six per cent of the variance in ease of use scores.
Ratings of self study using a tutorial

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Figure 5.71 Self-study on library PC using tutorial and ease of use

One-way analysis of variance found an effect of the ratings of self-study in spare time using a tutorial on intention scores, $F(4, 239) = 5.0, p < 0.01, n = 243$. Tukey's follow-up comparisons found that respondents rating self-study in spare time using a tutorial as poor and good ($M = -0.33, SD = 1.10, M = -0.85, SD = 0.98$) had lower intention scores on average than those who rated it very good ($M = 0.45, SD = 0.97$). Those rating self-study in spare time as fair and excellent ($M = 0.03, SD = 0.80, M = 0.71, SD = 0.84$) did not differ significantly from any of the other groups (fig. 5.72). The medium effect size, $\eta^2 = 0.08$, indicates that this approach to acquiring Internet skills accounted for eight per cent of the variance in intention scores.


5.4.5.5 Learning on a library PC in spare time using books

One-way analysis of variance found an effect of the ratings of self-study in spare time using books on usefulness scores, $F(4, 144) = 4.0, p < 0.01, n = 148$. Tukey's follow-up comparisons found that respondents rating self-study in spare time using books as poor and good ($M = -0.33, SD = 0.79, M = 0.19, SD = 0.89$) had lower usefulness scores on average than those who rated it very good and excellent ($M = 0.70, SD = 0.88, M = 0.96, SD = 0.52$) (fig. 5.73). Those rating self-study in spare time as fair ($M = 0.20, SD = 0.71$) did not differ significantly from any of the other groups. The effect size, $\eta^2 = 0.1$, was large consequently ten per cent of the variance in usefulness scores was attributable to this training approach.
5.4.5.6 Training projects and activities

One-way analysis of variance found an effect of projects in work time ratings on usefulness scores, $F(4, 272) = 6.0, p < 0.001, n = 276$. Tukey’s follow-up comparisons found that respondents rating projects undertaken in work time as poor, fair and good ($M = -0.18, SD = 0.84, M = -0.20, SD = 0.91, M = 0.04, SD = 0.86$) had lower usefulness scores on average than those who rated them excellent ($M = 0.73, SD = 0.93$) (fig. 5.74). Respondents rating projects in work time as fair ($M = 0.20, SD = 0.71$) differed significantly from those rating projects in work time as very good ($M = 0.39, SD = 0.91$). Participation in training projects and activities during work time accounted for eight per cent of the variance in usefulness scores, $\eta^2 = 0.08$. 

![Figure 5.73 Self-study on library PC using books and usefulness](image)
Significant differences were also found with the ratings of projects undertaken in work time and intention scores, $F(4, 272) = 3.5$, $p < 0.01$, $n = 276$. Tukey's follow-up comparisons found that respondents rating projects in work time as poor ($M = -0.18$, $SD = 0.84$, $M = -0.20$, $SD = 0.91$, $M = 0.04$, $SD = 0.86$) had lower intention scores on average than staff who rated them fair, good and excellent ($M = 0.01$, $SD = 0.96$, $M = 0.02$, $SD = 0.90$, $M = 0.44$, $SD = 0.55$) (fig. 5.75). Those rating projects in work time as very good ($M = -0.10$, $SD = 0.92$) did not differ significantly from any other groups. The effect size, $\eta^2 = 0.05$ was small and this method of learning accounted for just five per cent of the variance in intention scores.
5.4.5.7 Section summary

The use of one-way analysis of variance has revealed that some ratings of training were related to the average scores of respondents on three of the four factor scales, extracted during factor analysis (see Section 4.4.1). In general, there were significant differences in means between some less favourable ratings of training compared to higher ratings of methods in terms of how useful they were in learning how to use the Internet. In most instances, the average factor scale scores were lower for those who rated a method as poor and/or fair compared to those that rated it good, very good and excellent although there were exceptions to this pattern. This suggests that the value of a particular method of training affects perceptions of usefulness, ease of use and intention to use the Internet at work.

The following table illustrates which mean attitude scores appear to be related to the usefulness of training methods, including the percentage of variance in attitude scores attributable to the training methods (see Table 5.1).
<table>
<thead>
<tr>
<th>Type of Training</th>
<th>U</th>
<th>EOU</th>
<th>I</th>
<th>SN</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-the-job</td>
<td>6%</td>
<td>8%</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Induction</td>
<td>10%</td>
<td>8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cascade</td>
<td></td>
<td>4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-house on site with internal trainer</td>
<td></td>
<td>6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-house on site with external trainer</td>
<td></td>
<td>7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-house off site with internal trainer</td>
<td></td>
<td>11%</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>External training</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentoring (set time and casual)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Reading</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Meetings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seminars</td>
<td></td>
<td>15%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emails</td>
<td></td>
<td>8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discussions</td>
<td></td>
<td>8%</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Self-study at home</td>
<td></td>
<td>4%</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Course at own cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library closed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning on library PC in spare time</td>
<td>9%</td>
<td>15%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Learning in spare time using notes</td>
<td></td>
<td></td>
<td></td>
<td>9%</td>
</tr>
<tr>
<td>Learning in spare time using tutorial</td>
<td>7%</td>
<td>6%</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>Learning in spare time using books</td>
<td></td>
<td>10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Projects in own time</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Projects in work time</td>
<td>8%</td>
<td>5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5.1 Mean factor scores and ratings of training

5.4.6 The relationship between Internet training and attitudes

Correlations between individual attitudinal statements and ratings of training were explored to further illustrate the relationship between attitudes and training. There were many relationships of a moderate to strong nature between attitudes towards the Internet and ratings of Internet training/support/assistance.

There was a relationship between finding use of the Internet at work positive and induction training; $\Gamma = 0.48$, $p < 0.001$, $n = 161$ (fig. 5.76). Of those respondents who rated induction training as excellent, 71.4% felt extremely positive towards using the Internet at work. Attitudes accounted for over 23% of the variance in ratings of induction training for the Internet.
Similarly, there was a relationship in the form of the statement, *My use of the Internet at work is negative/positive* and ratings of the value of staff meetings as a means of learning how to use the Internet; $\Gamma = 0.41$, $p < 0.001$, $n = 160$ (fig. 5.77). Exactly half of respondents who rated meetings as *excellent* felt *extremely positive* about using the Internet at work. All of those who rated staff meetings as *poor*, however, were *quite positive*. 

Figure 5.76 Induction training and attitudes

Figure 5.77 Meetings and attitudes
There was also a significant relationship between attitudes and self-study in spare time off the desk, $\Gamma = 0.46$, $p < 0.001$, $n = 397$ (fig. 5.78). Almost three quarters of those rating this approach as *excellent* were *extremely positive* about using the Internet at work (71.4%).

![Figure 5.78 Learning in spare time and attitudes](image)

Learning in spare time using a tutorial package appeared to have a relationship with finding the Internet pleasant to use at work; $\Gamma = 0.42$, $p < 0.001$, $n = 291$ (fig. 5.79). Attitude accounted for over 17% of the variance in ratings of this form of training. Almost 65% of those who rated this method of training as *excellent* felt that their use of the Internet at work was *extremely pleasant*. 
Likewise, there was a strong relationship between learning in spare time using a tutorial package and finding the Internet enjoyable; $\Gamma = 0.43$, $p < 0.001$, $n = 291$ (fig. 5.80). Attitude accounted for more than 19% of the variance in ratings of this form of training. Nearly 65% of those who rated this method of training as excellent felt their use of the Internet at work was extremely enjoyable.
In support of the quantitative analysis of the attitudinal and training data suggesting that training affected perceptions of usefulness, ease of use, intention and attitudes for the better, most of the managers interviewed reasoned that training had affected attitudes positively. Furthermore, all of the managers agreed that attitudes to ICT and the Internet had changed in recent years with most expressing the opinion that staff had grown or were growing more positive:

“I’m not saying that if you go out there everybody is going to be wildly enthusiastic but I think there’s much more acceptance and much more confidence than there was a while ago in using it. I don’t think given a choice there would be many people who would say let’s take it all out, not have it now. It’s become a way of life” (Manager D: management interviews).

The growth in positivity was seen to be a result of the NOF ICT training, awarding staff with confidence and the appropriate skills to successfully utilise ICT at work and at home such that in one authority staff hoped to purchase PCs for their personal use:

“I’m sure it’s given people more confidence. I’m sure it has. It’s like tooth extraction, it’s horrible at the time, but when you’ve achieved it, you’ve achieved it all” (Manager D: management interviews).

“A lot of people who wouldn’t have dreamed of touching a computer now really see that there can be quite positive benefits to them personally. Not just in their work but in their home lives as well” (Manager A: management interviews).

Similarly, participation in the NOF ICT training programme and installation of the People’s Network PCs had given staff a sense of worth and made them more receptive to further training:

“I think it’s made them realise that we’re willing to invest money and time in them. I think it’s probably made them more open to different forms of training” (Manager B: management interviews).

There was a sense, however, that the negative attitudes of a minority of individuals to ICT were so entrenched that training would make little difference:
"Only some staff have come over to the 'it's a good idea' attitude, those who felt like this were there already, and were genuinely excited by the whole process and the opportunity [i.e. a new qualification] it presented" (Manager H).

"Some people have and will always have a negative approach but in the main I think people have accepted that it's necessary and have a positive outlook" (Manager G: management interviews).

5.5 Summary

5.5.1 Training for the Internet

- Numerically more staff received on-the-job training for the Internet than any other method (64.5%);
- The least reported method of training or support received was that of a designated mentor arranged to meet with a member of staff at a set time (4.9%);
- Self-study had the highest median rating of four representing very good;
- The median rating for all remaining forms of training was three, good;
- Respondents expressed concern about the lack of time to practice and availability of PCs whilst some staff resented the imposed nature of the training;
- The training methods pursued by authorities were not always acceptable to all staff but, overall, managers felt that training had been a worthwhile endeavour.

5.5.2 Influences on training

- Male public library staff were more likely to rate self-study at home and practice in spare time more favourably than their female colleagues;
- There were strong relationships between computer skills of staff and ratings of self-directed learning including study at home and learning in spare time off the counter;
- Staff who felt positive about helping the public use the Internet rated certain methods of training more favourably than others particularly the self-directed methods of learning such as reading, learning when the library was closed and learning in spare time off the desk with a tutorial package or using notes;
• Library assistants were more likely to indicate that their training was not monitored.

5.5.3 Training and attitudes

• The use of one-way analysis of variance suggested that respondents who rated the usefulness of certain training methods more favourably, for example, on-the-job and learning on the library PC, possessed higher average usefulness, ease of use and intention to use the Internet scores;
• Correlation analysis revealed a number of relationships between positive attitudes towards the Internet and induction training, meetings, learning in spare time off the desk generally and with a tutorial package;
• Most managers interviewed felt that attitudes to ICT and the Internet had improved in recent times and that this was often a result of training.

5.6 Conclusion

This chapter has explored respondents' opinions of the training they have received for use of the Internet in the public library. In general, training was rated well although a minority of staff had not received any Internet training. Although self-study received the highest median rating of four representing good, formal training was also well received.

NOF ICT training had been a success for many staff but managers had faced problems persuading some staff that it was a worthwhile endeavour. Additional training had been required in many authorities to familiarize staff with computers such were the low levels of skills. Training had improved both the skills and confidence of many respondents although some staff found the process a struggle illustrated in the experiences of those who required more than one attempt at passing exams.

Authorities had opted for different training approaches - those with staff with low-level skills frequently pursued staff attendance at college or in another library/centre away from the workplace. Some authorities surveyed felt that training with online components was a more time-efficient approach for staff and encouraged them to use ICT in practical ways.
According to statistical analysis, ratings of the usefulness of Internet training received were related to perceptions of the usefulness, ease of use and intention to use the Internet at work. Managers believed training affected attitudes for the better but there was a sense that for a minority of staff, attitudes were not open to change and it was a case of waiting for these people to leave the service in the next few years.
CHAPTER 6 DISCUSSION

6.1 Introduction

This chapter explores the significance of the results from Chapters 4 and 5 in the context of the literature reviewed in Chapter 2 and the aims and objectives stipulated in Chapters 1 and 3.

The attitudinal results, the state of staff attitudes and their implications are considered in Section 6.2. The relationships between a number of organisational and demographic variables and attitudes are also presented in this section whilst Section 6.3 contemplates the ICT training of public library staff including staff preferences and experiences. The implications of these are explored for library authorities, managers and staff.

The relationship between training and attitudes is explored in Section 6.4 whilst Section 6.5 considers the future for public library staff in light of the results and Section 6.6 details some points library managers might find of value. Section 6.7 includes a summary of the important characteristics of this chapter and Section 6.8 settles on their significance.

6.2 Attitudes

6.2.1 Background

The aim of the research was to measure the attitudes of public library staff to the Internet, and to record opinions of the training received, considering the relationship between attitudes and training. Objectives 1, 2, 3, 4 and 5 (see Chapter 1) were partially fulfilled in Chapters 3, 4 and 5 and are explored further in this chapter. Both the aims and objectives of the study are reflected upon in this chapter.

The results revealed that most library staff had positive attitudes towards the Internet at work during a period when training has taken place in conjunction with the roll out of the People's Network, "the largest ever investment in the 150 years of the public library service" (Brophy 2003, p.3), which represents a fundamental change for both public library staff and users. Respondents rated the usefulness of the Internet highly and found it easy to use in general. Furthermore, most staff hoped to continue using the Internet on a regular basis or increase their use at work. The majority of staff felt positive to some degree about helping the public use the...
Internet in the public library. A number of organisational and demographic variables were found to have a relationship with staff attitudes and perceived usefulness, ease of use and behavioural intention to use the Internet at work.

6.2.2 Public library staff's attitudes to the Internet

According to the results, most public library staff in England have positive attitudes towards ICT and the Internet, although this was not unanimously the case, as a proportion had mixed attitudes and a minority expressed negative opinions and attitudes towards use of the Internet in the public library. The findings are similar to those reported by Gordon et al (2002b), in a study of public library staff and public access computing in the USA, in which the majority of staff had positive attitudes to ICT whilst a minority were negative. They noted that 85% of staff questioned thought ICT was a useful tool (this was the statement with the greatest support). While 54% ticked enjoyment and 11% agreed it was a chronic frustration, eight per cent were indifferent agreeing that they could take em or leave em and four per cent agreed that they hate them. Similarly, in this English study the usefulness of ICTs was well rated though enjoyment ranked a little lower. In contrast with the USA, nearly half of the staff surveyed agreed that using the Internet was often frustrating which might be peculiar to the network problems staff in England have experienced.

In terms of computer skills, results from the questionnaires revealed that the self-rating computer proficiency of most respondents was good or fair, suggesting that most staff possessed average competency with a minority having inferior skills. The most common length of time of using the Internet was between two and three years although some respondents were only just commencing Internet use at work at the time of the survey. The majority of staff surveyed used the Internet on a daily basis at work with a reasonable proportion of respondents who used the Internet less frequently, including some staff that never used the Internet at work. These results conjure up a picture of a public library workforce with a wide range of skills and ICT experience, ranging from the novice Internet user to the more skilled and experienced user. This is in line with what was expected during the formulation of the research in light of the sporadic introduction of ICT, which had varied between public library authorities.
The section on attitudes revealed that most respondents were positive about using the Internet at work. Median scores of four were recorded for all five statements in relation to finding the Internet positive, pleasant, enjoyable, required and necessary. Negative opinions were found in less than five per cent of respondents and managers also felt that only a minority of staff held negative attitudes. The proposition that some staff will welcome the arrival of ICT and see it as an advantage or going some way to improve the status of public libraries generally was supported as respondents expressed their hopes for what ICT can and would provide, as the following selected comments illustrate:

"Internet use in my work as a reference/local studies librarian is essential!!" (Librarian, female, full time permanent, central, Authority E: survey comments)

"Personally, I feel the Internet is a valuable and powerful tool required for a public library authority" (Acting senior librarian (Lifelong Learning), male, full time permanent, Authority I: survey comments).

The positivity of English public library staff reflects that of American staff noted during evaluations of public access computing, "the vast majority of responding librarians indicate they enjoy the computers and are experiencing increased job satisfaction because of them, despite the challenges and job stress they now experience" (Gordon et al. 2003a, p.13). Indeed, some respondents in the UK were rather dismayed that whilst they knew how to use the Internet or had received training, their particular role provided little opportunity to use the Internet:

"I am very interested in using computers and the Internet. I use the Internet frequently for my personal interest. This has no part in my job as a library assistant, which I feel, is a great shame and a waste of the ECDL training, which I have almost completed. I would like to be involved with library users in their use of computers" (Library assistant, female, part time permanent, Authority I: survey comments).

This situation, the "underutilization of skills", might be as stressful for some individuals as work overload because workers feel undervalued, "individuals normally want to feel useful and needed, and develop their skills further" (Nawe 1995, p.32). Different libraries operate their own cultures where the roles of some
library assistants are very rigid while in others library assistants take on some librarians' responsibilities, a more paraprofessional role. Dodd et al's evaluation of the NOF ICT training for Expected Outcomes 2-8 noted that "professional and front line staff largely received similar training, though there is some division with regard to intensity and subject area specialisation of training" (Dodd et al 2002, p.5) and having undergone extensive training, some staff might feel their skills are wasted if they are restricted to showing the public how to use the Internet.

6.2.3 Influences on staff attitudes to the Internet

6.2.3.1 Background

A number of relationships between organisational and demographic variables were found with use of ICT and the Internet (see Section 4.5). Relationships with computer proficiency included the gender and age of respondents, the role they undertook in the library, place of work and how frequently they used the Internet. Similarly, feelings about helping the public use the Internet were related to post, frequency of Internet use, computer skills and attitude. Type of post, current post, computer proficiency and length of time using the Internet were all significantly associated with frequency of Internet use and there were relationships between gender, current post, type of library worked in and type of post with length of time using the Internet at work.

There were also numerous significant differences with organisational and demographic variables and the four factor scores derived from the TAM. Significant differences in means between educational attainment and current post with usefulness were recorded, whilst different median usefulness scores according to the gender of staff and the type of post worked in were observed. With the remaining three factor scores, significant differences in mean ease of use scores were observed according to age, education, place of work and computer proficiency with significant median ease of use scores according to type of post. In relation to intention to use, significant differences were recorded in mean intention scores with education, place of work and frequency of Internet use. The only characteristics of staff influencing significant mean subjective norm scores were feelings about helping the public use the Internet and computer proficiency.

Results suggested that attitudes towards using the Internet in terms of conative (intentions), cognitive (beliefs - as expressed in usefulness and ease of use) and
affective (feelings - as described in the section on attitudes) components were all influenced by demographic and organisational variables to varying degrees. Furthermore, actual usage, in terms of frequency of use was strongly related to attitude and usefulness and also with ease of use, intention and subjective norm, although these relationships were weaker, as predicted.

6.2.3.2 Gender and ICT

Analysis of the available literature suggested that women’s ratings of computer proficiency would be lower than men’s and that women might be more negative than men about the Internet generally and, as a consequence, use it less. These assumptions were partially supported by the data as a relationship was detected between gender and computer proficiency and it appeared that men tended to rate their PC skills more highly than women. Similarly, a relationship was also found between gender and length of time using the Internet, suggesting that men had been using the Internet at work for a longer period of time than women (see Chapter 4, p.143).

In the context of this study, men and women’s differing perceptions of their own computer skills might be, as feminist scholars have suggested, a result of women feeling alienated from the culture of computers, for example, Perry and Greber (1990). Alternatively the women in the sample had simply received less computer instruction and subsequently felt less skilled. Women’s lower self-ratings of computer proficiency may be related to confidence, as a report detailing women and ICT noted, “it is possible to lack confidence while actually being more aware and more skilled than someone with more confidence. Some people may be readier to admit to lack of confidence than others, particularly those who may feel they ‘ought’ to be au fait with IT” (DTI 1999, no page number). Similarly, the report also noted that women were less confident about computer skills than men when asked to rate their ability and the authors argued that men are often more overconfident than women, alluding to the example of research into job applications where it was observed that men apply for jobs “they aspire to whilst women will apply for jobs that they know they can do” (DTI 1999, no page number).

In contrast to findings from the literature reported in Chapter 2, no relationships were found between gender and frequency of use. There was a significant difference in median usefulness scores between men and women, however,
demonstrating women rated the usefulness of the Internet lower than men (see Section 4.5.1), which could again relate to the perception of the Internet as a masculine tool or indicate that the women in the sample were simply less enthusiastic about its value in the public library.

6.2.3.3 Age and ICT

A relationship was found between age and computer proficiency and a large proportion of younger library workers rated their proficiency higher than older workers, which supported the indications from the literature that the computer proficiency of older workers would be lower than that of their younger colleagues (see Section 2.4.4.4). Perceptions of computer skills might relate to the way in which younger workers are often more familiar with ICT since it is used extensively at school, college and university. As Crabtree et al noted, “Those who have grown up with computers, or at least spent a large part of their working lives coming to terms with them, are largely free of techno-phobia” (Crabtree et al 2002, p.17). This recent study involved focus groups with everyday users of technology in the UK and characterised people’s reactions to technology as Fun, Function and Fear (Crabtree et al 2002). The authors found that age was the most important factor although gender did have a role to play in reactions. While they found that workers of middle years who have to use ICT in employment later in their lives often have quite practical attitudes to its value, older users were generally quite fearful of ICT, “older users are more likely to have a relationship with ICT characterised by fear or anxiety”. Furthermore some felt pressure to conform, “Older groups also express feelings of obligation to adopt, to complement feelings of trepidation” (Crabtree et al 2002, p.14).

Similarly, in relation to attitudes, younger workers in this study had greater average ease of use and intention scores than older workers, especially in relation to ease of use of the Internet at work, where the difference between the groups was significant. Since one-way analysis of variance tests are post hoc and exploratory no clear conclusion is made, but the results can be used as indicators of the most important relationships at work and in this instance it would appear that older workers found the Internet harder to use than younger staff. Although older workers rated their PC skills less favourably than younger staff and felt the Internet was

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6 Swann noted, “Information Communications Technology (ICT) is so recent that most people over the age of 28 have not had the benefit of computer training in their own schooling” (Swann 2003, p.15).
harder to use and to learn, no relationship was found to suggest that older staff used
the Internet any less frequently than younger staff. It was also suggested in the
qualitative data by a minority of the managers and a small number of survey
respondents that older library workers might perceive ICT differently to their
younger colleagues, especially staff who originally joined the library service
because of a love of books and literature:

"Many people lack confidence with computers - especially older people" (Senior
library assistant, male, full time permanent, central, Authority C: survey
comments).

"We have a lot of staff, and I don’t think (Authority E) is in any way unique in this,
who have been with the service a long time and are of middle years and they’ve
come into libraries because they like books and they like to help people find books
and it’s very much the social element of libraries, which is absolutely brilliant. As
you know we all adhere to all of that, but what they’re not keen on is, or not all of
them anyway, or not embracing, is this change in the way libraries are perceived”
(Manager E: management interviews).

The implications of these findings suggest that managers may need to make extra
effort in encouraging older staff to use ICT and to convince them that their skills are
relevant. In addition, older workers may need more training than their younger
colleagues to instil greater confidence in their PC skills.

6.2.3.4 Demographic and organisational variables

6.2.3.4.1 Education

The educational background of the survey respondents appeared to have little
impact on their use of ICT although there were some significant differences in mean
usefulness and ease of use of the Internet scores. Generally the higher the
qualifications staff had attained, the higher they perceived the usefulness of the
Internet. Similarly, this was the pattern in relation to ease of use. The view that
education affects attitudes to ICT was suggested by some authors, for example,
Zimmerman (1993), whereas Yaacob (1992), found education had no effect on
school librarians’ attitudes to technology. The majority of staff with qualifications
such as GCSEs and O Levels were working as library assistants and therefore had
less need to use the Internet to support their work compared with librarians who
made up of the majority of those with postgraduate qualifications. Considering education in isolation could be misleading and the qualifications of staff and how they rate the usefulness of the Internet must be considered in the context of job roles. This is supported when one considers that the mean usefulness scores of librarians were significantly higher than those of library assistants (see Section 4.5.4).

6.2.3.4.2 Current post

A number of authors have reasoned that organisational position would exert an influence on attitudes; staff in the same post for a long period might resist changes to the working day, (see, for example, Quinn 1995). The results proposed that the variables of current post (e.g. library assistant, librarian), type of post (e.g. full or part time) and place of work (e.g. branch or central library) all exerted some form of influence on attitudes to ICT. No significant relationships or differences were found, however, with the length of time respondents had worked in the public library service with either attitudes or proficiency. This was an unexpected finding and in contrast with the findings of Sievert et al (1988) and is particularly surprising considering that age appears to exert some influence on attitudes and one would expect older staff to have worked in libraries for a long time (indeed there was a relationship between age and length of time worked in public libraries ($\Gamma = 0.48$, $p <0.001$)).

Generally, library assistants had fewer computer skills than librarians and had only used the Internet recently at work. In addition, fewer library assistants used the Internet on a daily basis compared to librarians, SLAs and other staff. Library assistants were more likely to be negative about helping the public use the Internet compared to librarians. This is an important finding when one considers that in the UK, non-professional staff constitute approximately 75% of all public library staff\(^7\). Furthermore, as discussed in Chapter 2, front line staff are often responsible for the impression library users form of the public library service. Library assistants might have lower computer skills because, traditionally, their use of computers has been limited and restricted to use of a library management system for issuing and returning materials loaned by users whilst librarians often have experience using databases, PCs and CD-ROMs to access information for library users. In addition, recently qualified librarians might have undergone computer training during study

\(^7\) There were 6,491 professional staff in public libraries compared to 20,279 all other staff according to recent figures from 2001 (Creaser et al 2002, p.21).
at university or attended courses to improve their skills. Librarians may have been using the Internet to answer enquiries, which would explain their lengthier use of the Internet, whereas library assistants' more recent use of the Internet could be attributable to recent availability and People's Network installations.

The tasks involved in the working day of librarians and library assistants can be very different and consequently use of the Internet may be more important to one group than the other and this could be the reason why analysis found that librarians' average usefulness scores were significantly higher than those of library assistants and SLAs. Practices may vary widely across the country, however, and within library authorities themselves, particularly in those libraries where library assistants have adopted a paraprofessional role and undertake responsibilities beyond issuing and returns. Staff in a very small library without a librarian, for example, might make more use of the Internet than staff in a large library where the differences between professionals and non-professionals are more demarcated, as Totterdell explains, "while there were always professional and paraprofessional staff in libraries it was often difficult, particularly in small libraries, to distinguish clearly the boundary between the two" (Totterdell 2001, p.53). The brief information gathering exercise prior to the survey revealed that in some authorities library assistants' use of the Internet was very restricted whilst in others both librarians and assistants used the Internet widely (see Section 3.4.1.4). A number of respondents noted in the questionnaires that although they possessed Internet skills, as library assistants their use of the Internet was very limited, often restricted to showing users how to set up email accounts and use the PCs.

6.2.3.4.3 Type of post
There were some differences between full and part time staff in relation to computer skills, length of time using the Internet and frequency of Internet use. The proficiency of full time staff was higher than part time staff whilst the latter were often more recent users of the Internet at work and, obviously, working fewer hours than their full time colleagues, used the Internet less frequently. The lower computer proficiency of part time staff might be related to the fewer opportunities flexible workers have to train, as the literature review revealed. This lack of training might also explain part time respondents more recent use of the Internet as one manager noted that Saturday staff were the last to be trained. As Goulding and Kerslake documented in their study of flexible workers in the library profession,
“training is available to a far greater extent for full-time, professional workers” (Goulding & Kerslake 1996, p.19). In addition, simply working fewer hours in the library might mean less opportunity to use computers, to practice and improve skills and to attend training courses. Interestingly, full time staff’s median ratings of the usefulness and ease of use of the Internet at work were significantly higher than those of part time staff (see Section 4.5.5). It would seem that full time staff are presented with more opportunities to use the Internet and therefore value its usefulness more than part time staff, while belated or insufficient training might explain why part time staff found the Internet harder to use.

6.2.3.4.4 Place of work

Organisational variables detailed in the wider literature made reference to the place of work affecting staff attitudes to ICT, although this has been little explored in the library literature. It was expected that staff in central libraries would have better computer skills than their branch counterparts and, consequently, more positive attitudes to the Internet. This was based on the knowledge that some central libraries had Internet access as a result of DCMS/Wolfson funds prior to the rollout of the People’s Network (see Section 2.2.2.3) and because central libraries are the main library in an authority often providing specialised information, for example, business services to the wider community. These expectations were confirmed as relationships were found between place of work and computer skills, length of time using the Internet and frequency of use (see Section 4.5.6).

It appeared that central library staff rated their computer proficiency more highly than other staff and had used the Internet for a longer period of time. Furthermore, a larger proportion of central staff used the Internet on a daily basis compared with staff in branch, mobile and other libraries. This might be due to central library staff having a longer tradition of using the Internet whilst it had only recently been installed in many branches and, indeed, some smaller branches and mobiles were still awaiting Internet access at the time of the study. Staff in branch libraries receiving the Internet later than their central library colleagues might also explain why the mean ease of use scores of branch staff were lower than those of central staff. Of staff using the Internet for less than six months at the time of the survey, for example, 58.7% were branch staff compared to 19.6% of central library staff. Perhaps familiarity with the Internet influences perceptions of the ease of use of the Internet, although this was not directly supported in the analysis. The following
comment illustrates the different opportunities offered to staff to gain experience with ICT:

"If you have constant use of computers and the Internet on a regular basis one's performances become more confident, more skilful. If you don't have constant use of the above, or one only works small hours with days apart, it does make the task of learning more difficult and 'yes' even frustrating, because of not being able to remember certain tasks which had been shown and it can make one feel a little inadequate at times" (Library assistant, female, part time permanent, branch, Authority H: survey comments).

Branch staff's more recent familiarisation with the Internet does not appear to have any obvious negative effect as the mean intention scores of branch staff were only slightly lower than those of central staff suggesting branch staff are growing used to frequent Internet use at work. This could be related to the advantages many staff perceived the Internet brought to smaller libraries to help provide a better service to users:

"I think people realise the potential particularly those in the smaller libraries who have got this great store of knowledge that they can satisfy enquiries that they couldn't satisfy before" (Manager G: management interviews).

6.2.4 Experience and attitudes

It was assumed that computer skill (proficiency) would be related to attitudes to ICT, specifically higher proficiency with positive attitudes and lower proficiency with negative attitudes, which was confirmed in the results. A relationship was found between proficiency and frequency of Internet use, feelings about helping the public use the Internet and with individual attitudinal statements. It would be reasonable to assume that individuals who rated their computer skills highly used ICT more frequently than those who did not and this was supported, in that respondents with poorer computer skills used the Internet less frequently than their more skilled colleagues. Similarly, respondents whose skills were poor had lower average ease of use scores compared to the remaining respondents, suggesting that the greater one's PC skills the easier one finds learning and using the Internet. Furthermore, computer proficiency explained approximately one third of the variance in respondents' feelings about helping the public use the Internet. Both of
these strong relationships suggest that training or practice to increase one's skills has a beneficial affect not only in increasing usage of ICT but also in wanting to actively help others use ICT.

The literature review inferred that experience was related to attitudes; the greater the experience with ICT the more positive evaluations of usefulness, ease of use and intention. This was not supported by the results, however, as one-way analysis of variance tests did not reveal any significant differences in mean scores and use of contingency tables found that relationships between length of time and individual attitude statements were all less than $r = 0.4$ and therefore weak. There was a relationship between length of time using the Internet and frequency of Internet use, however, which suggested that experience directly affects usage. Experience of using the Internet at work accounted for approximately one third of the variance in frequency of Internet use, and it might be that the longer one uses the Internet at work, the more frequent one's use. It also appeared that using the Internet more frequently affected how one felt about helping the public use the Internet, suggesting that regular experience in using the Internet means staff are more open to helping others use it. Similarly, respondents who used the Internet on a daily and weekly basis had higher mean intention scores compared to staff that used it less frequently at work. Staff who were regular Internet users might find it hard to imagine that their use would decrease whilst those with very infrequent use might find it hard to imagine that use increasing in the future.

6.2.5 Influential others

In this study based on a female dominated workforce it was expected that subjective norm would influence individual's attitudes, since it has been found to exert a greater influence on women than men and on individuals in the early stages of technology adoption (Venkatesh & Morris 2000). Similarly, it was hypothesised that older workers would find it more of an influence than younger workers (Morris & Venkatesh 2000).

The Likert scores for both subjective norm statements were very similar, 3.3 and 3.4 which meant that a substantial proportion of respondents were in agreement that people who influenced them or were important to them at work thought they should use the Internet. In contrast with results observed in the literature, no relationships according to statistical analysis were detected between either gender or age and
subjective norm. This might be because some respondents had been using the Internet for some time when this study was undertaken and subjective norm may be more influential in the early stages of technology adoption (Venkatesh & Morris 2000). Interestingly, the mean subjective norm scores of those who felt *generally negative* and those with mixed feelings - *equally negative and positive* - about helping the public were higher than those who were *generally positive*, although it must be noted that the influence of feelings about helping the public on subjective norm was small. This suggests that staff negative about using ICT, in particular with the public, were influential in creating negativity on the part of colleagues or alternatively that those negative about this role were so as a result of colleagues’ opinions. As suggested by Morris and Dyer, “Individual members of a close knit group may be carried along by the feelings of their peers in their attitude towards change” (Morris & Dyer 1998, p.301), similarly Curzon argued that it was hard to triumph over colleagues’ negative comments, “Since most employees’ reality is shaped by their co-workers, it is difficult for a manager to overcome what has been said by fellow workers” (Curzon 1989, p.89).

The influence of negative attitudes and the views of colleagues in the library setting were noted in the literature review. Hudson, for example, remarked that some managers felt that key individuals with negative attitudes exerted influence on colleagues (1999). Hudson warned of this and suggested “direct honest information will also work to counteract ‘the grapevine’, which can assume great power in times of high stress and inadequate information flow (Elliott, 1990)” (Hudson 1999, p.37). Some managers interviewed did feel that a minority of staff with negative attitudes exerted influence on colleagues and this was considered problematic, if as Morris and Dyer argued, negative staff hold influential positions, “They (non-professional staff) also tend to hold a more prominent position in most libraries – on the issue counter, for example, as a result of which, their attitude and competence will affect the user’s perceptions of the system” (Morris & Dyer 1998, p.305). The following comment sums up managers’ concern about staff with negative attitudes:

“I think they can influence other members of staff, it only needs one member of staff to, whether they’re on a course or whether they’re in the workplace, to start saying ‘that’s a load of rubbish, that doesn’t work, it’s no good’ and they’re bound to have a negative influence not only on other members of staff but also on members of the public who might overhear this. And it’s a negative approach or a negative attitude
"that I don’t like and we don’t want” (Manager G: management interviews).

Using total scale score correlations it was discovered that subjective norm was related to usefulness, attitude and intention. The relationship between total subjective norm and total behavioural intention, for example, explained approximately 18% of variance in scores. This is in line with results found in the literature where Venkatesh and Davis (2000) in their modifications to the TAM reintroduced subjective norm and found it influenced both intention and usefulness (see Section 2.4.3.3).

These relationships imply that the messages managers communicate to their staff have an effect; similarly, the views of colleagues and superiors exert some influence on respondents’ perceptions particularly in relation to intention to use the Internet at work. In an environment where the senior library assistant is reticent about using the Internet and expresses reservations about using it, for example, it is probable that this will influence others staff’s decision to use ICT. Likewise, where the person in charge is enthusiastic about using ICT to support their work, it is likely that other staff will consider this in their judgement of when to use it.

6.2.6 Helping the public

In terms of this role expected of staff as detailed in both New Library: the People’s Network and Building the New Library Network (LIC 1997 & 1998), the majority of respondents felt generally positive about helping the public use the Internet. This is an important finding when one considers that as of June 2002, 92.9% of public library authorities in the UK indicated that some form of Internet/ICT training was provided to library customers (The People’s Network 2003) and a recent evaluation of the People’s Network observed that, on average, 27% of people using the Internet in public libraries had not used the Internet before (Brophy 2003). Respondents’ positivity about helping the public is unsurprising if one considers that the motivation of library staff is to provide a service to the public and interacting with library users is a fundamental part of the job. As Usherwood et al (2001) noted in their study of factors influencing retention in public libraries, helping the public was regarded as the largest retainer. Staff willingness to help with ICT was acknowledged in a survey of almost 500 library users in the London Borough of Richmond upon Thames, “Of special mention is the helpfulness and knowledge of staff in Richmond. Users were unanimous in referring to this and
without the enthusiasm and knowledge of the staff, the People's Network would not have had such an impact" (Fernandes 2002, no page number). This was reinforced in a recent evaluation of the People's Network, which observed that the atmosphere in public libraries was conducive to learning, both formal and informal, with staff playing a large part in creating that environment (Brophy 2003). The success of public access ICT in the UK has been formally acknowledged, for example, Cambridgeshire County Council libraries worked with East Cambridgeshire and Huntingdonshire District Councils in providing community ICT learning in Cambridgeshire and as a result of the success of the project, the three authorities were awarded Beacon status (Library + Information Update 2003) which suggests that public library staff are successfully assisting users with ICT.

Consideration of the literature implied that there would be some negativity to use of the Internet in public libraries on the part of staff, related to users' ability to access undesirable content, the sheer amount of information available and the wider implications of the role for staff. Indeed, many respondents did have concerns about public access to the Internet and its implications, with a minority unhappy about having to help the public with ICT at all, although the majority of respondents were more positive than negative about this role but, importantly, they were not overwhelmingly so. It is evident from consideration of scores for feelings about helping the public use the Internet compared to responses for the statement, 'my use of the Internet at work is negative/positive', that a very similar proportion of respondents felt generally positive about helping the public (51.5%) and quite positive about using the Internet at work (51%). More respondents expressed mixed and negative feelings about helping the public, for example, 21.2% of respondents felt equally negative and positive about helping the public compared to 15.5% who thought using the Internet was neither negative nor positive. As a concept, the majority of staff liked the idea of using the Internet at work but were a little more reticent about helping the public use ICT.

6.2.6.1 Increased workload

There was a relationship between current post and feelings about helping the public use the Internet and on closer inspection, the proportion of library assistants with negative feelings was greater than that of any other group. This was a result of a combination of factors including library assistants feeling overstretched as a result of this additional role; staff suffered from an increased workload as highlighted in
Section 2.3.5. Although many staff were happy to help users, some felt that it was impossible to provide quality assistance when there were so many other demands on their time and a small minority expressed some resentment that staff were not paid an IT trainer’s wage, which, again, echoed common reactions revealed in the library literature that staff resistance to technological change was sometimes related to increased responsibilities without extra remuneration or additional staff. As Sturges remarked, “Many of the difficulties that have been experienced with public Internet access, and many of the difficulties that are fearfully anticipated, exist because this type of service has been treated as if it would create nil or minimal staffing requirements” (Sturges 2002, p.87).

In most authorities staff provide ICT assistance whilst the administration of public access ICT is also time consuming especially when one observes that in almost 60% of authorities in the UK booking systems are used for public Internet access (The People’s Network 2003). Similarly, findings of a study of public library staff in Louisiana, USA, following the introduction of public access computers from the Gates Foundation, included an increase in workload with user assistance constituting the biggest change. Furthermore, these changes had not resulted in the employment of extra staff (Robins et al. 2002). To give some indication of how time consuming supporting users can be, a study of library staff in five American states found that when the 80% of respondents who helped users with the PCs were questioned about how much time they spent in the last week supporting public access computing, it was discovered that approximately half of their time (47%) was spent in this role (Gordon et al. 2002b). As Sharpe observed in a review of the NOF ICT training, concerns were expressed “about how much time will be required to support ICT use in libraries when staff are already fully stretched” (Sharpe 2001b, no page number). The following comment made by a library assistant goes some way to explain library assistants’ negativity or indifference to this role:

“Public who have never used the Internet before and come into the IT suite do need a lot of tuition. Unfortunately, we do not have the time to spend with these users nor do we want to train them, as we are not paid [an] IT trainer’s salary” (Library assistant, female, full time permanent, branch, Authority E: survey comments).
6.2.6.2 New library users

Staff negativity related to the implications of the People's Network and public access ICT was also related to the perceived changes it brought in library use. Focus group participants from Authority G, for example, made reference to the People's Network PCs providing the equivalent of a free telephone service, a use of ICT, which some staff felt, was inappropriate. Indeed, the popularity of email was illustrated in a user survey in Richmond upon Thames (Fernandes 2002), which found that the Internet was used the most frequently followed by email and Microsoft Office. Adam’s theoretical examination of email noted that the history of email mirrors that of the telephone in that once the latter became popularly used it was criticised, “commentators were quick to criticise users for their ‘idle gossip’ and developed means of controlling ‘inappropriate’ use, without having the foresight to envisage its potential as a communication tool” (Kraut et al in Adam 2002, p. 85). This would appear to be the case in some public libraries where what is alleged as inappropriate use of the PCs is resented, as the following comment illustrates:

“I'm not alone many of us feel like this, it [computer installation] has been foisted upon us, I am dismayed at the way our library is used for mostly free email and for kids to use as an amusement arcade” (Library assistant, female, part time permanent, branch and central, Authority C: survey comments).

Sturges was also aware of this change in a recent consideration of public Internet access and recommended to library and information professionals, “accept that people will use public Internet facilities for communication purposes, and in doing so accept that you are working in a new resource management dimension” (Sturges 2002, p.13). This anxiety has also been observed in American studies, for example, Flatley documented the tension amongst rural librarians where concern was expressed that the library was changing from a place of learning and education to a place for people to use the Internet for web surfing and e-mail to the extent that “One wonders whether libraries are becoming a free public Internet café” (Flatley 2001, p.16). Similarly, more recent evaluations of the Gates Library Program in the USA found that the “ecology” of libraries had changed, “Librarians and other adults in the libraries sometimes complain about the noise, activity levels, and pressures for computer access that the children’s presence adds in the libraries. In addition, adults sometimes worry about what the children are using the computers for – e.g.
games, chat” (Gordon et al 2003a, p.13). Molloy, critiquing author Anne Fine’s speech at the IFLA conference of 2002, felt she suggested “that young people attracted to libraries by ICT were not worthy recipients of library membership” and whilst he noted that some users do share this view - the “traditional library book borrowers” - Molloy felt it was not helpful in delivering social inclusion objectives and was actually “unhelpful and backward-looking” (Molloy 2003, p.21).

Both public library staff and library users have made the suggestion that public access to ICT changes the environment in libraries. The Analysis of the Consultation on Draft Public Library Standards noted in relation to standard 6, online access to catalogues, “A few user groups thought electronic services and the Internet to be a passing fad- one commented that computer terminals attracted an ‘unruly element’ into libraries!” (DCMS 2001, p.10). Such sentiments were expressed in a study by Pors (2001) of Internet filtering and use in Danish public libraries where it emerged from the results that different people were coming into the libraries to use the Internet including younger people who were using the Internet and computers for email, chat and possibly “more serious purposes” (Pors 2001, p.312). Staff expressed some concern about this, “Staff perceive their behaviour as different from traditional library behaviour- whatever that may be. Some libraries complain about noise problems, group behaviour that is difficult to handle and an unwillingness to obey the guidelines concerning the reservation of computers” (Pors 2001, p.312). Furthermore, this was proving stressful for some staff, “Some staff members express that they are nervous and uncomfortable with the situation” (Pors 2001, p.312). Indeed, as Sturges observed, using computers is noisy in ways that reading is not, “any kind of computer use can be noisy and otherwise distracting to those nearby” (Sturges 2002, p.14). Vincent and Locke also noted that “libraries which have successfully developed access to the People’s Network will have found that they are now getting users they may never have seen before, yet existing users may no longer feel comfortable in ‘their’ libraries” (Vincent & Locke 2003, p.47). Research into social inclusion conducted in Wales also found that staff and users felt threatened by new groups of users in the public library “who they perceived don’t know how to behave in libraries, who are spoiling a pleasant and peaceful environment or who may represent a physical threat” (LISC 2003, p.36).
6.2.6.3 Fear of change and lack of control

Public library staff’s fears and concerns about the introduction and proliferation of ICT were not limited to measurable factors such as lack of skills or experience, rather, there were other factors at play which while operating under the umbrella of change are peculiar to the public library service. As Chapter 2 revealed, public libraries have a special place in British society and multiple testimonies show how they have played an important role in individual’s lives, for example, the oral history of public libraries researched by Black and Crann (2000). Staff take pride in the service they provide to the public and although caricatures mock the unfriendly librarian, as Lilley and Usherwood noted in focus groups with users, “Even frequent users talk in stereotyped laden language about the service. Staff are described as ‘a little bit straight-laced’” (Lilley & Usherwood 2000, p.18), from personal experience many staff genuinely enjoy working with the public although the author would acknowledge that there are moments when that enjoyment can be tested.

Change upsets the status quo and the control staff may have exercised, in terms of in-depth knowledge of stock on the shelves, for example, which results in a preferential service for library users and awards staff with a sense of value. In contrast, the Internet represents a seemingly endless sea of information over which library staff have no control apart from authority-established filters and firewalls, and in this sea, some staff genuinely feel set adrift. As some fear that they have no control over who is attracted into the library by ICT, they themselves feel they have no control over the Internet. Fifteen respondents, for example, noted that whilst useful, using the Internet was time consuming and there was often a great deal of material to look through when answering enquiries:

“Sometimes it’s fast and efficient, other times it’s like wading through dross and a complete waste of time” (Senior library assistant, female, full time permanent, central, Authority C: survey comments).

6.2.7 Resistance to ICT and change

Authors including Edwards and Walton (2000), Martinko et al (1996) and Bichteler (1987) documented that rapid technological change was resisted by some staff, illustrated by negative comments and an unwillingness to use ICT at work or be trained in it. These findings were supported by the results, as a minority of respondents had negative attitudes towards use of the Internet and expressed negative opinions about using it. Staff who felt negative about helping the public
often rated the Internet poorly. Respondents who felt very and generally negative about helping the public use the Internet constituted the largest proportions of staff that were negative to some degree about using the Internet at work. Similarly, this group were more likely to disagree with intentions to use the Internet frequently in the future. It appears that staff negative about the Internet in the public library generally did not intend to use it much and did not like the idea of helping the public use it.

These findings appear to support the notion that negative attitudes are a hindrance when it comes to implementing new systems. This is in contrast with Batt’s proclamation that “Nobody has questioned whether we should create the ICT centres, nobody has challenged the value of ECDL (European Computer Driving Licence) training” (Batt 2003, p.38). A minority of staff in this sample felt negative about ICT and did not intend to use it very much. Furthermore, attitudes would affect the service provided to users if negative respondents were asked to help library users. Whilst one would hope that staff with negative opinions would be professional even if they did not enjoy helping users with ICT, one can only speculate what impression library users would take away with them in a service that prides itself on interaction with its users. As Hull notes, negative service is remembered by customers, “Just as memories of positive encounters remain, so do those of negative ones. Libraries need staff with excellent technical and interpersonal skills, both of which can be improved by training” (Hull 2002, p.164).

Negativity to ICT was seen to arise largely from the problems staff encountered when using ICT rather than with negative attitudes to ICT per se. As Chapter 4 detailed, many respondents were exasperated by the hardware and software problems they had to deal with on a daily basis and some staff gave the impression that this was resented, that this was not their role. This finding has been reported in a number of library studies, for example Tenopir and Ennis (1998) noted in their examination of the impact of digital reference on librarians in research libraries that staff spent more time on troubleshooting with the advent of the WWW8. In addition, Bartlett wryly observed that the advantages of ICT may be overshadowed by the technical issues such that some staff may feel their jobs had been denigrated, “Sometimes it becomes difficult for those under stress to see how our lives have

8 Janes’ (2002) study of public and academic librarians in the US found that negative aspects of digital reference included network problems and troubleshooting.
improved (with technology) when so much time needs to be devoted to troubleshooting problems with software and hardware and maintaining the various pieces of equipment” (Bartlett 1995, p.227). Feelings about troubleshooting ICT are also related to staff’s sadness at what they perceive to be changes in the library service and the emphasis on ICT at the expense of books. This is neatly summed up by Hickey (1992) in relation to workers in college libraries in the USA, “The world, that of books, which many staffers knew and loved, has turned. Some say ‘I didn’t go to library school to become a computer repair person”’ (Hickey 1992, p. 20).

Furthermore, it must be remembered that some staff have experienced change to a far greater degree than others. By way of example, the author’s local branch library used Browne issue and had one computer for staff work until in 2002, three public access PCs with Internet access and a new library management system based on the Internet were all installed. Fears and concerns about extra work, new users, negativity and encountering problems all point to the existence of technostress amongst public library staff in the UK if one agrees with Davis-Millis’ definition, “A condition resulting from having to adapt to the introduction and operation of new technology, particularly when equipment, support, or the technology itself is inadequate” (Davis-Millis 1998, no page number). Staff communicate stress and irritability with ICT not because they are unable to cope, as Brod (1982) believed, but because they have to cope at the same time as being faced with pressures such as network problems or increased expectations. Fisher (1996) was correct to suggest that technostress, as a term, was actually quite insulting to library staff in its suggestion that some individuals were unable to deal with technology, but it is still a term worthy of consideration to cover and express all the problems and difficulties staff deal with when faced with new and increasing ICT and the resulting emotions and stress. It might be argued that change generally is resisted in public libraries. As Broady-Preston and Steel observed in a study of marketing within public libraries, the six library managers interviewed “All remarked on the extent of such resistance to change within their organisations” (Broady-Preston & Steel 2002, p.299).

6.2.8 Increased expectations

It was expected that recent change affecting public libraries and their employees, including the introduction of the People’s Network, would result in increased demands and expectations from library users and, indeed, some respondents felt that expectations on the public’s part had increased. Although this was not specifically
questioned in the survey, ten respondents felt strongly enough to write about this subject whilst more than 50 described problems and issues related to public access to ICT. As the following comment indicates, raised public expectations place pressure on staff:

"Library users expect staff to be experts in using computers and can be exasperated and sarcastic when we don't know the answers to their computer queries" (Branch administrator, male, full time permanent, branch, Authority G: survey comments).

Dodd et al’s evaluation of NOF ICT funded training for Outcomes 2-8 confirmed this finding, noting that there was concern about user expectations escalating “particularly with regard to the blurring of library and educator roles” (Dodd et al 2002, p.6). The literature review had revealed some differences in author’s perspectives on expectations, and more recent studies, particularly from the USA in relation to evaluation of the Bill and Melinda Gates public access computing programme, found that staff were very sensitive to raised public expectations (Gordon et al 2002b). Curry and Harris observed concerns amongst librarians interviewed in their study in teaching users to access the Internet. Although the librarians were comfortable with providing assistance, they felt it was difficult to do so in conjunction with the other roles they had to perform and the authors concluded that staff were “wary of the expectations of customers and library management that adequate time can be found to train customers on the intricacies of skilled Web searching” (Curry & Harris 2000, p.38).

It is imagined that expectations will continue to rise as the People’s Network encourages use of the PCs through high profile media campaigns. A recent eight week campaign, which offered free Internet taster sessions to the public, for example, was based in UK Online centres including those in public libraries (The People’s Network 2003).

6.2.9 Books versus computers

The sense from survey respondents was that whilst a minority was very enthusiastic about ICT and its potential and only a minority was very negative, most staff maintain mixed views of ICT. As observed in a British study, while staff were worried and confused about the direction that the public library service was taking and although many appreciated ICT was part of that service, “the levels at which it
should be provided differ vastly between individuals” (Lilley & Usherwood 2000, p.20). One concern affecting staff opinions of the extent to which ICT should be utilised in public libraries, is the perception and belief that increased ICT means less of the traditional stock public libraries provide, namely books, as one respondent noted:

“We use the Internet more for enquiries but we now have less reference books than we used to” (Library assistant, female, part time permanent, branch, Authority C: survey comments).

This was a difficulty alluded to by one library manager who was aware of the disgruntlement which followed the announcement of the NOF ICT training and the People’s Network:

“There’s all this IT coming but we haven’t got any spare book fund and it’s trying to explain that it actually comes from different funding, it’s a separate issue, this is lottery money but staff don’t always want to hear that message from you. ‘Oh you’re taking books out’, I mean that comes from the public as well and you know we have had letters of complaint along those lines” (Manager E: management interviews).

Staff perceptions that spending on ICT has replaced that of books may have influenced Fine’s recent observations on the public library service (Fine 2003) which Molloy pointed out was in fact erroneous, “The NOF funding for the People’s Network does not require any library authority to invest its materials fund in the introduction of the network” (Molloy 2003, p.21). This perception is reinforced by reports such as the recent Audit Commission report, which commented on the decreased spending on books and periodicals, “As a result, libraries have significantly fewer books than they had ten years ago, and those that they do have are, on average, older” (Audit Commission 2002, p.5). In addition, Framework for the Future claimed that book spending had fallen from 15 to ten per cent over the last ten years (DCMS 2003) and Leadbeater cited the decline in book loans by a quarter as one sign of the decline in British public libraries (Demos 2003).
Concern amongst public library staff in the UK about increased ICT, seemingly at the expense of decreased expenditure on traditional library materials, is reflected in similar fears voiced by public library staff in the USA. When surveyed about library expenditure, purchasing books and other printed materials came first when rated, with computers second, although overall the authors felt that “these rankings suggest that most librarians believe that computer-related services are very important to their libraries” (Gordon et al 2002b, p.4), although this author suggests that they were obviously not the most important. It has been suggested that this shift, the “loss of traditional sources of information”, might be stressful for staff (Hickey 1992, p.17), and in the context of this study this would appear to be the case for some respondents. Hickey details a case study in which an online library system was introduced into a college library and it was found that stress was related less to staff fears about actually operating the system but more to stress resulting from the loss of long-established information such as overdue slips, the shelf list and inventory cards. The author argued that these changes “were much more agonizing than any other aspect of automation” (Hickey 1992, p.19).

Changes in the public library might also prove unsettling for traditional library users as the earlier section on new users in the library has shown, and they too might need reassurance from staff and managers that the library is still a place for them. The Annual Library Plan 2002 pamphlet, which was freely available to library users in Nottinghamshire stated, for example, “Rest assured that this service (computers) is designed to complement and enhance the existing book-based service – not to replace it” (Nottinghamshire County Council 2002, no page number). The authors of the leaflet also acknowledged that this change might be upsetting for staff and asked users to bear this in mind, “It represents a big change for staff so please be patient while they undertake their information technology training courses so that they’ll be able to better help you with your queries” (Nottinghamshire County Council 2002, no page number). The introduction and use of e-books might also unsettle both staff and users in that facilitating their use might create more work for staff, and again like ICT in general, suggest to some users that the service is moving in a direction they find objectionable. Vidana notes that whilst the use of e-books in Richmond libraries has many positive aspects for users such as accessibility and choice, they represent another responsibility for staff in helping users; furthermore, they increase the need for training to enable staff to keep up with the changing technology (Vidana 2003).
6.2.10 Advantages and disadvantages of the Internet

The problems encountered when using the Internet affected attitudes towards using it. Although the perceived usefulness of the Internet was rated highly and its overall usefulness was very much supported, respondents were less impressed at the Internet's ability to increase productivity at work, accomplish tasks more quickly and give them greater control over their work. Although the Internet was regarded as a useful addition to existing services it was seen as more of a hindrance when access was affected by network problems explaining why some respondents disagreed with usefulness aspects relating to time. This echoed research from 1995 where reference librarians in New Jersey were surveyed about their use of the Internet. Problems identified included technical difficulties such as slow response times such that it was actually quicker to use hard copy (Basu 1995), and in more recent research, also in the USA, librarians complained about the speed of the Internet and half of the respondents felt that searching the Internet was slower than print sources (Curry & Harris 2000).

The benefits of the Internet for staff in providing access to a wide range of reference materials in smaller libraries was an important factor in relation to usefulness and was noted by survey respondents, focus group participants and library managers. This advantage has been repeatedly cited in the literature including a study of reference collections in public libraries in the USA (Zumalt & Pasicznyuk 1998), a study of librarians in the USA by Janes (2002), and Curry and Harris's interviews with library staff: "Those librarians working in small branches without large collections of print materials were particularly positive about the overall impact of the Web, stating that the Web had opened doorways to previously inaccessible material in 'virtual libraries'" (Curry & Harris 2000, p.32). Zumalt and Pasicznyuk's study (1998) also found that the Internet was as useful as the paper based reference collection in fulfilling enquiries yet the public library district spent more than half a million dollars annually to maintain its traditional reference collection. For library managers and council members the Internet might offer advantages above and beyond access to materials not housed in the library, primarily, saving money. Similarly, one manager interviewed envisaged the end of the hard copy reference collection in the near future when asked about the future of ICT and its implications:
"I can definitely see the end of the formal reference collections as we've got at the moment. We've got a reference room, with a lot of fairly high-level reference material. I can certainly see the end of that within the next ten years. It's becoming much less and less used. I don't think that managers such as myself will be able to justify the outlay on reference materials much longer" (Manager A: management interviews).

6.2.10.1 Filters and firewalls

Many staff complained that the authority’s firewall and/or filters affected Internet usefulness and expressed frustration with the length of time involved in using the Internet due to server problems and delays. The reality is that the majority of public library authorities utilise filtering software; according to figures from the People’s Network collected in June 2002, 65.7% of authorities in the UK used filters (The People’s Network 2003). There is a trade off here in that while many respondents were annoyed at the problems filters and firewalls created and subsequently having to deal with annoyed users, not having filtering software might lead to annoyance of a different kind if library users report offensive material being viewed by others in the library, and, as brief semi-structured interviews with a variety of staff in one authority revealed, some staff were worried about dealing with library users accessing pornography. Despite the fact that a question explicitly asking staff about unacceptable use of ICT was not included on the questionnaire or explored in focus groups, a small number of staff mentioned their concerns about this. One librarian observed that undesirable content was easily available:

“There is a big problem with X-rated material. It's too easy to stumble on unsuitable sites by accident” (Librarian, male, full time permanent, central, Authority H: survey comments).

Similarly, a survey study of more than 3000 public library staff in the USA discovered that staff were concerned about children viewing pornography, “Library staff often expressed the concern about pornography in reference to the accidental or intentional exposure of children to adult-oriented material” (Gordon et al 2002b, p.3). Perhaps confrontation from users regarding slow loading WWW pages and the inability to access some sites is preferable to dealing with the ramifications of users accessing pornography. Auld’s defence of filters in a USA public library system noted that filter software affected the roles of staff in a positive way, “about 31%
reported that, pre-filter, they personally cleared pornography from computer screens at least a few times a week and in many cases several times a day. After the filter was installed, not a single staff member reported clearing pornography from computer screens more than a few times a month” (Auld 2003, p.40). Furthermore, staff received fewer complaints from library users who had been “unwillingly viewing pornography, complaints that their children had been exposed to sexually explicit images” with the reduction in confrontation resulting in a “less hostile and more harmonious” library (Auld 2003, p.40).

One must sympathise with staff about general access issues. When answering an enquiry, a few minutes can feel like a lifetime if a queue of users has appeared and the telephone is ringing; all creating unpleasant pressure. As Morris and Barnacle’s review of stress in the library workplace noted, “system response time and frequent breakdown” were both factors contributing to stress (Morris & Barnacle 1989, p.84).

The rights and wrongs of filtering will not be explored here but managers and ICT support staff need to appreciate how they affect staff’s ability to fulfil their roles, “Corporate policies such as filtering of Internet content may impose conditions or restrict the services which libraries can offer to the public” (Gallimore 1999, p.389). Similarly, staff may have to deal with frustration from users who cannot access legitimate sites because of the sensitivity of the filters or the filters hinder staff themselves, as the following comment reveals:

“It can be frustrating using the Internet on staff PCs at work, as the sites we can access are restricted. Often these are sites vital to answering enquiries- for example; I was recently barred from looking at Amazon’s 20th century drama section” (Librarian, female, full time permanent, county, Authority L: survey comments).

One might hope that in the future the replacement of equipment might eliminate some network problems as at present it would appear that library staff are suffering from the problem of “increased traffic on networks which serve a number of library functions, including library circulation control” (Gallimore 1999, p.390), and filters

9 As Sturges identified filters are “less sensitive, flexible and genuinely effective than human solutions” (Sturges 2002, p. 98).
might be improved in their sensitivity and control. Approximately 30% of public library authorities in the UK had broadband connections in 2002 (The People's Network 2003), which whilst offering immediate connection to the Internet, do not guarantee against PCs ‘crashing’ and technical problems. One large authority surveyed was particularly plagued by network problems due to the fragmented introduction of equipment over a number of years. This also calls into question the sustainability of the People’s Network and the replacement of equipment. Indeed, sustainability was a concern of many of the managers interviewed and though the People’s Network computers look modern and attractive at present, will the same PCs still be sat in public libraries in five or ten years time? As noted by Gordon et al in relation to public access computing in the USA, sustaining access was viewed as the biggest challenge, “Half the library administrators said their computing resources will not be adequate in two years. Most said they will need more computers” (Gordon et al 2003b, no page number). Members of one focus group in this study expressed similar worries about the authority’s ability to sustain the PCs. Batt (2003), noted that the issue of sustainability was currently being addressed by Resource: the Council for Museums, Archives and Libraries, the body which has managed the People’s Network.

Perhaps, for some, use of ICT was seemingly slower than using hard copy because they lacked the appropriate skills, a suggestion made by Garrod in an overview of the training issues within the hybrid library which noted that staff may be put off from using ICT because of their limited experience with them and as a result, may “consider them time consuming, and unreliable” whilst others “feel they do not have the skills” (Garrod 2001, p.32). The plethora of comments expressing frustration with the Internet, however, would appear to be a result of external rather than internal pressures.

6.2.10.2 The Internet: a tool or the tool?
Prospects for continued and future use of ICT in the public library appeared promising upon consideration of staff intentions. Many respondents intended to continue using the Internet at work on a regular or frequent basis, with a large proportion hoping to increase their use. The majority of respondents agreed that they would use the Internet on a regular and frequent basis in the future and that they would strongly recommend others to use the Internet.
Staff wanted to make clear that just because the Internet was available to them, this was not reason enough to use it on every occasion, rather when the situation demanded it. Many respondents were at pains to point out that the Internet was just one resource they could use, a sentiment which was also expressed in a study of rural librarians’ use of ICT, “Numerous comments were made to the effect that the Internet is a useful tool or resource but should not be the focus of the profession” (Flatley 2001, p.13). A study that aimed to investigate the value of the Internet in answering reference enquiries in a public library in the USA found that the Internet answered 61.7% of the questions alone. In relation to the perception of some staff that the Internet is simply one source amongst many, they suggested, “research professionals should view the Internet as an instrument of choice rather than a tool of last resort” (Zumalt & Pasicznyuk 1998, p.170). Similarly, a study which compared the usefulness of the Internet with traditional reference sources amongst librarians including those employed in public libraries found that “for these questions and for these subjects, the use of freely available, Web-based resources are roughly equivalent to the use of other resources” (Janes & McClure 1998, p.36).

There was a sense in the UK study that some respondents were resisting the lure of the Internet and that it would be easy to turn to the Internet for every enquiry - for some staff this might involve simply staying sat on a reference desk rather than visiting the reference shelves. Many respondents were concerned about becoming too reliant on the Internet and a minority seemed annoyed with themselves for using it as much as they did. There were concerns about the accuracy of information on the Internet, its reliability and being seen to endorse it to the public. Similarly, participants’ confidence in traditional sources in Janes and McClure’s study was higher for the Internet, although the difference was only small (1998). As one manager noted:

“The only problem with it is that it’s badly organised and half of it’s a load of rubbish, so staff are interested in quality control, the quality assurance side of information, the fact that somebody says something on the Internet doesn’t make it right” (Manager C: management interviews).

In addition, one wonders if subconsciously some staff felt that Internet use conveys to library users the impression that library books and library staff are redundant in the wake of ICT. This is a natural reaction especially when expertise in using a
large and specialised reference set is acquired over years of service and to relinquish this skill is threatening and may help explain why some staff resisted using ICT, as one manager commented:

"There's still a few sort of old-fashioned reference experts who are brilliant in their knowledge in their heads they know exactly where a piece of information is"

(Manager C: management interviews).

Zumalt and Pasicznyuk's (1998) suggestion that library staff consider the Internet the tool of choice is foolhardy in many respects. Although the Internet is a valuable tool in small libraries and can provide instant access to more up to date information, it does not provide everything. It is the skill of library professionals to decide when the Internet is used and when it is not which sets them apart from everybody else using ICT.

6.2.11 Implications of staff attitudes

It was reasoned that attitudes to ICT were related to use and according to total scale scores, attitudes and intention had a strong relationship (see Section 4.5.11). Attitudes accounted for almost 40% in variance on intention scores. Respondent's feelings about using the Internet at work therefore appeared to be related to whether they intended to use it. Similarly, attitudes were related to actual use with 25% in variance of scores attributable to attitudes. Individuals can hold attitudes and yet intend to act differently but for a large number of respondents in this study attitudes were directly related to future actions.

A review of the literature discovered that the usefulness of an application often has the greatest influence in terms of attitudes. Here, the relationship between usefulness and attitudes was very strong with usefulness accounting for approximately 50% in variance on the total attitude scores and 36% in variance on intention scores. Usefulness constitutes one type of attitude, whilst ease of use constitutes another and the latter was also positively associated with intention, suggesting that ease of use accounted for approximately 17% of variance in intention scores.

As previous sections have illustrated, attitudes are related to intention to use the Internet, frequency of Internet use, feelings about helping the public use the Internet
and perceptions of usefulness and ease of use of the Internet. It is reasonable to state that the effects and influence of attitudes are far reaching. In this study, most respondents’ attitudes were positive to some degree and related to positive perceptions of the role of ICT in the public library service. These results suggest that public library users are coming into contact with many staff content to use ICT in their work and in showing library users how to take advantage of it. In contrast, a minority of staff are unhappy about the proliferation of ICT in the public library in terms of having to use it themselves and showing it to others. This picture, however, is somewhat oversimplified and it would be fairer to say, based on both the qualitative and quantitative evidence, that while a very small minority of staff were openly negative about ICT and some were very enthusiastic about using the Internet, most staff have mixed feelings about ICT in the library, some related to the Internet itself, others related to its effects and some to its implications for the future of libraries.

6.2.12 Section summary
This section has considered the results of the study in relation to attitudes. A number of respondents’ characteristics influenced use of and attitudes towards the Internet. These lend themselves to a number of implications for the future success of ICT in the public library. Portents for the facilitation of ICT in the workplace appear generally positive.

6.3 Training

6.3.1 Background
Respondent’s expressed a range of opinions as to the usefulness of various methods of training in learning how to use the Internet with some staff obviously feeling that some methods were preferable to others, although self-study was somewhat superiorly rated.

6.3.2 Formal and informal methods
Based on the literature it was proposed that training methods such as on-the-job and cascade would predominate and that the ratings of informal methods would be low. Indeed, more respondents had on-the-job training than any other method for use of the Internet (see Section 5.2.1). Cascade was another well-reported method, with almost half of respondents indicating that this approach had been used when learning how to use the Internet. Ratings of the three informal methods, on-the-job,
induction and cascade were in line with ratings for all methods as median ratings for all were good. The popularity of cascade training contrasted with reports from the literature that whilst this approach was well used in the library sphere, it was not always effective. Small argued that cascade training was problematic because “members of staff who undertake to train other staff rarely pass on the knowledge which underpins their newly acquired skills” (Small 2001, p.136). The section on self-study ratings revealed, however, that methods with elements of self-directed learning, or what might be deemed a ‘hands on approach’ were well thought of by respondents which might be related to the nature of the Internet, a medium better suited to individual experience and trial and error compared to using PCs generally.

6.3.2.1 Formal training courses

Formal courses were also highly utilised training methods; between approximately one fifth and a third of respondents indicated that they had attended either in-house or external formal training courses to acquire Internet skills. More respondents attended a course held externally and yet the median rating for this was also three, good, although the mode was four, excellent. This might suggest that although staff enjoyed formal courses, attending training away from the base library was more conducive to learning, as colleagues or library users could not distract staff. This was certainly the rationale for this choice in some authorities, as one manager explained:

“It was also useful because we operate it as a release system by getting people out of the workplace and now they feel much more confident about not being interrupted all the time by phone calls and being told ‘this is more important you’ve got to get on and serve the customers’, they are away from that kind of environment” (Manager A: management interviews).

6.3.2.2 Self-study

Self-directed learning was utilised and rated well by a large number of respondents. Almost one third of respondents had read about the Internet for their own interest while more than half had used or practiced their Internet skills at home on a family or friend’s computer. As Batt noted, the NOF ICT training programme would have implications for staff’s personal development and this suggestion appears to have been adopted by some staff, “Library staff will need to make a commitment to top up skills and knowledge on an ongoing basis - changing with the times, in times of
change” (Batt 2000, p.50). Similarly, Garrod’s study of the impact of information technology on the roles and skills of library and information staff, noted that, of those who took responsibility for their own progress “many will probably have a computer at home – as the possession of a home computer was found to be a common factor amongst staff who were competent and confident with technology” (Garrod 1998, p.256). Some respondents actually felt that self-study had helped them acquire superior Internet skills than would be gained through formal training:

“I am self-taught through extensive use of the Internet at home. This has been far more effective than any of the training at work” (Librarian, female, full time permanent, library headquarters, Authority I: survey comments).

The literature review had intimated that learning how to use the Internet whilst working in one’s spare time or in timetabled time off the desk was not a very effective method. In Jones et al’s study, for example, it was documented that, “Staff in the focus groups also reported problems with interruptions when learning in their workplace, either because equipment was only available in a public area, or because colleagues interrupted them in the workroom” (Jones et al 1999, p.35). This was not supported by the results in this study; because although over a fifth rated this approach fair, a similar proportion also felt it was good. There was no sense of annoyance from respondents that this was an inappropriate way to learn, perhaps because of the tradition of workplace learning in public libraries.

Strong relationships were found between proficiency with both computers and self-study at home and off the desk. It appeared that individuals with superior computer skills rated self-study more favourably. Interestingly, there were also relationships between finding self-study a useful training method, reading and learning in spare time and feelings about helping the public use the Internet. This would suggest that respondents confident with more pro-active, self-directed learning approaches were more at ease with helping others with ICT. Similarly, Dick’s study of ICT skills and attitudes of public library staff in Sheffield and Derbyshire using questionnaires and semi-structured interviews, observed a connection between confidence and using a PC at home and suggested, “The other figures also show overall that using a PC at home or attending a computer course improves levels of competence and reduces anxiety” (Dick 1998, p.75). PCs are now available to all staff providing opportunities for learning in new ways, such as learndirect, the online learning and
information service now available on the People's Network website (Resource 2003). The numbers of respondents in this study who learned how to use the Internet independently at home and in work protected time, and were happy to do so, suggests that future training programmes could take advantage of the willingness of some staff to learn on PCs by themselves.

6.3.2.3 Support

Over a quarter of staff surveyed had access to a publication produced by the authority in relation to the People's Network, the NOF training and related issues and suggests that in some authorities communication about change was taken seriously. Meetings were attended by approximately 16% of respondents, which, whilst not necessarily the best means to learn about the Internet, are, nevertheless, an important way for managers and colleagues to communicate about changes in ICT; meetings “with the entire staff can help boost staff morale, comfort, and confidence” (Cooper 1998, p.249). Similarly, mentoring was experienced by almost 200 staff emphasizing its role in the public library workforce. Ratings for this method did not differ greatly from other methods although ratings for informal mentoring were slightly better than for arranged meetings, indicating that respondents preferred the flexibility of contacting a mentor at work to help or advise when required.

6.3.2.4 Other training

In terms of other training respondents had undertaken, learning how to use the Internet at college/university was mentioned by approximately a tenth of respondents who completed this question and some respondents detailed courses run by CILIP. This reflected the view of the authors of Building the New Library Network (LIC 1998) that much training had already taken place as a result of the then LA and also by university departments. In addition, some respondents had learnt how to use the Internet in previous posts both within and outside the public library service.

6.3.3 Training methods and learning styles

As predicted, staff expressed a variety of training preferences, which explains why no one method was greatly favoured over the others with the one exception of self-study, although the difference here was small. For every training method a proportion of staff judged it poor, including self-study, which had the smallest proportion of just 0.2%. Ratings of poor could be attributable to a number of factors
including the appropriateness of that method for learning how to effectively use the Internet, the trainer, the environment including the equipment available, the time allocated to learn, location and ultimately the individual training preferences of staff.

The training preferences of staff were explored in the interviews with managers. Managers were aware of the difficulties in finding training approaches favourable to all staff and ultimately decisions had to be made based on cost, location, training providers, timescales and the present ICT skills of staff and unfortunately some staff were unhappy with the result. Managers, however, felt that they had made the best choice that they could and most staff were happy with the route followed, although some managers were more than willing to admit that on occasion the NOF ICT training had been difficult and stressful for staff. Manager D, for example, knew that some staff had detested taking the ECDL exams but felt that this was vital to motivate staff and prove their competency. Likewise, Manager C also acknowledged that online learning was not universally popular with staff but felt that the choice of programme had been a good decision for the majority of staff:

"Some people were great at it, really made the point, others didn't, and the style didn't suit some people, some people wanted just to be trained full stop" (Manager C: management interviews).

The comments made by respondents and the insights offered by managers suggest that it is difficult to offer a training method acceptable to every member of staff within an authority. Individuals learn in different ways and have personal preferences about the methods they find satisfactory. A recent evaluation of training for Outcomes 2-8 by the NOF noted, "Formal sessions rather than distance learning methods are preferred by most staff" (Dodd et al 2002, p.5). In contrast, Manager A noted that although classroom based learning was often considered appropriate for staff because of their low skills and the need to take them away from the workplace, some staff found this approach difficult, as they had not undertaken formal education for a number of years and this initially made them quite negative about the training:

"Some people did have a very steep learning curve, and it does feel, it is an imposed training, something that you've got to do, and it's like going back to school
for a lot of people, having to sit a qualification. The training is not so bad it's the exam at the end of it, passing the modules in the ECDL that people do find difficult. That is a big turn off for a lot of people” (Manager A: management interviews).

Similarly, in spite of the success of the Learning Line programme, Manager B acknowledged that some staff would have preferred classroom-based learning:

“There were certainly lots of training preferences, a lot of people kept saying they wanted one to one, even now they come back and they prefer one to one. There were quite a lot of people who liked to do it at their own pace provided there's a support mechanism there for them. But it just wasn't realistic to send people away to college to do it” (Manager B: management interviews).

The preferences of staff and the training routes followed by authorities reflect those detailed in the literature, including the popularity of formal courses (LIC 1998) and group training sessions (Jones et al 1999). In terms of learning styles, the ratings of the methods used illustrate the range of styles favoured within the population. According to the work of Lockitt (1997), for example, learning styles include auditory, visual and kinaesthetic. In this context those who preferred an auditory approach enjoyed classroom based learning where they could hear the tutor's instructions whilst visual learners may have preferred the use of self-directed tutorials or reading and kinaesthetic learners might have appreciated the opportunity to work in groups rather than by themselves, imitating others or in a tutorial. All styles would benefit from computer based training if geared to the characteristics peculiar to each learning style, where auditory relies on words and sounds, visual uses images and kinaesthetic consists of doing things to learn. The fairly even spread of ratings of training appears to support the various theories of learning styles within the population, concentrated within the public library staff populace.

One solution to the problem of matching learning styles to preferred methods of training would be to adopt a training strategy which included more than one type of learning. As Lockitt warns, “Using one particular resource of delivery methodology exclusively can be detrimental to the other two categories of learner” (Lockitt 1997, p.22). Cheshire County Council, for example, planned to use “a variety of delivery methods to suit all aptitudes, including distance learning, interactive training packages, and traditional courses” (Cheshire County Council 2001, no page
number) to train staff to the Expected Outcomes stipulated by NOF. This was also an approach utilised in the Learning Line programme, which included seminars, online conference and work-based assignments and the popularity of such approaches suggests that using a training programme which includes aspects attractive to all learning styles means that individuals will find at least one way of learning they enjoy rather than following an approach which appeals solely to one learning style.

6.3.4 Negativity to training

A small number of respondents who expressed negative comments about the Internet training they had received were staff with good ICT skills. These respondents were irritated that in spite of being able to effectively use ICT they still had to attend training, whereas for others, having to learn with complete novices was frustrating. As suggested by authors in the USA in relation to public library staff and training, “The more experienced and sophisticated people are as computer users, the more likely they are to be critical and have complaints about this and other programs” (Gordon et al 2002b, p.9).

Alternatively, staff in one focus group spoke of feeling uncomfortable training with managers who they felt had greater ICT skills. As Jones et al found in their study, “Some were concerned about looking stupid in group sessions when the pace of learning had gone faster than they could manage, and groups members had different levels of learning need” (Jones et al 1999, p.36). Mathews warned that trainers must address the issues arising from training groups with “multi-level staff” (Mathews 1997, p.88). Another problem with mixed skills groups might be resentment as Bartlett suggested, “Jealousy between coworkers can develop if one feels unable to learn as quickly as others” (Bartlett 1995, p.226). A more detrimental problem from mixed level groups might be that people with an excessive fear of computers might affect the progress of others since they require more assistance from tutors (Wilson 1999). Consequently, suggestions to improve training from Authority G’s focus group included putting staff who knew each other in training sessions together to support one another whilst participants in Authority E also thought putting staff together with similar skill levels was a useful improvement, although it was appreciated that in a rural service the practicalities of achieving this were difficult.
Perhaps some respondent’s resentment towards the training was connected less to the training itself and more to the fact that it was imposed, although the level of imposition varied amongst authorities. Manager D’s authority, for example, decided that staff should sit the ECDL examinations after initial plans to allow staff to pursue the training at their own pace resulted in some people falling behind. This delay may have been a sign of resistance on the part of staff as Curzon suggested that one technique of resistance is to drag out work (1989). In contrast, Hertfordshire library service argued that sitting the examinations was not appropriate, “we do not feel that it is appropriate to pressurise trainees into taking the tests if they are not happy about doing so” (The People’s Network 2003, no page number). In fact, the NOF ICT training was not mandatory but all public library authorities have taken advantage of the opportunity it provides. Some managers felt that staff had issues about the compulsory nature of the NOF ICT training, as the comment from the following respondent illustrates:

“Forcibly sent to take City and Guilds Internet 1” (Library assistant, female, part time permanent, Schools Library Service, Authority F: survey comments).

Comments such as this imply that managers failed to carry all staff with them in the recent changes in public libraries. Sharpe suggested that staff needed “Support and encouragement” when undertaking training to help them understand why it was required and how they would need to use it to support users (Sharpe 2001b, no page number).

Two of the eight managers interviewed sensed that staff had negative attitudes to the training such that two managers and the members of a focus group observed that some people had left the library rather than undertake the training:

“There was the old guard; ‘I’m never going to learn this, so I’ll leave’ and they did some of them” (Team leader, full time, branch, Authority E: focus groups).

“We’ve had people who’ve been very negative towards the training, towards ECDL and the Expected Outcomes, and we’ve had a couple of resignations on the basis of ‘I am not doing ECDL’” (Manager D: management interviews).
Anecdotal evidence that some staff had left or retired rather than undertake the NOF ICT training echoed Sykes' observations in a study of automation on staff in an academic library, "reference was frequently made to two older members of staff who left shortly after the computers arrived, largely because they could not overcome their fear of it" (Sykes 1986, p.52). Clark and Kalin, however, warned managers not to dismiss such staff, "every library has staff who are not comfortable with technology. Libraries can't afford to write off this group, because they are often some of the most knowledgeable employees" (Clark & Kalin 1996, p.31).

6.3.5 Monitoring and evaluation

*Building the New Library Network* (LIC 1998) advocated training for public library staff that would be both monitored and evaluated. As noted in a review of the literature, accreditation and monitoring have been little utilised with training often seeming to take place in a vacuum. The survey revealed, however, that a large proportion of respondents' training was both accredited (or they received a certificate) and monitored. Over half of respondents indicated that at least one form of training had been accredited with the majority of this for the NOF ICT training. Over 200 respondents noted that to their knowledge their training was not accredited or they had not received a certificate, which must be disappointing to the individuals concerned if a lot of time and energy has been invested in training. In fact many indicated that they were still waiting for certificates to arrive.

More respondents noted that their training was monitored and evaluated than accredited. It would appear that this aspect has been pursued more than accreditation since the NOF requires evaluation of training and it would be of more direct value to the authority. Fifteen percent of respondents indicated that their training was neither monitored nor evaluated while two per cent did not know. Obviously for some respondents who knew their training was not monitored, this might be attributable to training that took place some time ago or simply that there has been a lack of communication about the NOF ICT training and when training has taken place in general. A small number of respondents noted that as much of their training for the Internet had been informal it was not recorded; perhaps authorities need to consider how to tackle this issue in an environment where much learning takes place informally. One suggestion might be encouraging staff to put together a learning portfolio and record their own informal learning and facilitating this process by providing pro-formas.
It would appear that the monitoring and evaluation culture is now very much embedded in the public library service. It is imagined that the administration of monitoring and evaluation of NOF ICT training is time-consuming but there is room for improvement in terms of better communication from management to staff to illustrate how seriously efforts to train staff are viewed.

6.3.6 Training issues

The literature review revealed that in studies of library staff the cry for more time to train and practice was commonplace. Quinn had advocated practice time and use immediately following training, “training given weeks or months before the arrival of a system is thus useless without following it by regular practice. It is practice that provides experience, feedback regarding progress, and opportunities to master problems” (Quinn 1995, p.14). Again, survey respondents and those interviewed in focus groups and brief interviews repeated these sentiments throughout this study. Additional problems identified by staff included a lack of time to practice their newly acquired skills, undergoing training long after installation or, alternatively, receiving training before the PCs arrived as the following manager explained:

“But they found at the end of the year ‘Well I’ve done my training, I’m ready’ but the People’s Network money didn’t come until a year later, they’d finished their course in the March and it might not have been until November until this facility actually arrived. So it was ‘Well I’ve done this but where is it?’” (Manager E: management interviews).

It was interesting to note that a proportion of respondents who had not received any training for the Internet had been using the Internet for quite some time at work; almost one fifth of this group had been using it for longer than a year. Other concerns expressed by respondents included lack of available PCs to train or practice whilst some felt pressurised to train quickly. For respondents in a rural authority and a London borough, issues centred on the time taken to travel to training centres. All of these problems were expected from the studies analysed in the literature review, for example, Jones et al’s report Training the Future had noted, “Findings from the focus groups show that much staff experience of technology to date has been quite negative. Some said that equipment or software had arrived in their libraries without warning, or that they did not know what to do with it” (Jones et al 1999, p.14), but it was disappointing that they still posed
difficulties for staff. The problem of timing the training and practice was also noted by the People’s Network. It was acknowledged that it was a challenge for some library services, “New ways of learning – and in particular unfamiliarity with learning online has resulted in an under-estimate of the time needed to complete training and the need to build in more time for staff to practice and consolidate learning” (The People’s Network 2003, no page number). Similarly, school librarians undergoing their NOF ICT training in Scotland reported in their evaluations that lack of time was problematic, “They find that there is not enough time during the working day to complete the training and therefore have to give up personal time” (Williams 2002, p.111).

Indeed, managers were very much aware of these issues and they must be seen in the context of the NOF ICT training programme. This programme has been the largest training programme for public library staff and although support was available from the staff at Resource including the People’s Network team, unexpected difficulties cropped up during the process, hence the need for annual monitoring returns by authorities. Travelling will always be a concern in geographically large authorities especially rural locations and large authorities, as Garbelotto noted in a study of training in UK public libraries, where authorities experienced problems in the logistics of getting many staff together (1999). In the future, online learning might be used to overcome this problem. At the time of the commencement of the NOF ICT training, however, such self-directed learning was not suitable for the staff in some authorities particularly those with a low level skills base as demonstrated by the experience of Authority E. This authority had thought through ways to tackle logistical problems and one solution had been the use of laptops for staff, as explained by a member of the focus group:

“You’re talking about library assistants, some of them have actually been given laptops to take home and practice on, because there’s no other way for them to get at them which is really good, a real huge change in what libraries expect to be given. It’s a big culture change and long may it last!” (Team leader, full time, branch; Authority E: focus groups).

The literature review highlighted that the NOF ICT training would not pay for relief staff; this was expected to be the financial area in which the authorities themselves would contribute. It could be suggested that in doing this, the quality of training
some staff received was affected detrimentally. The manager in Authority G actually perceived this to be the main disadvantage of the training programme and focus groups participants from the same authority felt that worrying about staff cover had made attending the training stressful. Bartlett considered the staffing issues involved in technological change in libraries and noted that primarily there must be enough staff to cope, "so that no one feels overwhelmed" (Bartlett 1995, p.228). Three of the eight managers had found the issue of relief staff problematic. One manager thought that using the NOF funding for relief staff would have been an advantage:

"I think that if you could have used the NOF funding for relief staff that would have greatly helped because our biggest problem, and I know it's the same for all authorities, we just don't have the staff to cope" (Manager G: management interviews).

The issue of training for troubleshooting was raised by a number of survey respondents suggesting that this type of training was desperately needed. This was supported by comments made in the evaluation by Dodd et al, noting, "No outcomes address the front line or practical application of skills in delivering ICT services to users e.g. troubleshooting" (Dodd et al 2002, p.24). The BECTa analysis in Building the New Library Network (LIC 1998), however, had identified that staff needed to acquire basic ICT skills, navigate the Internet and perform ICT equipment troubleshooting. Authorities have tackled this issue in different ways, Manager D, for example, hoped to utilise the authority's IT trainers to deliver troubleshooting training whilst anecdotal information suggests some authorities deliver this in an ad-hoc fashion relying on the authority's helpdesk.

6.3.7 Opportunities for training in the future

The favourable ratings of self-directed learning in the survey indicated that moves to this approach were appropriate and, as Gallimore noted, such approaches will be relied on even more in the future, "On-site training facilities and self-learning packages will be necessary to deal with the need for continuous upgrading of skills" (Gallimore 1999, p.391). Two of the authorities surveyed had undertaken training with an emphasis on self-directed and online learning; the Learning Line, utilised by Authorities B and C, a course created by Belle Associates which involved attendance at two seminars, the completion of work-based activities, support
through an online conference and email and in-house tutors. Tutors were other
members of staff trained by the company who then delivered the course to the rest
of staff. The course covered aspects of all eight Expected Outcomes and could be
followed on an eight, 12 or 16-week basis with access to the tutors for support
online. Both authorities felt the programme was appropriate because of the time
involved in attending training courses, Authority C had more than seven hundred
staff and this option was the most cost effective. Similarly, Authority B had deemed
it impracticable to take staff away from the workplace in terms of the time involved
in travelling and providing relief staff to cover those attending training.

Consideration of the 212 respondents who undertook the Learning Line revealed
that staff views did not differ greatly from the overall sample. With the exception of
attending a course at personal cost, which had a median score of four, very good, all
other methods were considered good. Similarly, ratings for projects carried out in
work and personal time both had ratings of good, the same as the total sample.
Respondents' comments about the Learning Line course were mixed and included
staff that felt they benefited from it and those who were less impressed. In terms of
training in the future, both authorities following the Learning Line programme
agreed that this particular method of learning had shown the potential for self-
directed training with online delivery. Manager C noted that the Learning Line
online conference was being used for a custom made enquiry package for staff to
access, whilst Manager B felt that this approach would be utilised in the future:

"NOF training [is] bringing them more round to the type of on-line training and
using the staff confidence that we've now got to develop other forms of training,
looking at customer care training perhaps through a similar method. So I think it's
probably made them more open to different forms of training" (Manager B:
management interviews).

6.3.8 Section summary

In contrast with reports from the literature that traditional methods of learning for
library staff such as on-the-job and cascade were unpopular, these approaches were
well rated in the survey, as were all self-directed and practical learning approaches.
A minority of staff resented having to undertake the NOF ICT training, but many
found that training improved confidence and skills when using the Internet.
6.4 Relationship between training and attitudes

6.4.1 Background

A review of the literature revealed that training was perceived in positive terms and was viewed as a benefit by many authors in reducing the stress surrounding use of new technology and improving individuals' confidence to use ICT. Generally, positive attitudes were associated with good training.

6.4.2 The effects of training

It was assumed that training would affect attitudes to ICT; staff with training would be more positive, more confident and rate their computer skills more highly. Indeed, in terms of qualitative data, some staff were happy to comment on the questionnaires that training had improved their confidence in using ICT in terms of what they hoped to use in the future and in helping the public, as the following comment by one member of staff reveals:

"My proficiency and confidence has greatly increased during the past 18 months because under the NOF scheme for public libraries I have successfully completed City and Guilds Levels 1 and 2 on using the Internet and computers and computing, word processing, databases (Access) and spreadsheets (Excel). Before that I had only been on day or half day courses and was often struggling and taking a long time to search for information" (Librarian, male, full time permanent, central, Authority F: survey comments).

For many respondents, NOF training in particular had improved confidence and willingness to use the Internet. In Authority G, for example, although some staff were quite critical of the training they had received, they acknowledged that it had improved their confidence while consideration of staff without training revealed fewer computer skills and greater negativity in relation to helping the public than the main sample. The People's Network remarked that successes of the NOF ICT training included the confidence and enthusiasm of staff and the general culture change within the service (The People's Network 2003), an observation supported by the findings from Dodd et al's survey of the NOF ICT training, which included telephone interviews with 61 public libraries authorities in the UK (Dodd et al 2002). The use of the ECDL, in particular, to improve confidence, the popular choice to meet Expected Outcome 1, has also been noted outside of the library.
Managers were much more forthcoming than staff in their assertion that training had improved staff confidence and attitudes to using ICT, which reflected the findings of Garbelotto in a study of Internet public library training in England which found four training managers out of five considered training increased staff confidence and demystified the Internet (1999). As Manager A noted, staff were happy to help the public, which was a significant advance when staff in that particular authority had little ICT experience and some branch libraries were still using the manual system of Browne issue at the time of the fieldwork:

"I've noticed the difference in staff attitudes having gotten through. It has been difficult for some people but all of the staff have got CLAIT now, all of them are working through ECDL and are much more confident at using the Internet and ICT and that shows from their work with the public" (Manager A: management interviews).

Quantitative data also appeared to support the contention that training affected attitudes for the better. The use of one-way analysis of variance suggested that good training affected attitudes. Generally, the more inferior respondents rated a particular method of training, the lower their mean usefulness, ease of use and intention scores, all of which suggests that good training makes the Internet seem easier to use, more useful at work and staff intend to use it more. A typical scenario might be where examples of typical enquires are considered and successfully fulfilled using the Internet in a training course; respondents rating this approach highly would also have scored higher on perceived usefulness of the Internet at work including attitudes.

Certain forms of training, assistance and support appeared to exert more of an influence on usefulness, ease of use and intention than others. In relation to usefulness, seminars were responsible for 15% of the variance in mean scores, the highest effect measured. This might be because the number of respondents attending seminars was small; alternatively, situating use of the Internet in context
of the training programme and the cultural changes taking place might aid staff in their judgements of its value at work. Furthermore, only evaluations of the usefulness of self-directed forms of learning appear to be related to perceptions of usefulness. Perhaps the satisfaction derived from learning by one’s self adds to individuals’ perceptions of the usefulness of the Internet at work and learning by experience provides concrete examples to the individual of the value and use of the Internet at work in the way that abstract examples cannot. Similarly, support from colleagues in the form of discussions would appear to strengthen opinions of the usefulness of the Internet at work, which again reinforces the notion of the influence of peers in the library environment. Although ratings of informal learning such as the on-the-job, induction and cascade were related to mean ease of use scores, the number of self-directed learning approaches which appeared to be of influence in relation to ease of use were fewer than with usefulness. In addition, ratings of the usefulness of in-house training off site were related to ease of use and were responsible for 11% of the variance in ease of use scores suggesting participation in tutor-led training might make the Internet seem easier to learn and to use in a way that does not influence opinions of usefulness. Interestingly, ratings of all three types of internal training courses were related to mean intention scores and there was more of a balance in terms of which methods affected intention to use.

6.5 The future for public library staff

Obviously, one can empathise with the sentiments of some staff, but there is no time to look back and mourn what some see as a golden age of libraries; staff need to look forward and make best use of the opportunities ICT offers them. Recent research by Wilson into the role of reference librarians in the future argued that librarians must accept the changes that were taking place and warned that “no effort to reassert a traditional reference librarian role can possibly succeed” since the Internet had changed the “user culture” (Wilson 2000, p.389). Looking to research in the USA, public libraries have found that having the Internet has been an advantage, for example, research at the University of Illinois at Urbana Champaign found that overall usage of 18 of the 25 largest public libraries had risen in recent years, “Librarians say the Internet and related technological advances also seem to be fuelling interest in public libraries and increasing and diversifying their workloads. Instead of making libraries irrelevant, the Web seems to be making them more valuable than ever” (Hoye 2002, no page number). Opportunities for reference librarians identified by Wilson included training users to access information and to
evaluate it, a role that some respondents in this study were already aware of and felt that public library staff would need to adopt.

Library staff and authorities need to think how best to promote the role of library staff as intermediaries to counteract, "this widely held misconception that everything can be found on the Web reliably, easily, and quickly" (Hull 2002, p.162). A study conducted by telephone of more than 3000 adults to explore the impact of the Internet on public library use in the USA (D’Elia et al 2002), included focus group participants who used both the Internet at home and in the library. Participants felt that the library had the advantage over the Internet, in people’s minds at least, in relation to information accuracy and suggested that public libraries would need to undertake training and a greater educational role if they wished to continue. Similarly, a study of 1000 library users commissioned by the American Library Association which asked respondents about librarians’ role as search engines and information navigators, found that 84% and 86% respectively found these roles convincing, percentages which were in line with responses to the role of libraries in society (American Library Association 2002). Both these findings offer some hope for the future roles of public library staff in the UK. The traditional role of information quality control will continue much as Usherwood predicted, simply transferred into the electronic environment, “In the same way that public librarians must be prepared to take responsibility for selecting books, so they should use their professional judgement to review, recommend, and reject Web sites” (Usherwood 1997, p.7).

The roles of information quality control and teaching library users to evaluate information themselves would seem to be the future for public library staff in the UK, if, as Garrod suggested, library users so desperately need information handling skills: “ICT skills are just part of the picture and many people have cleared this particular hurdle, it is information handling skills which are vital. Information skills tend to be invisible - people don't even know they exist, let alone that they should need them. Staff have to be capable and confident in supporting Internet users and online learners. Users need to be aware of what exists and whether it is relevant to their particular needs; if it isn't then they won't be interested in using it” (Garrod 2002, no page number).
It was hoped that the NOF ICT training would equip staff not only with the necessary “information management and interpretation skills” to assist in providing quality information using ICT but staff would create content for users, “deliver new kinds of innovative service to users” (The People’s Network 2003, no page number). Indeed, a number of managers interviewed felt that library staff had an important role in the creation of WWW based resources for the public, “Librarians will increasingly be seen as publishers of information and developers of local interfaces to networked information resources” (Gallimore 1999, p.390). To strengthen the value that library staff can bring to the networked world, Hull advises librarians to take note of the business world in continually advertising products such as the library website, urging staff to, “constantly promote new sources and refresh customers on the usefulness of existing ones” (Hull 2002, p.163). Similarly, Bolger warns librarians not to rest on their laurels; although public library authorities have created websites, it is imperative that they are kept up to date and modernised, “It’s somewhat ironic that library websites now signal the old stereotypes we’ve spent years trying to discard. Online we’re worthy but dull, static not dynamic and, more worryingly, resoundingly QUIET” (Bolger 2003, p.42). Bolger also suggested greater interactivity to attract library users to the library website and the services provided by the authority and looks to the example of Gateshead libraries’ live help service and library weblog, which he argues can be developed by other library services with ease. In relation to staff, Bolger felt that it was appropriate to encourage the ICT savvy to take control of such projects, “distribute ownership to the fearless and curious” (Bolger 2003, p.42). Although this is obviously appropriate, ventures such as these might be useful as opportunities for the web-literate to mentor those less confident about their web-authoring skills and thereby cascade training whilst increasing confidence in others. Making individuals who have expressed resistance to change part of a project may help to counteract it (Curzon 1989). As Cooper identified when allocating projects or tasks to staff to increase confidence, it is imperative that “projects be matched to the right people” (Cooper 1998, p.249).

The role of library staff as trainers may increase in the same way that it has for academic library staff. Tenopir (1999), for example, considered the role of reference librarians in USA academic libraries during the 1990s and a survey revealed staff were increasingly called upon to give instruction classes to students including use of the Internet. There has been a tradition of open learning in public libraries in the UK.
during the 1990s (Todd & Tedd 2000) and there are now more than 6000 UK Online Centres at present in public libraries, colleges and community centres. Public Library ICT learning centres offer access to equipment and online resources such as the Internet and email facilities, community information, government services, learning materials and a range of office software applications.

The problem would seem to be that while the NOF ICT training has equipped staff with the skills to assist users in ICT, with increasing public expectations, some users will expect to be trained. Some authorities would appear to use specialised trainers for this or offer set times with taster sessions but until the role of staff in relation to training is set out more clearly, it is imagined that many staff will feel that users are making unreasonable demands on their time. The use of specialised staff to train the public in ICT might be an appropriate route, for example, Nottingham City Libraries received funding for a project team, which included library assistants, to free staff to do taster sessions with the public whilst Authority A employed a learnerdirect tutor to provide training to the public. Similarly, Haringey library service used Internet Champions, staff who help train users to use the Internet and run training (Edmonds 2003). Criddle et al (2000), felt that offering Internet training classes was one way of dealing with the issue of how much training staff should provide which could be used to generate income. Alternatively, as the People's Network becomes more established, libraries themselves will determine their own level of appropriate assistance with which staff are comfortable. This could be confusing to users, however, as each library will be different. As the following excerpt illustrates, there is some contention about exactly how much help staff are expected to give users in ICT:

"The biggest stumbling block I suppose, has been staff have been expected to be expert and to train users but we're offering free access to the Internet not training in how to use it, although there are links of course, people will sit down and demand to be shown how it works but they don't come in and demand to be taught how to read" (Manager C: management interviews).

Similarly, Sharpe, commenting on the success of the training, remarked that if assistance to users has increased, the training has fulfilled its objectives. He makes the case, however, that staff cannot be expected to train people "from scratch" but should be able to direct them onto the appropriate agency (Sharpe 2001a, p.55).
This was reiterated by one of the managers interviewed who felt that staff simply did not have the time to provide detailed assistance but could refer people onto courses run by the Adult Education department within the authority, although this was at the discretion of individual staff members:

"We get people started, if they don't know anything. We consider ourselves as information professionals well able to help people with the Internet but we have sort of an unwritten agreement with the adult education that are in the same directorate as us, that if people want in-depth training on MS Office, we will direct them onto courses. But there's no hard and fast rules, it's very much use your own discretion, but we don't expect to be able to set someone up with Word if they've never ever used it before" (Manager D: management interviews).

6.6 Lessons for library managers

Whilst it is hard to know precisely how managers have dealt with the recent changes in the public library service on a day-to-day basis, it would appear that many staff have happily attended training and are enthusiastic about the role of ICT in the library. There was a sense from some of the management interviews that they had tried very hard to convince staff that change is fundamental to the future survival of the public library service:

"That's the biggest battle trying to convince them that the job as it was five years ago no longer exists and they've got to change because the world and the profession is changing" (Manager G: management interviews).

Perhaps, as Cooper suggested (1998) based on Klobas' work, managers must convey the message to staff that change is ongoing rather than intermittent which might take the fear of change away for some, rather than creating pressure when a major change such as the People's Network takes place. Did managers adequately prepare staff for the changes involved in the People's Network? Staff need to understand why the change is happening as well as the technical details (Morris & Barnacle 1989) although Nawe warned that over promotion of technology might be as detrimental as underselling it to staff (1995). The example provided by one library manager interviewed of a member of staff who attended a presentation about the NOF ICT training and lifelong learning in the authority and was won round to the need for change, is illuminating in light of Farrow's suggestion that "Most
importantly, people need to understand why change is occurring” (Farrow 1997, p.322):

“They all sort of gave the picture as to where it all fitted in and one member of staff came and said ‘that was wonderful, I now see the big picture, I see how it all fits in. I now see that what I’ve done is a real achievement and how it’s going to help the authority with what it wants to achieve’” (Manager E: management interviews).

Change in public libraries is set to continue as local authorities establish locations for citizens to gain access to government using ICT – e-government. This issue was raised and explored in a focus group and concerns seemed to arise because although staff were aware of these moves, they did not know what the implications would be for their individual roles. Admittedly as these developments gain momentum managers will know more and be able to inform staff, but as Kirk, detailing ICT and e-government in West Sussex, warns, “It [IT] can underpin much if not all of what we do in public service, but it needs selling to and buy in from all the stakeholders”, including frontline staff (Kirk 2003, p.8). It would appear from this study that on occasion some people express resistance to change simply because they do not know enough about it, as Curzon warned, “Employees may simply lack the information to persuade them that the idea is a good one” (Curzon 1989, p.89). Perhaps, the public library service as a whole, is suffering from a lack of vision of as to where the service is going, as suggested by Leadbeater (Demos 2003). In addition, there is a strong sense that staff have not had much of a role in the planning of the developments affecting them and this might account for the negativity and resistance expressed in this study. As one focus group participant said:

“Where we’re actually going in the future? There must be a big plan, a big picture with regard to training and equipment. Where do they see us five years down the line?” (Senior library assistant, full time, branch, Authority G: focus group comments).

Assisting users with ICT is new to staff in many branch libraries and staff concerns about having to deal with misuse of ICT require a consistent management approach and support for staff. As Sturges quite rightly points out “Disgusting and disruptive behaviour is something that occurs in all sorts of public places and it does not have
to be tolerated” (Sturges 2002, p.90). Having to confront library users about inappropriate use can be distressing and staff need to know management will support them. The difficulties encountered by staff need to be seriously considered including slow response times. Without good connectivity, it is difficult for library staff to provide a good quality reference service and Janes and McClure suggest reference desks “are ‘equipped’ with state-of-the-art workstations and high-speed connectivity” (Janes & McClure 2002, p.39). Whilst appreciating that managers are as much at the mercy of Internet connections as the rest of staff and that decisions to purchase may be made at “corporate level” (Gallimore 1999, p.388), it is important that moans and niggles about such issues are taken seriously in communications with ICT support and to suppliers.

The issues arising from ICT, which face staff and managers, all involve communication. Newsletters were used as a means of conveying information about ICT but they were not used in all of the authorities surveyed. Managers might want to take advantage of newsletters in paper and/or electronic formats to keep staff informed of changes and make them feel part of the change process, as Klobas noted “It is often particularly important that staff at all levels who work in public areas such as reference and circulation are kept well informed, because users may ask them for information about the change” (Klobas 1990, p.347). Similarly, creating opportunities for improved communication between staff and managers is vital in the effective implementation of change, “An employee who cannot communicate with a boss eventually becomes alienated. A boss who does not communicate with the staff becomes isolated” (Curzon 1989, p.32). To hearten staff in their roles of helping the public use ICT, staff could be encouraged to identify one encounter every day that helped someone and to share this with colleagues in a meeting or a newsletter, as Lisker recommends “at every opportunity to discuss the positive aspects of our daily responsibilities” (Lisker 2002, p.307). Managers must accept that staff will express negativity in relation to change and take on board comments made by staff whilst at the same time encouraging positive feedback and experiences to raise morale.

6.7 Summary

This chapter has considered in depth the results of Chapters 4 and 5 in relation to the aims and objectives of Chapter 1 and the literature analysed in Chapter 2. As suggested in the literature, attitudes have an integral role to play in terms of public
library staff's willingness to use ICT, in particular, perceptions of usefulness were very influential. Ratings of the usefulness of the Internet were affected by the problems encountered by staff such as slow response times, issues also noted in a number of studies in the USA. Many of the issues affecting perceptions of the value of ICT identified in the literature including increased workload, fear of change in routines and new users in the library, were all supported by the results.

In contrast with reports of training in the library sphere, informal methods such as cascade training were well rated by staff as a means of learning how to use the Internet in this study, although the preponderance of the use of on-the-job training was to be expected. The popularity of self-study methods pointed to increased potential for the use of online learning for staff in the future.

The relationship between training and attitudes noted in the literature was supported by the results; in most instances the better the assessment of training the more positive perceptions of the usefulness and ease of use of the Internet.

6.8 Conclusion

Use of the TAM has illustrated that usefulness affects attitudes towards the Internet and intentions to use it. Although public library staff currently set great store by some aspects of the usefulness of the Internet, to increase that perception, attention must be paid to the problems identified by respondents. To effectively utilise the Internet staff need to be sure that using it will not take up time they feel they cannot spare. Connectivity and server problems must be taken seriously and when opportunities to replace ICT equipment arise, they should be replaced with the fastest connections available. Whenever staff are reticent about using the Internet because they feel sure that they will encounter problems, opportunities to replace hard copy with electronic copy are lost and potential savings diminished.

It is important to remember in a period of change, and for some library staff this has been a time of intense change with the introduction of People's Network PCs, NOF ICT training and in some instances a new library management system and possibly restructuring, that individuals vary in terms of their progress through that change. As observed by Morris and Dyer, multifaceted change can be problematic, "It can be unsettling if too many things are changed at the same time" (Morris & Dyer 1998, p.319), and the pressure to act in a certain way may affect some individuals in
a negative manner, creating stress and confusion. As Cooper explained, "Calling librarians who have low or moderate levels of technological knowledge to sudden action is likely to produce many of these emotions and consequently present barriers to success" (Cooper 1998, p.247).

Curzon's advice in times of change noted that, "Organizations are about people – their work habits, attitudes, and relationships – than about anything else" (Curzon 1989, p.75), and successful organisations include employees with positive attitudes. The results of this study suggest that while many public library staff do have positive attitudes to ICT to some degree, there is still a lot of work to be done if public library authorities are to be populated by staff positive about the Internet and related technologies. As Locke and Vincent painfully observed, "Staffing numbers/resources aren't going to grow, so we need to make the best of what we have got" (Locke & Vincent 2003, p.47).
CHAPTER 7 CONCLUSIONS

7.1 Introduction

This final chapter summarises the main findings of the study and considers both their significance and contribution to the field. Improvements to the study and directions for further research are also presented.

A summary of the preceding chapters and the main results discovered in relation to attitudes to ICT and evaluations of training are presented in Section 7.2. The aims and objectives of the study are also considered and the research assumptions explored. Section 7.3 reflects on the contributions made by the study to the field in terms of the research approaches used and the results attained whilst Section 7.4 considers which areas of the investigation could be improved and potential directions for further research.

A summary is presented in Section 7.5 and the conclusion of the chapter is offered in Section 7.6.

7.2 Summary of chapters and the main findings of the study

7.2.1 Summary of chapters

This thesis has considered public library staff's attitudes to ICT focussing primarily on the Internet with a view to exploring how staff feel about using the Internet to support their work and to assist library users. The concept of attitude was explored because of its association with behaviour and an understanding that ascertaining staff attitudes towards use of the Internet was a suitable predictor of future behaviour during a period of time when the Internet embodies all that is modern and progressive about public libraries. In addition, at the commencement of the research the NOF ICT Training Programme for Public Library Staff began, whereby £20 million was allocated to train staff in the effective use of ICT. As a consequence, this thesis has explored staff opinions of the usefulness of a variety of training methods to equip staff with the requisite skills to use the Internet and the relationship between training and attitudes.
7.2.2 Main findings

7.2.2.1 Aims and objectives
This research has measured the attitudes of public library staff towards the Internet and recorded the opinions of training received by staff for use of the Internet. Finally, the relationship between attitudes and training has been analysed. All five objectives fixed in Chapter 1 have been fulfilled. The attitudes of public library staff towards the Internet were recorded in survey form using an amended attitude measurement instrument, the TAM. In addition, the influences on public library staff's attitudes to the Internet were considered. Questions relating to staff demographics including gender, age and organisational aspects such as post, place of work and computer skills were asked of staff in the survey, whilst interviews with managers and focus group interviews with staff were additional methods of exploring such factors.

The potential effects of public library staff's positive and negative attitudes to the Internet were examined. The relationship between attitudes and both intention and behaviour were explored, firstly, in the literature review and secondly during the analysis and evaluation of both the quantitative and qualitative data. Library managers were successfully questioned about this issue in order to gauge the management perspective on staff attitudes in the library workplace.

Library staff were able to express their opinions of the usefulness of a variety of training methods for learning to use the Internet effectively. This evaluation included early Internet training carried out in authorities on an ad-hoc basis and the more formalised NOF ICT training programme. A training section in the questionnaire established the training methods staff had received for use of the Internet, which were rated in terms of usefulness. Issues arising from the questionnaire including unsatisfactory aspects of training were pursued in focus group interviews, whilst managers were also questioned about ICT training generally within the authority and their perception of the success or otherwise of the NOF ICT initiative.

Finally, the relationship between attitudes to ICT and training was investigated. Using data from the questionnaires, statistical relationships between attitudes and training were analysed. To complement the quantitative analysis, the qualitative...
data from the questionnaires, focus groups and interviews was also considered to cast additional insight on the relationship between attitudes and training.

7.2.2.2 Research assumptions

A number of assumptions were generated during the course of the research from thorough analysis of the pertinent literature in the fields from which the study was derived. The majority of these were supported by the results as the following section explains:

7.2.2.2.1 Influencing variables and computer skills

- Organisational variables including post, place of work and length of time working in public libraries will affect attitudes towards the Internet.

No significant relationships were found with either the length of time respondents had worked in the public library service, post or place of work with attitudes. In contrast, post and place of work were related to computer proficiency and Internet usage, for example, fewer library assistants used the Internet on a daily basis compared to librarians and the computer proficiency of full time staff was better than that of part time staff. Relationships were found between place of work and computer skills, length of time using the Internet and frequency of use.

- Demographic variables including education will also affect attitudes to the Internet.

There were some significant differences in mean usefulness and ease of use of the Internet scores suggesting that the educational background of the survey respondents had some impact on attitudes to the Internet.

- The computer skills of female staff will be inferior to men's and they may use the Internet less frequently.

Indeed, men did tend to rate their computer skills more highly than women. However, women expressed similar feelings to the men in the sample about use of the Internet at work and did not use it any less than their colleagues.
The computer skills of older staff will be inferior to those of their younger colleagues and they may use the Internet less frequently.

A relationship was found between age and computer proficiency with a large proportion of younger library workers rating their proficiency higher than older workers. However, no relationship was found to suggest that older staff used the Internet any less frequently than younger staff but in terms of attitudes, analysis suggested that older workers might have found the Internet harder to use than their younger colleagues.

7.2.2.2 Change and resistance

Some staff will perceive the implementation of ICT as an advantage or a challenge, improving the status of the public library.

Many respondents did express positivity about the benefits the Internet brought to the public library in terms of greater access to information and making public library jobs more interesting.

The installation of the People’s Network will result in increased demands and expectations from library users.

This assumption was supported by anecdotal evidence from the questionnaires, focus groups and interviews. Many staff felt that users expected a great deal of support to make use of the PCs provided by the New Opportunities Fund.

Technological innovation will be resisted by some staff and illustrated in negative comments and an unwillingness to use ICT at work or be trained in it.

A minority of respondents were resistant to use of ICT at work feeling that it was incongruent with the traditional role of public library staff. Similarly, some staff felt irritation towards the idea of attending ICT training in order to make best use of the new PCs.

Staff negativity towards ICT in public libraries will be related to the wider job implications for staff.
Some respondents did express concerns about public access to the Internet and having to help the public with ICT and the latter was regarded by some staff as increasing the amount of work to be performed in a day. This aspect seemed to cause the most concern for staff. Negativity was also related to the amount of information available on the Internet, which was sometimes viewed as a hindrance as its use involved sifting through numerous websites to find the appropriate details. A very small number of respondents expressed concern about users accessing inappropriate and offensive material on the Internet.

7.2.2.2.3 Attitudes

- Computer proficiency will be related to attitudes to the Internet, the higher staff's PC skills the more positive their attitudes.

This was confirmed as a relationship was found between proficiency and with the individual attitudinal statements. Furthermore, skill was related to frequency of Internet use and feelings about helping the public use the Internet.

- Colleagues and managers will influence public library staff's attitudes to the Internet. Women and older workers will be more influenced by subjective norm than men and younger colleagues.

Indeed, a substantial proportion of respondents agreed that people who influenced them or were important to them at work thought they should use the Internet. Attitudes towards use of the Internet at work accounted for just 7.2% of the variance in subjective norm scores. However, the relationship between total subjective norm and total behavioural intention explained approximately 18% of variance in scores. According to statistical analysis, no relationships were detected between either gender or age and subjective norm.

- The attitudes of public library staff will influence their intention to use the Internet at work.

Attitudes towards use of the Internet at work accounted for 42.9% of variance in behavioural intention scores. The influence of attitudes on intention to use the Internet was therefore substantial.
Intention to use the Internet will be related to actual use. Strong relationships were found between four of the six intention statements and frequency of use. However, attitude and perceived usefulness appeared to exert far greater influence on actual use.

7.2.2.2.4 Training

- Training methods such as on-the-job and cascade will numerically dominate and ratings of these informal methods will be low.

The results illustrated that more respondents had on-the-job training than any other method for use of the Internet, reaffirming the widespread usage of informal training methods in the public library sphere. Similarly, cascade training was also well used as a means of learning how to use the Internet. However, ratings of on-the-job and cascade training were all in line with other forms of training with a median score of three representing good.

- Staff will prefer a variety of training methods reflecting individual learning styles.

Staff did indeed express a variety of training preferences for learning how to use the Internet. The main methods favoured included self-study or self-directed learning and classroom-based learning supporting the notion that individuals learn in different ways.

- Staff will want more time to train and practice.

Survey respondents and staff interviewed in focus groups and brief interviews echoed these sentiments throughout this study with many having found that in spite of participation in a national ICT training programme, there was often insufficient time to practice their newly acquired skills or to undertake their training.

- Training will affect attitudes towards the Internet for the better.

Quantitative data appeared to support the contention that training affected attitudes for the better. The use of one-way analysis of variance suggested that good training
affected attitudes, the more inferior respondents rated a particular method of training, the lower their mean usefulness, ease of use and intention scores, suggesting that good training makes the Internet seem easier to use, more useful at work and staff intend to use it more. In terms of the qualitative data, some staff were pleased to comment in the survey that training had improved their confidence in using ICT whilst managers interviewed were confident that training had improved staff skills and attitudes for the better.

7.2.2.3 Overall findings

7.2.2.3.1 Attitudes to ICT are mainly positive
Use of the TAM as an instrument of attitude measurement in a paper based survey, supported by questions relating to Internet use and qualitative data derived from focus groups, interviews, a bulletin board and the questionnaires themselves, revealed that in general most library staff participating in the study had positive attitudes towards use of the Internet at work (see Sections 4.3 for results and 6.2 for discussion). This was in line with recent research from the USA investigating public library staff's perceptions of public access computing and attitudes to ICT, for example, Gordon et al (2002b). Difficulties with hardware and software, however, sometimes clouded perceptions of the value of the Internet in the public library, particularly if use of the Internet was time consuming. The general positivity of staff was offset by a minority of respondents who were openly negative about use of the Internet and ICT.

7.2.2.3.2 Characteristics of staff, skills and experience affect attitudes
A number of demographic and organisational variables influenced public library staff's attitudes to the Internet (see Sections 4.5 for results and 6.2.3 for discussion). Gender, age and education appeared to affect attitudes with men rating the usefulness of the Internet more highly than women. Organisational variables of influence included post, place of work, computer skills and ICT experience. These relationships were corroborated by the qualitative data, which suggested age, computer skill and experience and place of work might all influence staff's attitudes towards the Internet. In addition, numerous types of training particularly self-directed learning and traditional library training methods such as on-the-job training appeared to affect attitudes towards the Internet for the better, particularly in relation to staff perceptions of the usefulness and ease of use of the Internet. This was suggested by statistical analysis and supported by staff testimonies and
managers' views of the training process.

7.2.2.3.3 Negative attitudes cannot be discounted

The literature review inferred that negative attitudes to ICT might have a detrimental effect on the library service. This assumption was supported by the data, which found that respondents negative about the Internet were often negative about helping the public with their use of ICT (see Sections 4.3.2.5 for results and 6.2.7 for discussion). In addition, respondents who scored highly on subjective norm, thereby agreeing that colleagues at work influenced them, were discovered to hold more negative perceptions of this role in general. Furthermore, attitudes were related to intention to use the Internet suggesting that negative attitudes affect actual usage of ICT. Importantly for the public library service, the results demonstrated that most staff were positive to some degree, which suggests a workforce populated by staff happy to incorporate the Internet in their work and to assist users. Prospects for continued and future use of ICT in the public library appeared promising upon consideration of staff intentions.

7.2.2.3.4 Negativity aimed at ICT and related problems and changes

Negativity amongst staff was related to a number of issues. Practical issues affected staff's perception of the Internet including slow response times and hindrances to satisfying enquiries in reasonable time attributed to filters and firewalls (see Sections 4.3.2.5 for results and 6.2.10.1 for discussion). An evaluation that increasing ICT in public libraries resulted in more tasks to fulfil in a working day without extra remuneration was resented by some staff. For a minority of respondents negativity was related to technophobic issues such as a general fear of computers or the worry that one might break them. The overriding sense of negativity, however, appeared to be related to staff fears and concerns about the change in focus they believed ICT instigated in the public library environment: the frustration and indignation that being a library assistant did not necessarily make one a PC troubleshooter. Furthermore, ICT appeared to encourage new users into public libraries and both these changes proved unsettling to some staff whose security had been threatened. The negativity was consequently directed at both the Internet itself and at the related issues.

7.2.2.3.5 Training received with little controversy

Numerous methods of training were utilised to give staff the skills to use the Internet. In contrast to reports analysed in the literature review, informal methods
were rated as well as more formal methods (see Chapter 5 for training results and Section 6.3 for discussion). The use of on-the-job training in the public library sphere was reinforced, as it was the most highly used form of training. External training was received very favourably and was used by authorities with low levels of ICT skills amongst staff. Use of the median in relation to ratings of training revealed that self-directed learning at home was judged the best approach. In addition, many staff had read about the Internet or practised using it in their spare time to improve their skills. The similarity in ratings of the various training methods reflects the reality that individuals have their own learning styles and as a result prefer a wide range of training methods. Consequently, training methods pursued by authorities were not always acceptable to all staff but managers felt that training had been a worthwhile endeavour. Training related concerns aired by staff included traditional problems noted in the literature such as the lack of time to practice and availability of PCs. In addition, a small number of staff resented the imposed nature of the training.

7.2.2.3.6 Training affects attitudes to ICT for the better

A number of statistical analyses were undertaken to explore the relationship between training and attitudes. Results suggested that the more useful some methods of training were judged to be, the higher individuals' perceptions of the usefulness, ease of use and intention to use the Internet (see Section 5.4). In addition, the use of contingency tables highlighted a relationship between positive attitudes towards the Internet at work and a number of training methods including self-study. This hypothesis was confirmed in the qualitative data as most managers interviewed felt that attitudes to ICT and the Internet had changed in recent times and that this was often a result of training (see Section 5.4.6). As anticipated, training appeared to affect attitudes towards the Internet for the better, reinforcing its importance in the public library workplace.

7.3 Contributions of the work

This study has made some important contributions to the field of library and information science in terms of the methods used and the results discovered. In terms of the research methods used, this study has contributed through:

- The application and adaptation of a reliable and valid attitude measurement model from the field of management information science to information science.
• Measurement of attitudes towards use of the Internet itself rather than a global measure of attitudes to technology or PCs generally, amidst a period of great change with the installation of the People's Network, an innovative scheme focussed on the Internet.

• Recording the opinions of public library staff in relation to a wide variety of ICT training methods, specifically in terms of their usefulness as a training approach for ICT and gauging the value of less traditional methods of support and assistance.

• Statistical analysis of the relationship between attitudes and training in the library sphere based on quantitative data supported by qualitative data, rather than simple inference.

• Asking staff, rather than users, their opinions about the increased use of ICT in public libraries.

• Exploring staff's attitudes to the role of helping the public with ICT.

• Gauging the current levels of accreditation, monitoring and evaluation of training in public libraries.

• Using an online bulletin board as a means of capturing staff opinions.

In terms of the results discovered, this study has contributed the following:

• Illustrating that there is a relationship between the attitudes public library staff hold and the way they intend to act.

• Revealing that the negative attitudes of staff cannot be dismissed when analysis suggests that others influence those with negative attitudes to ICT to some degree.

• Providing a snapshot of staff attitudes to ICT during a period of immense change and the related uncertainties this brings rather than mere anecdotal evidence.

• Appreciation of the reality that in spite of all the difficulties and constraints public access ICT and the Internet brings, the majority of employees in the public library service are enthusiastic and positive about ICT to varying degrees which bodes well for the future.

• Updating staff opinions of a variety of training methods for ICT, suggesting that traditional library training methods such as on-the-job are not as out of favour as first thought and reinforcing the potential of self-directed learning for a large proportion of staff.
• Observing that traditional training difficulties in terms of lack of time to train and practice and differences between full time and flexible workers are still prevalent.

• Providing managers with the knowledge that attitudes to ICT are largely related to perceptions of usefulness, therefore to improve attitudes and willingness to use the Internet more attention must be aimed at demonstrating the practicality of the Internet in a range of situations.

• Furthermore, perceptions of the usefulness of the Internet could be improved by more reliable and efficient ICT equipment.

7.4 Improvements and directions for further research

7.4.1 Improvements

7.4.1.1 Further investigation

Additional investigation of the ways in which public library staff are actually using the Internet to determine areas of greatest use and improvements to this may have improved this study. Similarly, consideration of the wider issues of public access to the Internet in terms of retrieving unacceptable content might have provided some record of the prevalence of this problem and the related issues for staff.

7.4.1.2 Attitude measurement

In terms of the attitude measurement model utilised in this study, consideration of the number of respondents who failed to provide answers to all of the statements in the amended TAM section suggests that it might have been advisable to reduce the number of statements in this section to facilitate a higher response.

7.4.1.3 On-line training

Further exploration of the role and usefulness of online Internet training might have been appropriate in order to evaluate its potential use in the delivery of training in the future. At the time of the fieldwork there had been little discussion of this method and its utilisation for the NOF ICT training, which focussed on the use of the ECDL qualification and although its use was captured in terms of self-directed learning, this was not explicitly explored in the study.

7.4.1.4 Research methods

Although participation of respondents in the online bulletin board was low, this method presents potential for future research. In this particular study interest may
have been higher if a board was already established and highlighted to staff on the survey thereby offering them the opportunity to use it immediately while the issue was being addressed, rather than the researcher asking staff to express interest and chasing them up months later. Similarly, participation in the focus groups might have been improved if an incentive could have been offered. The researcher may have suffered from the fact that evaluations were being carried out by Resource and NOF in the same period, since these are the bodies with responsibility and funding for the People’s Network one assumes authorities would have felt a greater obligation to participate in these studies.

7.4.2 Areas which might benefit from further investigation

7.4.2.1 Attitudes to library users and social inclusion/exclusion

This study has illustrated that attitudes are significant in that they affect intentions and behaviour. The introduction and proliferation of ICT according to qualitative evidence from staff in this study has resulted in new users to the library, a finding that was supported by the findings of research in Denmark, for example, Pors (2001). In light of the numerous efforts to tackle social exclusion and promote inclusion in public libraries and that, while libraries seem inclusive, research suggests that this might be a myth (Muddiman et al 2001), it would be valuable to ascertain staff’s attitudes in relation to this drive and to users, including disadvantaged and ‘new’ users. Use of action research to gauge how staff feel and to help modify negative perceptions might be a valuable approach for public library managers in order to successfully elicit staff support for issues of inclusion and to make libraries more welcoming. Obviously this is a contentious and sensitive area of attitudinal research and may challenge staff’s basic assumptions about class, race, gender and age but if public libraries are to be truly inclusive this would seem a necessary endeavour. As recent research in Wales has shown, library staff may try to fit new users to the traditional library model rather than rethink the model. Furthermore, the report argues, attitudes of staff to disadvantaged groups are a problem (LISC 2003, see also Muddiman et al 2001).

7.4.2.2 New measures for libraries

Both focus groups expressed some concern about traditional audit measures used in public libraries such as book issues and footfall, which did not take into account staff’s new roles, which have arisen as a result of public access computing. The measurement of impact is a relatively recent library studies phenomenon and
studies such as *Vital* (Eve & Brophy 2001) and *Longitude* (Yeates 2001) have explored this issue in some detail while, at present, Resource has commissioned the Tavistock Institute to measure the impacts of the People’s Network. A more qualitative approach to measurement of this area of staff work might be appropriate using focus groups with users and staff, for instance, using the social audit approach implemented by Linley and Usherwood (1998), or Sharpe’s suggestions observed in Sunderland’s approach to the NOF training, “Use of work-based evidence to show that ICT skills are being applied, either to manage services or to assist users” (Sharpe 2001a, p.54).

### 7.4.2.3 Customer service

This study has revealed that expectations of what libraries and their staff will provide has grown whilst recent literature such as *Building Better Library Services* (Audit Commission 2002) has considered that in the future public libraries must take note of the successes of bookshops if they are to survive. In conjunction with an investigation into staff attitudes to users, it would be worthwhile exploring the service staff are offering and providing and identifying areas of improvement. Lisker argues that excellent customer service is paramount in the library setting and that it is something which should not be derided simply because it is understood to belong in the retail environment, especially if it “results in great statistics” (Lisker 2002, p.306).

### 7.4.2.4 Other training

While attention has been paid to the NOF ICT training programme there was a suggestion from one library manager in particular that staff training in other areas had been neglected, creating a backlog of training. This was noted in a report by Usherwood et al (2001) based on questionnaires from local authorities, “this emphasis may be diminishing training in other important areas. Induction, leadership and communication training were among the lowest priorities” (2001, p.69). It might be useful to discover which areas have been neglected in the wake of the ICT training and if lessons learned during the NOF ICT training process can be used and implemented to improving training in other areas.

### 7.4.2.5 Creation of WWW resources

Training initiatives such as the Learning Line have resulted in staff willing to create web resources according to the managers in the two authorities where this scheme had been used. An investigation into the roles of staff in relation to content creation
might be useful in providing a better picture of the developments taking place in public libraries. What is the future of this role and how do staff feel about web authoring? Is there duplication of content and how could staff better communicate in order to avoid this?

7.4.2.6 Bulletin boards

Although the use of a bulletin board was not particularly successful in this study, it can only be assumed that as staff have grown more confident in their use of ICT, this approach will be a valuable tool for researchers investigating issues in public libraries, permitting staff to participate in research projects irrespective of time and geography. There are already established means of electronic communication in the public library world such as the JISC mail groups, for example, LIS-PUB-LIBS and LIS-PEOPLES NETWORK. The establishment of a bulletin board and online community for public library staff could be of value in providing greater opportunities for debate and sharing of resources.

7.5 Summary

This chapter has considered the most pertinent results arising from the research into the attitudes of public library staff to the Internet and evaluations of training. It has been discovered that there is a great deal of positivity towards ICT in the public library service. This is tempered, however, by pockets of negativity arising from a number of sources including problems encountered when using the Internet and psychological issues relating to change in the public library arena. Training, particularly the NOF ICT training programme for public library staff has been well received in the main, although library staff appear to be encountering familiar problems such as lack of time to practice and to train as revealed in earlier studies.

This thesis may have been improved by concentrating on usage of the Internet by staff whilst related issues including staff perceptions of the ethics of filtering and dealing with unacceptable use of ICT by library users could have been explored.

Potential areas of research arising from the study include further attitudinal work pertaining to the idea that 'new users' are entering public libraries as a result of the increased ICT available. Staff attitudes to users, new and old, appear to be worthy of exploration if social inclusion projects are to be truly successful.
7.6 Recommendations

Based on the findings of the thesis a number of recommendations and observations are presented in relation to the minority of negative attitudes expressed by public library staff towards the Internet:

Seemingly throwaway comments deriding a new innovation or practice in the public library sphere should not be dismissed since they may point to deeper concerns about change and lay bare negative attitudes. Negativity towards the Internet in this study appeared to be related to discomfort with the cultural changes taking place in public libraries as a result of ICT. However, staff demonstrating pessimistic and unconstructive remarks appear to be influential. More worryingly, negative attitudes may mean that staff will not use a new technology in the way that managers, policy makers and funding bodies envisage.

Negative attitudes might have been prevented if staff had been consulted about the changes affecting their day-to-day lives. Whilst acknowledging that managers have tried to take staff with them in the changes to the service, there appear to be two fundamental problems that have not been addressed. Firstly, where is the public library service going; who is it trying to appeal to and what are its purposes? There seems to be a great deal of confusion about this and it is this uncertainty that is unsettling for many staff. Secondly, why were staff not consulted about potential changes in the service? As stakeholders in the proposed transformation it might have been easier to elicit support, but one imagines that there is an assumption at some level that staff do not know where they want to go and asking them will only provide answers that policymakers, councillors and managers are not willing or do not want to hear. Ironically, a change management toolkit was recently produced by Resource (Resource 2003) including suggested approaches managers might use to successfully manage change and encourage staff to use the new resources. One can only speculate as to why this was not the first publication produced when proposals for the ‘New Library’ were aired in 1997.
7.7 Conclusion

This study found that the attitudes of most public library staff in England were positive towards use of the Internet at work. Attitudes were found to have an integral role in relation to public library staff's willingness to use the Internet; in particular, perceptions of usefulness were very influential. Helping the public use the Internet, a principal aim of both the People's Network scheme and the NOF ICT training programme, was generally regarded as a positive experience by staff, although finding the time to assist library users was often challenging.

It is true that the relationship between attitudes and behaviour has been contested in the past, but use of a measurement which considers the element of action, in this context the action of using the Internet, is a more reliable indication of behaviour than a more general, global measure of attitudes towards ICT in society, "the correlation between attitude and behaviour appears to be stronger the more both measures correspond in specificity or aggregation" (Bonner & Wänke 2002, p.232).

The results of this study can be seen, therefore, to provide a reasonable indication of future behaviour and that although most staff studied were positive to some degree about their use of the Internet and intended to use it regularly or frequently, this sentiment and objective was not universal.

The training, support and assistance public library staff received for use of the Internet was rated well, overall. The popularity amongst staff of self-directed learning approaches demonstrated the growing prospect for electronic and online learning methods in the future. In contrast with conclusions drawn from a review of the literature, informal learning methods such as on-the-job and cascade training were well rated by staff for use of the Internet. In terms of the association between staff attitudes to the Internet and training, ratings of the usefulness of Internet training appeared to be related to perceptions of the usefulness, ease of use and intention to use the Internet at work.
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APPENDIX I Questionnaire

Public Library Staff: Attitudes to ICT and ICT Training

– A Survey

This survey is being carried out on behalf of the Department of Information Science at Loughborough University. The research investigates the attitudes of public library staff to ICT (Information Communications Technologies), ICT training and the Internet.

All information provided will remain confidential; only the researcher has access to the completed surveys. For writing up purposes staff will only be identified as ‘staff working for a large metropolitan authority’ or ‘a small rural authority’, for example.

If you have any enquiries or comments relating to the survey please contact me by email: R.E.Spacey@Lboro.ac.uk.

Please send your completed survey in the enclosed postage paid envelope.

To:
Rachel Spacey
Department of Information Science
Loughborough University
Loughborough
Leicestershire
LE11 OBR

Many thanks for your time and co-operation.
Please answer the following questions with one tick (✓) only for each question. You may provide any additional information where requested if you wish.

**You and Your Role in the Library**

1) Please Indicate your gender
   - Female [ ] 1
   - Male [ ] 2

2) What is your age?
   - Under 18 years [ ] 1
   - 18 to 24 years [ ] 2
   - 25 to 34 years [ ] 3
   - 35 to 44 years [ ] 4
   - 45 to 54 years [ ] 5
   - 55 to 64 years [ ] 6
   - Over 65 [ ] 7

3) What is the highest level of education you have completed?
   - GCSE/ CSE/ O Levels [ ] 1
   - NVQ/GNVQ [ ] 2
   - A Levels/ AS Levels [ ] 3
   - Undergraduate degree [ ] 4
   - Postgraduate Diploma/MA/MSc [ ] 5
   - MPhil/PhD [ ] 6
   - Other, please specify

4) What is your current post?
   - Librarian [ ] 1
   - Senior Library Assistant [ ] 2
   - Library Assistant [ ] 3
   - Other, please specify

5) What is the nature of this post?
   - Full Time
     - Permanent [ ] 1
     - Temporary [ ] 2
   - Part Time
     - Permanent [ ] 3
     - Temporary [ ] 4
   - Casual (as and when required) [ ] 5
6) How long have you been employed in the public library sector?
   Less than one year [ ] 1
   Between 1 and 5 years [ ] 2
   Between 6 and 10 years [ ] 3
   Between 11 and 20 years [ ] 4
   More than 20 years [ ] 5

7) What type of library do you mainly work in?
   Branch [ ] 1
   Central [ ] 2
   County [ ] 3
   Mobile [ ] 4
   Other, please specify

8) How would you rate your proficiency with computers, generally?
   Poor [ ] 1
   Fair [ ] 2
   Good [ ] 3
   Very Good [ ] 4
   Excellent [ ] 5

9) How long have you been using the Internet at work?
   Less than 6 months [ ] 1
   Between 6 months and 1 year [ ] 2
   Longer than 1 year but less than 2 [ ] 3
   Longer than 2 years but less than 3 [ ] 4
   Longer than 3 years but less than 4 [ ] 5
   Longer than 4 years [ ] 6

10) How often do you use the Internet at work?
    Daily [ ] 1
    Weekly [ ] 2
    Fortnightly [ ] 3
    Monthly [ ] 4
    Rarely [ ] 5
    Never [ ] 6

11) Which phrase best describes your feelings about helping the public use the Internet?
    Very negative [ ] 1
    Generally negative [ ] 2
    Equally negative and positive [ ] 3
    Generally positive [ ] 4
    Very positive [ ] 5
The following statements provide an indication of attitudes towards the Internet.

Please indicate your preference by circling the number which best represents your opinion where

1 = Strongly Disagree
2 = Disagree
3 = Neither Agree nor Disagree
4 = Agree
5 = Strongly Agree

12) Perceived Usefulness of the Internet

a) Using the Internet improves the quality of the work I do.  
   1 2 3 4 5
b) Using the Internet gives me greater control over my work.  
   1 2 3 4 5
c) Using the Internet enables me to accomplish tasks more quickly.  
   1 2 3 4 5
d) Using the Internet supports critical aspects of my job.  
   1 2 3 4 5
e) Using the Internet improves my job performance.  
   1 2 3 4 5
f) Using the Internet enhances my effectiveness on the job.  
   1 2 3 4 5
g) Using the Internet makes it easier to do my job.  
   1 2 3 4 5
h) Using the Internet increases my productivity.  
   1 2 3 4 5
i) Overall, I find using the Internet useful in my job.  
   1 2 3 4 5

13) Perceived Ease of Use of the Internet

a) I find the Internet awkward to use.  
   1 2 3 4 5
b) It is difficult to learn how to use the Internet.  
   1 2 3 4 5
c) Using the Internet is often frustrating.  
   1 2 3 4 5
d) I find it easy to get the Internet to do what I want it to do.  
   1 2 3 4 5
e) The Internet is rigid and inflexible to use.  
   1 2 3 4 5
f) It is easy for me to remember how to perform tasks using the Internet.  
   1 2 3 4 5
g) Using the Internet requires a lot of mental effort.  
   1 2 3 4 5
h) My use of the Internet is clear and understandable.  
   1 2 3 4 5
i) I find it takes a lot of effort to become skillful at using the Internet.  
   1 2 3 4 5
j) Overall, I find the Internet easy to use.  
   1 2 3 4 5
k) It will be impossible to use the Internet without expert help.  
   1 2 3 4 5

Please add any comments you wish to make on the above
14) Behavioural Intention to Use the Internet

a) I always try to use the Internet to do a task whenever it has a feature to help me perform it. 1 2 3 4 5
b) I always try to use the Internet in as many cases/occasions as possible. 1 2 3 4 5
c) I intend to increase my use of the Internet in the future. 1 2 3 4 5
d) I will use the Internet on a regular basis in the future. 1 2 3 4 5
e) I will frequently use the Internet in the future. 1 2 3 4 5
f) I strongly recommend others to use the Internet. 1 2 3 4 5

a) People who influence my behaviour at work think that I should use the Internet. 1 2 3 4 5
b) People who are important to me at work think that I should use the Internet. 1 2 3 4 5

15) Attitude toward using the Internet

Please place a tick (✓) in the box that best matches your opinion.

a) My use of the Internet at work is...

<table>
<thead>
<tr>
<th>Extremely</th>
<th>Quite</th>
<th>Neither</th>
<th>Quite</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b) My use of the Internet at work is...

<table>
<thead>
<tr>
<th>Extremely</th>
<th>Quite</th>
<th>Neither</th>
<th>Quite</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unpleasant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pleasant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

c) My use of the Internet at work is...

<table>
<thead>
<tr>
<th>Extremely</th>
<th>Quite</th>
<th>Neither</th>
<th>Quite</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Enjoyable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enjoyable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

d) My use of the Internet at work is...

<table>
<thead>
<tr>
<th>Extremely</th>
<th>Quite</th>
<th>Neither</th>
<th>Quite</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unnecessary</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Necessary</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

e) My use of the Internet at work is...

<table>
<thead>
<tr>
<th>Extremely</th>
<th>Quite</th>
<th>Neither</th>
<th>Quite</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
16) This section explores different training methods for use of the Internet ONLY. Please indicate which of these you have received and your opinion of their value.

<table>
<thead>
<tr>
<th>Training/Assistance/Support</th>
<th>Please indicate if you have received any of the following methods of training for the Internet.</th>
<th>How useful was this in gaining the skills you need to use the Internet?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Please tick all that apply (✓)</td>
<td>1 Poor 2 Fair 3 Good 4 Very Good 5 Excellent</td>
</tr>
<tr>
<td>On the Job Training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Induction Training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cascade/Trickle Down</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-house</td>
<td></td>
<td></td>
</tr>
<tr>
<td>External</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentoring/Coaching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Newsletters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meetings and Seminars</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Another member of staff explained features as part of work day
Included in general training for new staff members
Short demonstration by a member of staff to a group of staff
Course provided on site by internal trainer
Course provided on site by external trainer
Course provided off site by internal trainer
Course provided off site by external trainer
Allocated a mentor /coach to provide assistance and guidance
Reading undertaken for own interest
Manual provided by library/organisation
Staff meetings
Staff seminars
Training/Assistance/Support

<table>
<thead>
<tr>
<th>Support</th>
<th>Please Indicate If you have received any of the following methods of training for the Internet.</th>
<th>How useful was this in gaining the skills you need to use the Internet?</th>
</tr>
</thead>
<tbody>
<tr>
<td>From managers and other colleagues in form of emails</td>
<td></td>
<td>1 Poor</td>
</tr>
<tr>
<td>From managers and other colleagues in brief discussions</td>
<td></td>
<td>2 Fair</td>
</tr>
<tr>
<td>Self-study</td>
<td></td>
<td>3 Good</td>
</tr>
<tr>
<td>Learnt by self at home on family or friend's computer</td>
<td></td>
<td>4 Very Good</td>
</tr>
<tr>
<td>Attended a course at college or similar for own interest and at own cost</td>
<td></td>
<td>5 Excellent</td>
</tr>
<tr>
<td>Library was closed to enable staff to learn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learnt on library PC in spare time/ time off desk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Using notes produced by the library</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Using a tutorial package on the library PC e.g. Web Wise or Computers Don't Bite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Using books provided by the library</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Projects or activities set by training provider conducted in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Own time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Work time</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other – please detail any other training methods you have received or undertaken to enable you to use the Internet

17) Did you receive any accreditation/certificates/qualifications for any of the above? If yes, please state what they were and what for

18) To your knowledge was your training recorded or monitored?
Yes [ ]
No [ ]
Please elaborate
<table>
<thead>
<tr>
<th>Training/Assistance/Support</th>
<th>Please tick all that apply (✓)</th>
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</tr>
</thead>
<tbody>
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<td></td>
<td>Please indicate by entering the number which best reflects your opinion;</td>
</tr>
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**Other** - please detail any other training methods you have received or undertaken to enable you to use the Internet

17) Did you receive any accreditation/certificates/qualifications for any of the above? If yes, please state what they were and what for

18) To your knowledge was your training recorded or monitored?
Yes [ ]
No [ ]

Please elaborate

---
On-Line Focus Groups

Would you be interested in taking part in informal interviews to discuss the issues arising from this survey, online?

A small group would be arranged to 'chat' at a set time involving use of, for example, the free service MSN Messenger (http://messenger.msn.co.uk/).

Please indicate if you wish to be considered for on-line focus group participation or would like more information about what it may involve, by entering your email address:

Please feel free to add any comments you wish to make regarding the survey or its content:

Please send your completed survey in the enclosed pre-paid envelope.

Thank you for your participation.
APPENDIX II Covering Letter

(Insert name) Library
Address

August 2002

Re: Survey of Public Library Staff

Dear Members of Staff

I am carrying out research into how public library staff feel about Information and Communication Technologies (ICT), specifically the Internet, in their working lives. I am also recording staff opinions of the training received to enable them to use the Internet. The results will form part of my PhD thesis entitled 'Public Library Staff's Attitudes towards ICT and Training' which I am carrying out in the Department of Information Science at Loughborough University.

(Insert name) has kindly given me permission to survey Authority A's staff and if you feel able to complete the survey, this would be very much appreciated. Please find enclosed 24 surveys and envelopes for the staff of (Insert name) library.

- A pilot study indicates that it takes, on average, ten minutes to complete the survey
- Upon completion, the survey can be placed in the accompanying Stamped Addressed Envelope and posted; postage will be paid by Loughborough University
- If you could return your survey within the next month that would be helpful.

You do not need to identify yourself nor will Authority A public libraries be identified by name in the actual thesis or any related work. Completed surveys will only be accessible by me. I will be supplying an analysis of Authority A's total responses to (Insert name), Research and Development Manager at a later date that will be anonymous.

I would like to take this opportunity to thank you for your kind assistance.

Yours sincerely

Rachel Spacey
R.F.Spacey@Lboro.ac.uk
Re: Progress, Interview and Focus Group request

Dear

Thank you for agreeing for staff working in Authority A public libraries to take part in my recent survey. I have received (insert number) completed surveys to date.

Please find enclosed a report detailing the responses to the survey and the relevant data.

To supplement the data generated from the surveys I am also planning to interview a senior management figure and hold a focus group with each authority, possibly on the same day.

- An interview with a management figure responsible for ICT training would consider the survey results and opinions of staff’s relationship to ICT and ICT training and would probably take less than an hour.

- The focus group would require between five and eight people and could take thirty to forty five minutes. A variety of staff, such as Librarians and Library Assistants, both part time and full time staff would be asked to discuss a few issues arising from the surveys; such as attitudes to ICT, the Internet and training.

I am hoping to undertake the interview and focus group in September/October. If you feel you would be able to participate in this stage of the research it would be greatly appreciated.

I hope this sounds satisfactory and look forward to hearing your thoughts on the matter.

Yours sincerely

Rachel Spacey
PhD Student
R.E.Spacey@Lboro.ac.uk
APPENDIX IV Manager Interview Guide

Interview guide for Manager A, Authority A

Date

Introduction
Aims and Objectives of Interview
Confidentiality and Identification

Preliminaries
1) If I could just confirm your title?
2) What is your role in relation to ICT and/or training in the authority?

General impressions/Attitudes
1) What are your impressions of staff views of ICT within Authority A?
2) What would you say staff reactions to the introduction of the Internet in libraries have been?
3) Are you aware of any change in opinions over the last few years?
4) Are staff with negative attitudes towards the Internet a problem?
5) What do you think may have shaped staff attitudes towards the Internet in Authority A?
6) Do you see attitudes to the Internet /ICT changing in the future?

Training
Background
1) When did NOF training commence in Authority A?
2) Confirm the name of the training provider.
3) Confirm the programme/route followed.
4) Did you receive any Wolfson funding before this for Internet training?
5) What training was in place before Wolfson and/or NOF for staff wishing to learn computer skills?
Evaluation

1) In your opinion has NOF training been a success?

2) Advantages of having it imposed? Disadvantages?

3) What do you think Authority A has learned from the NOF training process?

4) Has recent growth in ICT training affected attitudes?

5) Any comments on staff’s preferred training preferences?

Future

1) Thoughts on where you see the Internet/ICT in public libraries in the future and its implications for staff.

Any other thoughts/questions

Close and Thanks
APPENDIX V Focus Group Guide

Introduction/Aims and Objectives/Uses of Information:

Good afternoon and welcome to our session this afternoon. My name is Rachel Spacey and I am a PhD student at Loughborough University. My research looks at the attitudes of public library staff to ICT with specific focus on the Internet and opinions of training. This focus group is a means to further explore these issues with individual staff. We'll be discussing your thoughts and opinions of the Internet in libraries and your experiences of training.

You are assured of confidentiality. You will not be identified by name but by post e.g. a librarian working for a county library authority.

If I can just suggest some things to make the session better. Please speak up, as I will be tape recording the session so I don’t want to miss any comments. If just one person could speak at a time that would be helpful. There are no wrong answers just different points of view. Please feel free to share, even if your views differ from other people.

My role is to ask questions and listen so please feel free to talk to each other. We should be finished by 2.45pm.

We’ll start with some brief questions and then move to the key questions and I’ll finish with a summary.

Opening question: Tell us your name, where you work and how long you’ve worked there. (1 minute each)

Introductory question: When you hear the words IT or ICT what comes to mind? (2 minutes)

Transition question: What’s your impression of the Internet at work? (4 minutes)
Key questions:

1) Think back to when you heard that PCs would be available in libraries for the public to use. What did you think about this? (5 minutes)

2) What were the reactions of other staff to the Internet and more computers in your libraries? (5 minutes)

(Can you think why they reacted like this?)

Transition question: What training have you had to help you use the Internet? (5 minutes)

Key questions:

3) If had NOF ICT training: Do you think the NOF ICT training has been a success so far?

4) How could Internet/ICT training be improved? (10 minutes)

Closing question: Summary
Oral summary with most important findings; capture common themes.
Then ask, “Did I describe accurately what was said?”

Final question: Is there anything anyone else would like to add in relation to these issues that they haven’t had chance to say?

Close and Thanks
Greetings.

You recently completed a survey about attitudes to the Internet/ICT and training and entered your email address for further information about online focus groups. To make things easier I've created an ezboard Online Community instead. It's called Public Library Staff and ICT.

For the next three weeks you can discuss, leave messages and thoughts, perhaps share experiences about this subject; after which time it will close.

The board is private and by invitation only. It is free and your information is not given out or sold or put on any mailing lists.

It's a two-stage process; firstly you will need to register with ezboard (copy and paste the URL below for details). When choosing a username please note that this will be your identification when you use the forum. Ezboard will then send you a validation email (this may take about 15 minutes).

Secondly apply to join the ezboard. Once I have approved the application you will receive an email and be able to join in.

After you have been approved go to my ezboard. You'll first see the main ezboard screen, which will show you the forum. Just click on it to join the discussion. Please read 'Welcome to new users' first. If you want to post something, you can click on NEW TOPIC (which starts a new conversation), or click on one of the existing conversations (threads) and hit ADD REPLY to make your own comment about a particular topic. If you need more help, there is a [HELP] link (upper right corner) that has a lot of useful information.

You can reach the community by going here:
http://pub49.ezboard.com/bpubliclibrarystaffandict