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**An evaluation of the attitudes of public library
staff to the use of information and
communication technologies**

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A minor dissertation submitted in *partial fulfilment* of the
requirements for the award of the degree of
Master of Library & Information Science

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COMPULSORY DECLARATION

This work has not been previously submitted in whole, or in part, for the award of any degree.
It is my own work. Each significant contribution to, and quotation in, this dissertation from
the work, or works, of other people has been attributed, and has been cited and referenced.

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Abstract

This thesis explores the attitudes of public library staff of the Cape Town Administration Library Service in 2005 to information and communication technologies (ICTs). This inquiry was appropriate because free Internet access was in the process of being rolled out to public libraries in the Western Cape, and library management was considering investing in a new library management system (LMS). The two systems investigated were the Internet and the BookPlus LMS.

The survey instrument was a hardcopy questionnaire, which incorporated an amended version of a well-established technology acceptance model, and was designed to allow for both quantitative and qualitative data to be collected.

Analysis of the results suggest that librarians' attitude to ICTs was generally positive. Concerns were raised about both systems, mainly due to their unique characteristics, service history and the manner in which the systems had been implemented. Quantitative results indicated that staff attitudes towards the use of both systems were strongly related to staff perception of the usefulness of the system.

The insights obtained from the results of both systems suggest that an understanding of staff attitudes towards ICTs can positively inform implementation strategies and improve user adoption of new technologies.

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Chapter 1: INTRODUCTION

1.1. Introduction

This chapter will present a discussion on the context and background which led to the formulation of the research topic. The topic was further refined into research aims and objectives, and the boundaries of this research are presented in the delimitations section. A summary will briefly outline the contents of each chapter and present an overview of how the research unfolded. Concluding remarks will summarise this chapter.

1.2. Context and Background

The City of Cape (CoCT) has one of greatest disparities between rich and poor in the world. This phenomenon translates into the technological arena: 80% of the city residents do not have access to computers; and 14% have Internet access (Valentine, 2004: 2). A 'digital divide' exists in Cape Town where a minority of citizens has access to information and communication technologies (ICTs) either at home and/or from the workplace, while the majority of citizens can be characterised as 'information have-nots'. This uneven distribution of resources is the legacy of the infamous policy of Apartheid adopted by the National Party from 1948 until 1994.

As an officially accepted policy in 2000, the SmartCity strategy of the CoCT has a vision of a smart city populated by an informed citizenry. Through the use of ICTs, the SmartCity initiative hopes to empower the citizens of Cape Town with the necessary tools and skills to perform in a growing digital economy.

The SmartCape Access Project (a SmartCity project) was implemented in 2002 with the aim of offering computer facilities and free Internet access to the majority of citizens who do not yet realize its value and are unable to pay for the privilege. The project was launched in July 2002 at selected libraries in disadvantaged areas across the city. A year later, the project was awarded the Bill & Melinda Gates Foundation

Access to Learning Award; a \$1-million award which aimed to ensure a roll-out of the project to all Cape Town libraries, as well as the upgrading of existing equipment and the implementation of training programmes (*Smart Cape Receives 2003 Access to Learning Award*, 2004). As early as the proposal stages, the project was envisaged as an extension of current information provision services at public libraries (*Proposal: Public Library Access Project*, 2001: 1). The SmartCape project is an important example of library staff interacting with modern ICTs and its effect on traditional roles and services. An independent evaluation report on the Smart Cape Access Project, conducted by Infonomics SA (2002: 5), reported a successful initial launch based on the project's three primary goals:

- To provide free public access to computers and the Internet,
- To prove that open source software was an affordable, appropriate technology for a public service digital divide initiative,
- To increase opportunities for members of disadvantaged communities.

Although the report noted as a sub-task the assessment of the project's impact on library staff roles and library management, there was no comprehensive study conducted on the attitudes and perceptions of library staff (inclusive of management) towards the introduction of modern ICTs prior to the launch of the project. The Infonomics structured face-to-face interview survey, however, solicited interesting responses from library staff on:

- Staff training;
- The impact of the project on library staff;
- The success of the project;
- The expansion of the project.

This research was conducted after the formation of the Cape Town 'unicipity' in 2000, which combined six municipal authorities into one local administration. Prior to 2000, libraries were managed separately by these six municipal authorities. The author of this study identified categories of staff within the Cape Town Administration (CTA), one of the six authorities, to make up the target population of this study. Although the CTA does not officially exist as a local authority within the

City of Cape Town (CoCT)(replaced 'unicity'), for the purposes of this study, CTA will be used to identify a section of the staff belonging to the new Library and Information Services Branch of the CoCT that participated in this study in 2005.

The staff at CTA libraries was selected as the target population for this new investigation because out of thirty-six libraries only one library, Guguletu library, was part of the SmartCape pilot project, and subsequent evaluation report. The roll-out of the project to the remaining libraries was, at the time of this research, in progress. A significant number of CTA libraries' staff was, therefore, not exposed to the Internet at their libraries. The extent of their experience, at the library, with ICTs was limited to their usage of the BookPlus library management system (LMS), which operates in 37 libraries. The BookPlus system has operated in CTA libraries since 1989 and runs on a network of 'dumb' terminals that is linked to a centralised IBM mainframe server. The BookPlus system was managed by the CTA library service.

The remaining 70 libraries in Cape Town and its surrounds make use of the Public Access Library System (PALS). The PALS LMS is licensed from UNISYS, a United States company, by the State Information Technology Agency (SITA), which charges libraries for each transaction executed on a PALS terminal. The PALS system runs on PC-based hardware and uses centralised server architecture. The PALS software is maintained by a private organization called Libtech.

A few libraries have access to one or two standalone PC's with CD-ROM databases, with usage being free to library members on a time-limited basis. An evaluation of attitudes and usage of the BookPlus system is significant since the outgoing director, at the time of this study, of Social Development for the CoCT, released a memorandum requesting staff to volunteer to a project team assigned to develop an open source library management system for the CoCT's Library Services. Additional to the above reasons, the author was motivated to undertake this investigation after discovering that no research into public library staff attitudes towards ICTs has been undertaken in South Africa using a measurement model.

The completed research project was envisaged to have the following potential benefits:

- Assisting the CoCT in its implementation of the SmartCape Access Project in the remaining CTA libraries.
- Assisting the CoCT: Library and information Services branch in the selection and implementation of a new LMS.
- If the findings are strategically and operationally successfully deployed, potential levels of staff negativity and anxiety towards ICTs could significantly be reduced and, consequently, affect a positive acceptance of ICTs.

1.3. Research Aims and Objectives

1.3.1. Research Aims

The aim of this research project is to measure the attitudes of CTA Libraries' staff to:

- The existing integrated library management system (ILMS), namely BookPlus;
- The availability and usage of Internet access at libraries.

1.3.2. Research Objectives

Specific objectives of this research include:

1. Measuring the attitudes of CTA library staff to the BookPlus LMS;
2. Measuring the attitudes of CTA library staff to the Internet;
3. Determining the factors influencing both negative and positive attitudes of CTA library staff towards the BookPlus LMS;
4. Determining the factors influencing both negative and positive attitudes of CTA library staff towards the Internet;

-
5. Considering the potential effects of positive and negative attitudes of library staff to the BookPlus LMS;
 6. Considering the potential effects of positive and negative attitudes of library staff to the Internet.

1.4. Delimitations

It is recognized that a number of issues will not be addressed by this study. Prior to the formulation of the 'unicity' in 2000, six municipal authorities managed one hundred and four libraries in Cape Town. This study will be limited to the 37 libraries of the CTA library service that use the BookPlus LMS. The ICT focus of this study will not include examination of the remaining libraries using the PALS system. The intention of this study is not to prescribe to library management the most effective way to implement an ICT strategy based upon the findings and recommendations of this study. Any negative feedback received from staff will not be used or seen as an indictment against library management for their administration of the service.

This investigation will only attempt to answer the research aims and objectives. No attempt will be made to address the attitudes of librarians and their usage behaviour to factors outside the scope of the research aims and the specific objectives.

1.5. Thesis Outline

This first chapter has concentrated on illustrating the motivation behind the central issue of this research, namely, an understanding of the attitudes of public library staff to the Internet and the BookPlus LMS. The presentation of the context and background of this study assists in understanding the aims and specific objectives of this thesis. The delimitations section identifies those areas not covered by the scope of this research.

The second chapter presents supporting literature that sketches a background to the introduction of ICTs into libraries, and their impact on public library staff attitudes. Since the global spread ICTs is often equated with the ubiquitous nature of the Internet, the first part of this chapter concentrates on the Internet and its influence on

libraries. A discussion on staff reactions to the introduction of ICTs (all IT related products and services) and change is followed by suggestions for staff on coping with ICT induced anxiety and resistance. Since the BookPlus system and its specific implementation in the CTA library service has already been addressed in this chapter, a general discussion on the evolution of LMS and the impact of the Internet on this specialised product will be presented. Since it is commonly assumed that a connection exists between reaction (or behaviour) and attitudes, Section 2.5 examines the attitude concept and explores the relationship between behaviour and attitude. Also discussed is a selection of theoretical frameworks that form the basis for attitude measuring models. Lastly, this chapter examines a selection of variables that have been identified by previous research to influence the attitudes of users to ICTs. These variables have also been chosen for their appropriateness for this study.

Chapter 3 outlines the motivation behind the chosen research methodology, details the data gathering technique and explains the rationale behind the chosen data analysis methods. An explanation of the chosen statistical methods is also provided. Chapter 4 reports on the results that the research discovered. Chapter 5 consists of a discussion of the results in relation to the literature review, as well as the research aims and objectives. The final part of the thesis, Chapter 6, presents a summary of the main results followed by recommendations to library management considering introducing new ICTs. The chapter finishes with a discussion on the limitations of the study and the author provides suggestions for future research.

1.6. Conclusion

This first chapter consists of a discussion of the local circumstances, within the technological and public library arena of the CoCT, that led to the research topic and influenced the aims and objectives of the thesis. The delimitations of the thesis are also identified and an outline of the thesis is presented.

Chapter 2: CONTEXT AND BACKGROUND

2.1. Introduction

This chapter sets out to investigate the relevant literature pertaining to the aims and objectives of this study.

Section 2.2 provides background into the global expansion of networked technologies and the impact it has on library services. Section 2.3 reflects upon the impact of ICTs on staff behaviours, as well as their reactions and methods of coping with the introduction of new ICTs. Section 2.4 provides a brief overview of the evolution of LMSs and the influence of the Internet on this specialized product. Section 2.5 addresses the attitude concept and its relationship with behaviour. The various attitude measuring models are also discussed, but particular emphasis is placed on the measurement model chosen for this study. A few examples of the attitude-behaviour relation, taken from the relevant literature, are presented to illustrate the impact of positive or negative attitudes of library staff towards the use of new ICTs. A few chosen variables that have been identified in the literature and shown to influence staff attitudes are also discussed. In closing, remarks are made with regards to the significance of the chapter and its relationship to the aims and objectives of the thesis.

2.2. Background

Library services operate in a rapidly changing information and communication environment that, with the advances in the field of information technology and networked communications, has been heralded as the Information or Digital Age (Fourie, 2004). In order to gauge the spread of ICTs globally, it is common to use access to the Internet as a barometer. SmartNews (2004) published the following statistics:

-
- 10% of the world has Internet access.
 - Less than 1% of the populations in developing countries use the Internet.
 - 70% of Internet users live in high-income countries. This number accounts for only 16% of the world's population.

A new generation of users is coming to the library looking for affordable computer and telecommunication access through the Internet and the World Wide Web. Speed and ease-of-use of online information sources (this includes bibliographic databases on CD-ROM) is the order of the day. There is a demand for librarians who can demonstrate competence with traditional tools as well as

proficiency with the new technology and its applications. The concept of lifelong learning has never been more critical than in this age of rapid technological developments. Librarians need organisations to be aware of these changes and to assist in providing opportunities and support to librarians so that they may stay current and valuable (Garrod, 1998: 255). The changing landscape of ICTs has affected the function and services of library organisations, job definitions, and requested skills (Fourie, 2004: 63). The research project: SKIP (Skills for New Information Professionals), which investigated the impact of information technology on the skills and roles of staff in library and information services, concluded that successful implementation and integration of ICTs depended on organisational culture and structure (Garrod, 1998: 256).

Observations made by the author, while employed at CTA libraries between 1997 and present day, include enthusiasm on the part of staff for the pending introduction of Internet access at the libraries; as well as a general scepticism towards their own future role and level of computer competence. These observations were supported in a 2004 report: *The People's Network: evaluation summary* (Hardie-Boys, 2004: 10), which noted that a significant number of staff from the 210 library services across the UK expressed initial feelings of anxiety and negativity towards the introduction of ICTs and the accompanied training programme.

According to Earl (1996) in Ramzan (2004: 440) “the positive attitudes and actions of librarians can play an important role in the successful implementation of technology-based systems.”

2.3. Reactions to Technology and Change

This section reflects upon the impact that ICTs and change have had on library staff by examining the reactions of staff to this change. A brief background on the penetration of technology into public libraries precedes a section elaborating on computer anxiety — its origins and characteristics. A brief discussion of various reactions to technology and change is followed by ways of coping with computer anxiety and resistance.

2.3.1. Background

Technology has never been more integrated into society than it is today, with modern business relying on computerized technology for the manipulation of ever increasing amounts of digital information. Together with developments in information technology, information processing (the acquisition, recording, organizing, retrieval, display, and dissemination of information) has undergone radical change in recent years. Since “all information carriers (text, video, and sound) can be converted to digital form and manipulated by increasingly sophisticated techniques, the ranges of media, functions, and capabilities of information systems are constantly expanding (Encyclopaedia Britannica, 2002). In democratic societies, a high level of information literacy of the populace is generally considered to be a prerequisite for participatory democracy. This is most effectively achieved through equitable access and use of information technology and systems at local government level. The public library, an institution synonymous with information provision, is often seen as the most likely locale for introducing ICTs to the broader population (Valentine, 2004: 4). In order to meet their users’ demands for digital information, librarians have embraced the latest technologies that promise improved management of resources and enhanced service delivery.

It has been suggested that a debilitating cycle of conflict and stress emerges when *change* is introduced into the workplace, and staff are subjected to a transitional period of adaptation (Hudson, 1999: 36). A growing body of anecdotal evidence suggests that the increased implementation of new technologies into the library can induce stress related symptoms. Staff feel threatened when familiar routines are altered, and react by resisting change, even if that change represents improvement and growth (Gaither, 2004: 230).

For those who fail to adapt to the change brought about by the introduction of new technology and systems, there are a variety of responses or outcomes. One of the most contentious effects of new computer technologies is “technostress.” In 1984, Brod coined the phrase and wrote a book on the topic at a time when information technology was gaining momentum and personal computers were appearing on desktops (Clark & Kalin, 1996; Harper, 2000; Tu & Wang, 2004). He defined technostress as “a modern disease of adaptation caused by an inability to cope with new technologies in a healthy manner” (Brod, 1984, cited by Tu & Wang, 2004: 2171). This outdated and contentious definition has scholars questioning the notion of it being a disease, and Hickey (1992, cited by Jerabek et al., 2001: 278) argues that the cause is more likely due to the “rate of change in familiar hardware and software”.

Numerous expressions have been proposed for this concept of technostress, for example: technophobia, cyberphobia, computerphobia, computer anxiety, computer stress, and the like. Although the author of this investigation does not agree with the original definition of technostress, the expression was nevertheless used in the investigation, and refers simply to a user’s difficulty in adjusting in a healthy manner to the change brought about through new technologies. Brosnan and Lee (1998) have isolated the likely characteristics of a technophobe, “high levels of computer-related anxiety, hold negative attitudes towards computers and avoid interaction with technology whenever possible” (Brosnan & Lee, 1998: 560). These characteristics may lead to “frustration, job inefficiency, and feelings of being overwhelmed and out of control” (Pribbenow, 1999: 180).

2.3.2. Causes of Technostress

The causes of technostress are varied, controversial, anecdotal in nature, and evolve with each scientific study. Past research into the causes of technostress often focused on specific features of ICTs or the structural (i.e. hardware and software), such as “lack of involvement in the implementation process, lack of management support, poor technical quality which makes the system appear “unfriendly,” and the interaction of the designers and users” (Henry, 1994: 21). This focus was subsequently followed by attention to user’s reactions to specific features of ICTs, and specific aspects of the personality of the user.

Structural causes could include incorrect network, personal computer, and software configurations that lead to poor performance, and eventually to user frustration. Today’s media-rich resources require ultra-fast computers and broadband networks to deliver a satisfactory user experience. Due to constant budget cuts and poor recruiting, librarians and users may feel poorly serviced by an IT support department which might be suffering from staff shortages, and inadequately trained personnel.

Users’ reactions to specific features of ICTs include negative responses resulting from multimedia products lacking “industry standardization for the user interface, for example, in screen display and search commands” (Jerabek et al., 2001: 278). Users often feel overwhelmed by the choice of Web search engines and the availability of competing Web browsers, all promising to offer unique functionality that will help with handling the “information overload” of the Net. Due to the lack of standards for Web page design, no single browser can claim to browse the Net without stumbling across glitches such as incomplete Web page rendering, incompatibility with design protocols, intrusions from unsolicited, pop-up ‘windows’, and the like. These annoyances invite user frustration, and future avoidance of the offending software.

Resistance to technology may lie with the individual, who harbours negative attitudes as a result of “past failure, current failure, or fear of failure in the future, regardless of the context in which failure occurred...” (Henry, 1994: 22). An individual with these traits will resist training in new software and hardware, no matter the degree of difficulty associated with the training, and could compromise the successful implementation of a new system. Resistance to the use of computers and the Internet

due to fear of one's inability to learn new technology is called "cyberphobia," and is especially found among older workers (Pribbenow, 1999: 182).

The negative reactions to automation have implications for workplace performance and service delivery, and warrant vigilant identification of symptoms so that appropriate countermeasures may be implemented timeously.

2.3.3. Responses to Automation and Change

Before strategies are put in place to remedy or combat resistance to the introduction of ICTs, it is important to be aware of the various responses, as noted in the academic literature, to change and technology.

2.3.3.1. Stress

In the past resistance to technology was seen as separate from resistance to change, which led to the formulation of popular neologisms — technostress, computerphobia, computer anxiety, and the like. Contrary opinion contends that technology has been used as a scapegoat, diverting attention away from the actual cause, namely change and its ramifications (Clark & Kalin, 1996). Since change causes uncertainty and discomfort it is often met with resistance and a measure of emotion in the form of stress, fear, and confusion. Kupersmith (1992, cited by Tu & Wang, 2004: 2172) studying the effects of technostress on librarians identified four components of this condition:

- Performance anxiety: a basic fear of failure;
- Information overload: the Internet and networked technology has overwhelmed librarians with too much information to process;
- Role conflicts: conflicting expectations from managers, colleagues, and patrons obscures and threatens the identity of librarians;
- Burnout: is "a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who do 'people work' of some kind".

2.3.3.2. Gender

Differences in gender reactions to ICTs have been reported in numerous studies during the 1980s and 1990s with the dominant finding being that males hold more positive attitudes to technology than females. Recent research has continued to support these findings, and have found that when the influential element of computer experience was factored into research, males continued to show higher levels of confidence and less anxiety towards computers (Brosnan & Lee, 1998; Broos, 2005). Broos (2005: 21) reports that even when males and females have the same levels of self-perceived computer experience, females continue to report more computer anxiety than males. Harris (1999, cited by Spacey, 2003: 44) studied the impact of technological change on librarians in both public and academic libraries in the USA and Canada, and found that “women felt more threatened by technological change than men and perceived themselves as having less control over that change than the men questioned”.

2.3.3.3. Physiological Reactions

The physical work environment and the ergonomic design elements of furniture and equipment play a vital role in the interaction between man and technology. Severe physiological problems arise from excessive computer usage, and can include: eyestrain, headaches, backaches, Carpal Tunnel Syndrome (pain and weakness in the wrist and hand caused by repetitive strain), and Video Operator Distress Syndrome (overexposure to visual display units). There is concern over a suspected link between the electromagnetic radiation produced by — particularly — older monitors and miscarriages (Clark & Kalin, 1996; Pribbenow, 1999; Harper, 2000). Morris & Dyer (1998, cited by Spacey, 2003: 29) reported in their findings of the effects “of technological change that some individuals were genuinely frightened of the adverse health effects associated with computers, which might deter usage”.

2.3.3.4. Resistance

Henry (1994) in an attempt to identify the causes of resistance to computer-based technology (CBT) in the workplace defined resistance as “behaviour on the part of the

end-user intended to prevent or circumvent the use of CBT or to prevent CBT designers (analysts) from performing their job” (Henry, 1994: 20). A resistant behavioural personality will refuse or exhibit recalcitrant behaviour towards the implementation of new technology and training. This negative behaviour in the workplace affects productivity; creates a stressful, hostile environment; results in increased absenteeism; and can derail the entire implementation strategy (Bichteler, 1987, cited by Spacey, 2003: 23). Gaither (2004) in her study of the relationship between computer skills and technostress found “a negative weak relationship that as computer skills increased, technostress levels decreased...” (Gaither, 2004: 230). Both Biddiscombe (1997) and Sharpe (2001) noted that having the necessary computer skills did not prevent resistance or fear of future change (cited by Spacey, 2003: 24).

2.3.3.5. Fear of the Internet

The Internet is often heralded as the enabler of the global digital world, connecting a global user base to an endless supply of information. Despite the web’s original conceived idea of a collaborative work space, it has become highly variegated to include usage from entertainment to propaganda. Because of the proliferation and infinite variety of network resources, the service of providing efficient and quality access poses a unique challenge to web publishers and librarians.

It is this bounty of information — often unregulated, uncensored, and potentially embedded with malicious code — that has driven fear into the custodian of knowledge, the librarian. Faced with the increasing demands and expectations of users, librarians often feel overwhelmed and out of control. Hudiburg views the Internet as the number one source of “technostress” for librarians, because of the difficulty in finding information in a medium that grows by the day with each added Web site (Hudiburg, 1996). As the perceived purveyors of reliable information, librarians often feel the pressure that accompanies the responsibility of evaluating information from the Internet (Spacey, 2003: 28).

2.3.3.6. Computer Addiction

Brod (1984, cited by Gaither, 2004: 226) in his classification of technostress identified two possible manifestations of this condition, namely: the inability to adapt or cope with new technology or the over-identification with technology. Pribbenow, in presenting a talk on coping with technostress, identified an extreme positive reaction to technology: “computerphilia or computer addiction.” Pribbenow (1999: 182) listed some of the symptoms of this condition as cruising computer stores, using computer jargon in non-computer conversations, social withdrawal, sleep disturbance, lack of exercise, spousal problems, excessive spending on computers, and separation anxiety when away from the computer.

2.3.3.7. Positive Reactions

The People’s Network programme, launched in 2000, was tasked with the provision of ICT equipment and free Internet access in every public library in the United Kingdom (UK). Hardie-Boys (2004: 10), in evaluating the People’s Network programme, noted the following beneficial outcomes of the programme for library staff:

- Staff felt that the programme improved their morale and professional standing in the community;
- The attainment of new skills and competences has improved job satisfaction;
- Staff felt less stressed about pending technological implementations after completing the training sessions and spending time using the new system.

Burton (1992, cited by Spacey, 2003: 30) commenting on the favourable responses of staff to technological change, suggested that ICT-friendly staff benefit the organization by limiting resistance of co-workers to new technology.

The librarianship profession has long acknowledged the importance of ICT skills, and this message is filtering down to public librarians who are recognizing that these skills are becoming essential in terms of employability.

2.3.4. Coping with Technology and Change

The negative reactions to new technology by staff, commonly in the form of resistance, have to be managed through effective interventions. The process of managing external and internal demands has been called “coping.” Monat and Lazarus (1991) have classified coping strategies, responses designed to reduce stress, into two major categories: emotion-focused strategies and problem-focused strategies. Emotion-focused coping refers to “thoughts or actions whose goal is to relieve the emotional impact of stress,” as apposed to the direct approach of the problem-focused strategy that aims to “improve the troubled person-environment relationship by changing things, for example, by seeking information about what to do, by holding back from impulsive and premature actions, and by confronting the person or persons responsible for one’s difficulty” (Monat & Lazarus, 1991, cited by Tu & Wang, 2004: 2172).

Henderson et al. (1995: 191) suggest that “by screening and identifying at-risk individuals during information system implementation, there is potential to provide tailored training programmes which also alleviate computer anxiety.” After at-risk individuals are identified, it is important to determine the actual cause of their negative reactions. The problem could be personal (for example, personality type), environmental (for example, workplace environment) or ICT specific (for example, resistance to a specific feature of the ICT system). The chosen coping technique, or combination of techniques, needs to match the specific cause(s) before a successful intervention can take place. The chosen intervention can be individual-specific or group-dynamic — involving all in the organization (Hudiburg, 1996).

Within the library workplace, managers have a leading role to play in the adoption of new technology because librarians look to senior personnel for guidance and support. An enthusiastic approach adopted by management to the learning of new technologies can motivate staff to embrace change with a similar attitude. Managers need to make use of effective communication channels to inform staff timelessly about future plans, and allow staff to be part of the planning and implementation phases of the automation process (Clark & Kalin, 1996). During recruitment, management needs to

specify the importance of technological proficiency, and the continual renewal of technical skills throughout their employment.

Inadequate or insufficient training is often given as a cause for technostress, and is frequently endorsed as a strategy to overcome resistance to technology. Henry suggests that training programmes should include an “appropriate failure” component, which he describes as the acceptance of trainee failure followed by assistance “in developing strategies to overcome this failure” (Henry, 1994: 22). He argues that the result will be reduced anxiety and a positive attitudinal adjustment towards technology. Training programmes that match trainees’ preferred instructional methods are considered to deliver better results (Harrington et al., 1990, cited by Hendersen et al., 1995: 191). As an improvement on this method, Henderson et al. (1995) suggest the integration of anxiety reduction programmes with individualized training programmes, and — furthermore — recommend the use of technology-based training programmes which provide exposure and familiarity with ICTs.

Often the training method will dictate the choice of in-house training or the use of external training programmes. External training provides staff with the benefits of better technological facilities, a less distracting environment and specialised trainers. In-house training can cost much less; colleagues double as trainers and mentors; there is greater relevance if a new systems training module is used in the actual work environment; and there is flexibility to find time for practice and reinforcement of skills (Harper, 2000). An effective training programme should include a component for feedback and assessment so that corrective measures may be taken, and staff can feel that they are part of the process with a degree of control.

From the outset, the involvement of staff in the implementation of ICTs can aid the channelling of energy resulting from conflict and stress into a positive force that can create a climate of trust and respect. There is no quick-fix solution to technostress, but rather strategies to manage and alleviate reactions to technological change. The evolution of ICTs is a process that will continue to impact on library staff, their services, and library users themselves. A timely investment by library managers in strategies to assist staff in adapting to change is an investment in the future relevance of the institution. As access to the Internet from home becomes easier and faster, library patrons will question whether there exists value in their visits to the local

library. A library staffed with IT competent personnel can assist patrons in their use of computer equipment and an increasingly large number of digital resources. Due to the trusted reputation of public libraries in the community and their accessibility in most localities, they have become popular service points for free Internet and computer facilities (Brophy, 2002). A library equipped with the latest ICT equipment and software, trained staff, and a broad service delivery approach can enhance goodwill and credibility in the local community.

The following section will focus on the study's other example of ICTs in the library; namely, integrated library management systems (ILMS). The specific example used in this study is the BookPlus LMS, which has already been discussed in Chapter 1 (section 1.2) with specific reference to its implementation in the CTA library service. What follows is a general discussion on the evolution of ILMSs and the impact of the Internet on this specialized product.

2.4. Integrated Library Management Systems

2.4.1. Background

The evolution of library computing can be traced back to the introduction of dumb terminals connected to a mainframe server, and acting as a 'window' to the contents of a library's database. Breeding (2004a: 42) explains that this initial stage of computerization was followed by the migration to personal computers (PCs), granting access to the online catalogue and CD-ROM database products; and, eventually, to the current situation of Web service delivery.

At the centre of public access library computing is an integrated, modular, software solution, which the library industry has called an Integrated Library Management System (ILMS). According to Saffady (2000, cited by Ebenezer, 2004: 19), an ILMS is "an interrelated group of computer programmes that automates multiple library operations." These operations include those on the local system, as well as, those remotely based on an external network or functioning via connection to the World Wide Web (Web).

The evolution of ILMSs followed advances in the information technology (IT) and software industry. As the commercial IT industry benefited from the move away from dumb terminals to processor-based PCs, so too did libraries follow this trend by exploiting the power of PCs to make more information resources and services available to its patrons. Libraries, which had only known and used the centralized mainframe computing model, were now presented with the distributed computing model as an option. This model's allure came from its use of powerful, microprocessor-based personal computers, high-speed networks, and ingenious software solutions (Breeding, 2004a). As library collections grew to include non-print material, the innovation of CD-ROM technology — housed on local PCs or remotely attached to the central mainframe server — provided access to digital content, for example: electronic periodical indexes. A major problem was the array of search and retrieval interfaces offered by the various CD-ROM database products, with each product employing proprietary search techniques (Breeding, 2004a: 44).

2.4.2. ILMS and the Advent of the Web

The emergence of the Internet in the early 1990s opened up a world of resources and services to the public library. With PCs already networked and attached to the central server database, the provision of Internet access for each workstation was the logical next step. It was the emergence of the Web that “provided a common user interface for information resources as well as an international fabric of interconnected information resources and information delivery systems” (Breeding, 2004a: 44). If the Internet served as a medium for directing users to the location of information resources, then the Web enabled the actual delivery of the information content to the desktop. The expectations of users, fuelled by their experiences with the Web, for media-rich content and remote access to the library's local holdings, has brought to the attention of ILMS suppliers the need for library portal development tools. The library's web site may now serve as a gateway to local and remote information content, providing links to content subscription services; a media-rich, full-featured Web OPAC; a powerful, integrated, search engine; online catalogues of remote libraries; tools for personalizing the web site to individual preferences; and for

modern day communication — email and chat services (Ebenezer, 2002; Breeding, 2004a; Felstead, 2004).

2.4.3. The Dynamics of the ILMS Market

The ILMS is a product that is designed and packaged by companies serving a niche software market. The aim of these companies is to make a profit from the sale of this commodity. The library is the customer, requiring this product for the purpose of delivering a special service to its patrons. This niche market evolves as the demands on the library increase and/or change, which in turn affect the services rendered. Companies respond to these new requirements through product innovation. The factors behind the migration of a library to a new ILMS are either directly or indirectly related to the services rendered to library patrons.

The migration of public libraries to new systems or the purchase of value-added products is generally slow in this niche market due to the costs of transferring data, retraining staff, and the upgrading or replacement of supporting systems (Chudnov, 1999: 40). Public libraries, a unique sector of the ILMS market, have distinct automation needs that are often curtailed by budget constraints. There is a trend within the North American ILMS market of libraries, in the process of migration, to place great emphasis on cost saving strategies that will deliver significant automation benefits, such as increased resource sharing and accessibility (Breeding, 2004b: 46). Although it is rare that libraries migrate to new systems because of dissatisfaction with support and/or functionality, it is not uncommon for libraries to cite the age of hardware and operating systems as one of the motives behind the purge of legacy systems (Breeding & Roddy, 2003: 54).

Breeding (2004b: 46) in analysing the ILMS market in North America in 2003, concluded that 41% of companies' overall revenue was generated from maintenance costs on ILMSs. These companies' other source of income, as suggested previously, originates from the sale of complimentary products that add additional functionality to ILMSs. Due to the limited budgets of public libraries, companies are well aware of the difficulty of selling a complete, upgraded ILMS. It is Breeding's (2005: 30) impression that "the price of the [ILMSs] may be below fair market value." The

benefit of the modular offering of ILMSs for public libraries is the low automation entry cost, especially if seen against the background of dwindling budgets.

The ILMS market is undergoing rapid change with regard to vendor approaches to the future development of their software. The emergence of the Web and its offerings of diverse information resources have challenged suppliers to leverage the potential of distributed computing. A prominent example of this strategy is the emergence of Web services; which, theoretically, is believed to threaten the dominance of the single vendor, purchase model (Felstead, 2004: 94). A Web services option provides an array of functionality, and the adaptability of this model promises a solution tailored to individual needs. The era of information overload era has arrived, but with the right combination of automated tools any library can design and implement a solution to combat a particular information crisis.

It is generally believed that behaviour is a reaction to something or someone (as examined in Section 2.2), and that attitude has an influence on behaviour. The following section will closely explore the dynamics of this important relationship, because it is a vital link in the understanding of ICT adoption or rejection by public library staff.

2.5. Attitudes and Measurement

The introduction of ICTs in libraries cannot be properly discussed and understood without examining public library staff attitudes towards ICTs and the relationship between attitudes and behaviour. It has long been assumed that the successful implementation of ICTs depends upon users having a positive attitude toward it. This chapter explains the attitude concept, its relation to behaviour and details various attitude measuring models, especially the model chosen for this research project. A brief discussion of selective variables influencing attitudes and viewed as important for this study is also presented.

2.5.1. Definition of Attitude

Professional conception of the term attitude commonly refers to people's "global and relatively enduring (i.e. stored in long-term memory) evaluations of objects, issues, or persons" (Petty, 2001: 894) and "may also be seen as having three components [a tripartite model]: the cognitive - what we believe about an object; the affective - our feelings toward an object; and the behavioural - how we might actually behave toward an object" (Cardwell, 1996: 19). It is commonly asserted that the increased study of the psychological construct of attitude "arises from attempts to account for observed regularities in the behaviour of individual persons" (Encyclopaedia Britannica, 2002; Jonas et al., 1994: 776).

The tripartite model of attitude classification raises the question of a relationship between attitude and behaviour, since behavioural response is a key component for the understanding of attitudes. Although the early landmark study of Wicker (1969, cited in Manstead, 2001: 909) and other studies of the 1970s found a weak or nonexistent relation between these constructs, the attitude-behavioural relationship has increasingly been a topic of research. In 1977, the authors Ajzen and Fishbein (cited in Manstead, 2001: 909-910) introduced the principles of aggregation and compatibility and, equipped with these new principles, researchers were able to "account for the early failures to find substantial correlations between attitudes and behaviour".

The principle of aggregation states that assessment of behaviour towards an object using multiple items leads to a more reliable and valid outcome. Instead of observing a behavioural reaction to one situation, the use of multiple situations may validate the outcomes. The principle of compatibility states that measures of attitudes and behaviour "are more likely to be correlated with each other if they are compatible with respect to action, target, context, and time" (Manstead, 2001: 909 - 910). Even when a broader causal model - incorporating situational factors - is applied to the attitude-behaviour relation, Manstead (2001) cautions against "thinking of behaviours as being determined exclusively or even principally by attitudes..." (p. 910). Current theoretical frameworks examining the attitude-behaviour relation, explore a variety of situational and social factors, including the impact of attitude (Manis, 1996: 51).

Current research on the measurement of attitude makes use of theoretical models based on the attitude-behavioural relationship principle, and takes into account many external factors that impact on the attitude construct.

2.5.2. Attitude Measurement

Spacey et al. (2004: 271) observed that “[t]he majority of studies investigating attitudes to IT/ICT in libraries use a self-formulated survey” and “research conducted in organizations outside the library and information sphere involves use of existing measurement scales such as the technology acceptance model (TAM).”

Present-day researchers of attitude measurement, informed by the landmark work of Ajzen and Fishbein (1977, cited in Manstead, 2001: 910) that found strong attitude-behaviour correlations when both attitudes and behaviour were measured using multiple factors, focus their research on the conditions under which a strong correlation can be expected between attitudes and behaviours. The premise of this broad causal model is that it is an oversimplification to expect that behaviours are “determined exclusively or even principally by attitudes”.

Theoretical frameworks that developed from this thinking and found appropriate for inclusion in this study include: the theory of reasoned action (TRA); the theory of planned behaviour (TPB) and the technology acceptance model (TAM), and will be discussed below.

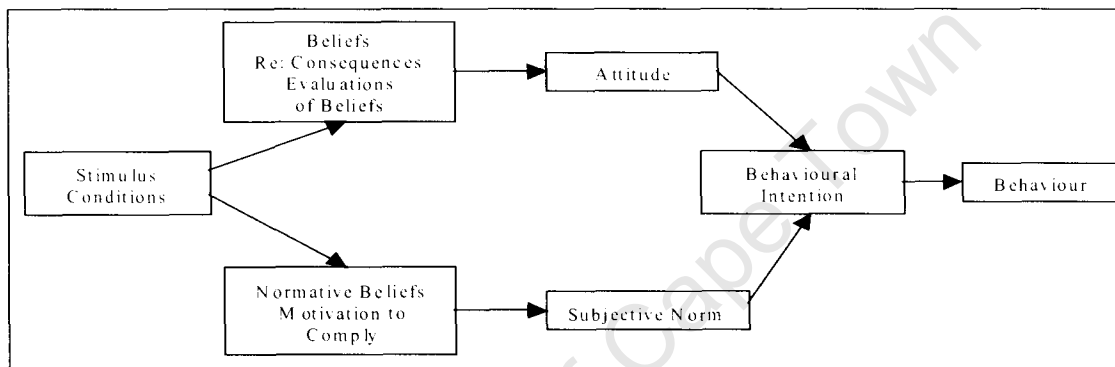
2.5.2.1. The Theory of Reasoned Action

The best-known example of this causal model is the Theory of Reasoned Action (TRA) by Ajzen and Fishbein (1980)(Fig. 2.1.), which posits that an individual’s behaviour is determined by a person’s intention to perform that behaviour.

This intention, in turn, is determined jointly by the individual’s attitude to the behaviour concerned and subjective norm. Subjective norm is a measure of how people are influenced through social pressures; believing that important people around oneself expect a certain behaviour to be performed, and that motivational factors influence an individual’s decisions (Debono & Omoto, 2001: 826; Spacey, 2003: 36).

The TRA specifies that the determinants of attitude are beliefs about the consequences of performing that behaviour and one's evaluation of the value of each of those outcomes. The determinants specified for subjective norm are an individual's normative beliefs and the motivation to comply with the perceived social pressures to engage in the behaviour (Manstead, 2001: 910; Spacey, 2003: 35). Dillon & Morris (1996) interpret this theory in the diagram below.

Fig. 2.1. The Theory of Reasoned Action from Dillon and Morris (1996: 9)



Research based on the TRA, and conducted by DeBono & Omoto (2001), extended this theory by examining the reaction of the principal constructs against an external variable: personality characteristic. Testing the relative importance of the principal constructs on two categories of people — individuals likely to be either influenced by attitude (low self-monitors) and/or subjective norm (high self-monitors) — the authors approached their study of the TRA model by specifying different external conditions, namely, categories of people. According to the authors, the behaviour of low self-monitors are influenced primarily by attitude, whereas the behavioural decisions of high self-monitors are influenced by the views of others, namely, subjective norm.

University of Minnesota undergraduates were asked to participate in a survey examining a letter-writing campaign about drinking-age legislation. The findings were consistent with previous research based on this theory, namely, “the participants’ behavioural intentions were generally related to their attitudes and subjective norm” (p. 829). Further to the findings, the authors observed that the behavioural intentions of low self-monitors related only to their attitude, whereas the intentions of high self-monitors were related both to their attitude and to subjective norm as explained above.

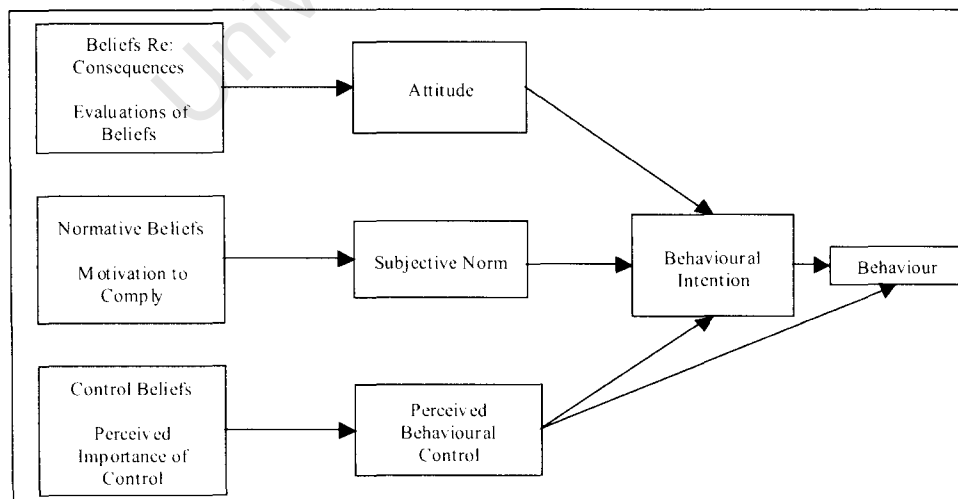
2.5.2.2. The Theory of Planned Behaviour

The TRA was extended by Ajzen (1985) into the Theory of Planned Behaviour (TPB)(Fig. 2.2.) that accommodated a new construct: perceived behavioural control.

This construct, based on control beliefs, represents an individual's perception of the degree of difficulty to perform the behaviour in question. The TPB argues that a behaviour that is seen to be easy to perform will have a high perceived behavioural control, which will positively influence an individual's intention to perform that behaviour. A person with intention to perform a given behaviour and a high perceived behavioural control is more likely to succeed in that action than someone with an equally strong intention but who has lower perceived behavioural control.

Ajzen (1991) re-evaluated the findings of more than a dozen empirical tests based on the TRA, this time including the perceived behavioural control construct, and found a significant improvement in the prediction of intentions and/or behaviour (Manstead, 2001: 912), i.e. it was possible to tell with greater accuracy the intentions of an individual(s) to perform a behaviour and/or the behaviour itself. Dillon & Morris (1996) interpret this theory in the diagram below.

Fig. 2.2. The Theory of Planned Behaviour from Dillon and Morris (1996: 13)



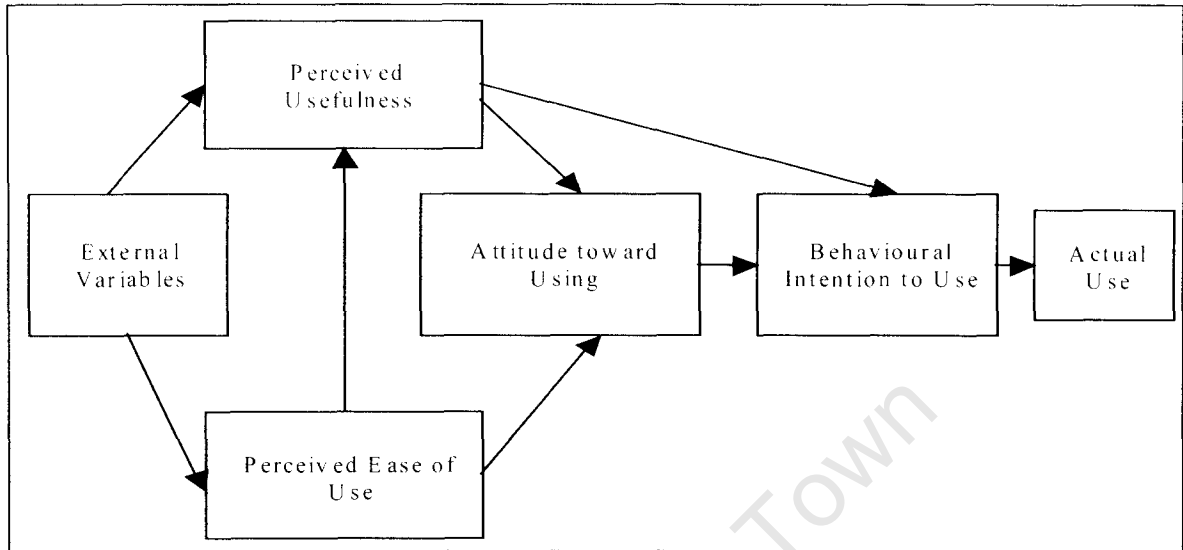
2.5.2.3. The Technology Acceptance Model

In 1986, Davis developed the Technology Acceptance Model (TAM) (Fig. 2.3) as an extension of the TRA to highlight the factors that influence an individual's attitudes and subsequent behaviour towards the adoption of information technology.

The issue of adoption and diffusion of technology in society is vital if one wants to understand the reasons behind user acceptance or non-acceptance of information technology. It is generally appreciated that staff with positive attitudes are more desirable than staff with negative attitudes in relation to the successful implementation and utilization of information technology (Spacey, 2004: 270).

TAM theorizes that attitude is determined by two external belief variables: perceived usefulness (PU) and perceived ease of use (PEOU). PU is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" whereas PEOU is "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989: 320). According to TAM, an individual's acceptance/adoption decision is determined by behavioural intention (BI), but differs from the TRA "in that BI is viewed as being jointly determined by the person's attitude toward using the system and perceived usefulness (PU). The attitude construct is jointly determined by PU and perceived ease of use (PEOU). PEOU has a causal effect on PU, and both constructs are influenced by external variables, such as system design features, training, documentation, and user support (Davis, 1993; Al-Gahtani & King, 1999, Chau, 2001). Dillon & Morris (1996) interpret this theory in the diagram below.

Fig. 2.3. The Technology Acceptance Model from Dillon and Morris (1996: 10)



The TAM differs from the TRA in two significant ways: Firstly, attitude in the TAM does not completely mediate between the effect of beliefs on intention. A person with negative attitudes to a system might still consider using that system if he or she perceives it to be useful (Spacey, 2003: 39). Secondly, subjective norm is not included as a determinant of intention. Davis (1993) excluded subjective norm from his research because he found no empirical support for its inclusion, and believed that the voluntary nature of the survey participants inclined them to be more susceptible to the attitude construct than subjective norm (Hartwick & Barki, 1994; Venkatesh & Davis, 2000).

In 1989, Davis et al (cited by Spacey, 2003: 40) compared the TAM to the TRA and found that people's intentions were a reasonably good predictor of people's computer use, which validated 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".

In 1993, Davis extended the original TAM to investigate "the causal relationships between system design features, PU, PEOU, attitude toward using, and actual usage behaviour" (Davis, 1993: 475). Davis found "that usefulness exerts more than twice

as much direct influence on use than does attitude toward using” and “four times as much direct influence on attitude as does ease of use” (Davis, 1993: 482).

Contrary to his hypothesis, Davis found that PEOU had no direct effect on usage, but “had a smaller [yet] significant effect on attitude, and a strong effect on usefulness” (Davis, 1993: 481).

In 2000 (p. 187), Venkatesh and Davis extended the TAM to explain PU and usage intentions in terms of social influence (subjective norm, voluntariness and image) and cognitive instrumental processes (job relevance, output quality, results demonstrability and PEOU). The new model, referred to as TAM2, was tested in both voluntary and mandatory settings. The results showed that “TAM2 extends TAM by showing that subjective norm exerts a significant direct effect on usage intentions over and above PU and PEOU for mandatory (but not voluntary) systems” (Venkatesh and Davis, 2000: 198).

2.5.2.4. TAM: A Tool for the Future

The TAM has become one the most widely used technology adoption models today as it continues to be adapted to our changing times for the purpose of unlocking the relationship between people and technology.

When Davis (1989) theorized the TAM to be applicable to a broad range of information technologies and user contexts, he had no idea that his model would earn such massive acceptance “that the Institute for Scientific Information Social Science Citation Index recently listed 335 journal citations since 1999 of the initial TAM research paper...” (Money & Turner, 2004: 1).

The TAM has been brought into the modern arena of the Internet with research into user acceptance and usage of email, World Wide Web and search engines. Lederer et al (2000) used the TAM to investigate work-related tasks with the World Wide Web as the application. These researchers found that “(1) ease of understanding and ease of finding predict ease of use, and that (2) information quality predicts usefulness for revisited sites” (Lederer et al, 2000: 269).

Liaw & Huang (2003) used the TAM as a theoretical basis to explore how individual attitudes affect usage of search engines for information retrieval. The results of the study supported the theories of TAM, and added motivation as a key antecedent of behavioural beliefs to use technology. Spacey (2003) used an amended version of the TAM to explore the influence of gender, age, organisational variables, computer skills, ICT experience and subjective norm on individual attitudes to computers, ICT and the Internet. In brief, “key findings include the influence of current post and type of post on perceptions of the usefulness of the Internet whilst the age and place of work affected perceptions of the ease of use of the Internet” (Spacey et al., 2004: 270).

The attitude-behaviour relation — when explored within the library and information discipline with a focus on technology, change and service — yielded mixed research results in the professional literature. The following section will briefly discuss a few examples of the attitude-behaviour relation as found in the library and information literature.

2.5.3. Attitudes of Library Staff to ICT

Although there is general agreement in the library and information literature that positive attitudes are more desirable than negative attitudes in relation to information technology, the examples that follow demonstrate that the attitude-behaviour relationship is a complex and controversial phenomenon.

Spacey (2003: 31) cites the early study by Fine (1986) when examining research pertaining to technology change and libraries, which concludes that the negative reactions to new technology by library staff is unrelated to personality and demographics, but is rather connected to the workplace environment and the beliefs, attitudes and values of the staff.

Research by Idowu (1999) into the relationships between knowledge, training and experience of Nigerian librarians on the use of computers and their attitudes towards computers, using a questionnaire containing a Technology Attitude Scale, discovered a relationship between previous training and experience in the use of computers and a

positive attitude towards computers. The research recommends that managers take the issue of training and experience seriously if they want a successful implementation and utilization of an information technology strategy.

A study conducted by Ramzan (2004) into technology utilization in libraries in Pakistan focusing on librarians' level of knowledge in IT and their attitudes towards IT in libraries, discovered that a low level of IT usage and IT knowledge had a significant relationship with librarians' attitudes towards their usage of IT in libraries. A positive relationship was determined between librarians' attitude toward IT utilization and their level of knowledge of IT, experience in computer use, level of awareness of technologies and when they received their IT training. The positive attitude of librarians toward IT is the result of prior experience and knowledge, which can be strengthened by adequate training and opportunities for continuous practice.

When Bii and Wanyama (2001) conducted a study to examine the impact of library automation on the job satisfaction among library staff of the Margaret Thatcher Library (MTL), Moi University, Kenya — they found that the majority of MTL staff viewed automation positively and regarded it as “indispensable enrichment to their jobs” (p. 307). Of the staff that viewed the automation process with dissatisfaction, their main causes of displeasure were found to be inadequate or lack of training, restricted access and use of available software packages, frequent network failures, the slow processing speed of the system, inadequate printing facilities, poor IT skills resulting in inadequate service provision and poor internal communication on automation issues. Although the majority of staff viewed the introduction of IT and its effect on their jobs positively, this did not translate into favourable usage experiences due to poor IT implementation, lack of coordinated training, insufficient and motivated systems librarians and a lack of leadership and vision on the part of management.

In 2002, Spacey (2003) conducted a doctoral study on the characteristics of public library staff that affect attitudes to the Internet. A survey of 900 public library staff in England, eliciting responses through a questionnaire amended to include a Technology Attitude Scale, was enhanced by the use of interviews, focus groups and a free electronic bulletin board. A final response rate of 51.6 per cent was achieved.

The demographic and organisational characteristics of staff that may influence the attitudes of staff towards the use of the Internet yielded the following results:

- A low confidence rating was found among women and older staff, with the latter perceiving the use of the Internet more difficult to use (Spacey et al., 2004: 275);
- Part time staff were less appreciative of the usefulness of the Internet and its ease of use than full time staff, possibly due to fewer opportunities provided for using the Internet (273);
- Results indicated that colleagues' opinions exert some influence over the perception of staff to value and use the Internet (275);
- Staff members who held negative attitudes towards the use of the Internet were less willing to assist the public, and influenced other staff members with their negative attitude (275);
- Staff with superior computer proficiency exhibited positive attitudes and staff with lesser skills held negative attitudes (274);
- Frequency of Internet use was positively linked to superior computer skills and negatively to those who held lesser skills (274);
- Results indicated that the greater one's computer skills, the easier one finds learning and using the Internet (274);
- Results from the study did not confirm the findings of previous research that inferred experience with ICT was related to attitudes (274);
- Staff with regular experience in using the Internet were more inclined to assist the public in using ICT (274);
- Results indicated relationships between place of work and computer skills, and length of time using the Internet and frequency of use (274).

Spacey's research recommended the implementation of targeted and structured training programmes to improve confidence levels. Providing opportunities to practice ICT skills was deemed paramount to improve attitudes and behaviour towards the use of the Internet. The close correlations that exist between Spacey's research objectives and methodology and the current study suggest that Spacey's research findings could closely resemble the findings of this study.

2.5.4. Selective Variables Affecting Attitudes to ICT

This section will explore selective variables that have been identified in the literature and shown to influence attitudes to ICT, and which are important for this study.

2.5.4.1. Gender

In the field of library and information work, where women are in the majority, the issue of gender assumes great importance as a variable influencing individual attitudes to ICT. Research throughout the 1980s and 1990s, especially within technophobia research, have indicated “gender differences in ICT attitudes, whereby males hold more positive attitudes than females and vice versa” (Broos, 2005: 22).

When Rosen and Maguire (1990, cited by Hendersen et al., 1995: 183) examined the validity of five common beliefs, reviewing 81 empirical studies, they concluded that “women were slightly more computerphobic than men — although differences were neither strong nor consistent”. Brosnan & Lee (1998: 559) conducted a cross-cultural comparison of gender differences in computer attitudes and anxieties, and from a sample of 207 United Kingdom nationals and 286 Hong Kong nationals they concluded the following:

- The United Kingdom sample exhibited no gender differences in computer anxiety but males held more positive computer attitudes;
- The Hong Kong sample exhibited no gender differences in computer attitudes but males reported higher scores for computer anxiety than females.

The authors suggest that a possible reason for the United Kingdom attitude finding is the “masculinization of technology that has taken place within Western cultures such that both sexes rate Information Technology as ‘masculine’; perceive computers to be more appropriate for males than females, and perceive males to be more computer proficient than females” (Brosnan & Lee, 1998: 575). Brosnan & Lee (575) suggest that further research needs to be conducted into the masculinisation of technology within Oriental cultures.

The following research findings will illustrate that the effect of computer experience on computer attitude works in different ways for men and women. Chen (1986) explored attitude as an outcome of experience in a study of high school students, and found that when experience was controlled, the findings shifted away from favouring males with higher levels of computer interest to an equal measure of computer interest for both males and females. It was noted that even when controlling for experience, men were still more computer confident and less computer anxious than women. Shashaani (1994, cited by Broos, 2005: 23) found that “the amount of computer usage and number of computer courses taken were found to be positively related to computer confidence for boys, but no relation was observed for girls”.

In the library and information literature, a similar mixed result was observed for the effect of gender on attitudes to ICT. A study by Harris (1999, cited by Spacey, 2003: 44) investigating the impact of technological change on public and academic librarians in the USA and Canada 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”. Bothwell & Lovejoy’s (1987) study on technological change and its impact on academic library workers found no gender differences with regards to attitudes towards the introduction of new technology.

In this study, the role of gender, as an external influence on attitude and behaviour, will be explored.

2.5.4.2. Subjective Norm

Research by Morris & Venkatesh (2000), based on the theory of planned behaviour, found that “older workers weighed the importance of subjective norm and perceived behavioural control more strongly than younger workers in determining usage of a new technology in the short term” (Morris & Venkatesh, 2000: 392). A significant observation was recorded after 3 months of experience with the system — the measure of subjective norm for both groups was the same.

Spacey et al. (2004: 275) found a small measure of subjective norm at work in her study, as staff holding negative attitudes towards helping the public were influential in tainting the attitudes of colleagues towards use of the Internet. In order to counter this

negativity, it was suggested that management lead from the front with a positive attitude and create transparent channels of communication for staff to direct their concerns.

In their study of the relationship between user participation and system use, Hartnick & Barki (1994: 458) found that “the most important antecedent of mandatory users’ intentions was subjective norms.” Mandatory users in the study were heavily influenced by the expectations of colleagues, especially superiors, to use the system frequently. Also significant was the finding that early in the system development process, subjective norm was found to exert great influence on intention; but, that later, after the system was established, attitude was found to exert the greater influence on intention.

In this study, the influence of subjective norm will be closely monitored because the study examines and contrasts a voluntary (the Internet) and a mandatory (Bookplus software) system.

2.5.4.3. Computer Experience

Ramzan (2004) investigating IT utilization in libraries in Pakistan together with the librarians’ level of knowledge in IT and their attitudes toward IT in the libraries, concluded that “[l]ibrarians’ knowledge in IT, experience in computer use, level of awareness of technologies, recency in IT training are key factors impacting their attitudes toward IT” (Ramzan, 2004: 446).

Spacey (2003) established in her findings that a significant relationship exists between superior computer skills and positive attitudes, and vice versa. Further to this finding, it was determined that individuals with weak computer skills used the Internet less frequently than their more skilled colleagues, and computer proficiency related positively with staff feelings about helping the public use the Internet.

Liaw & Huang (2003) developed a model, based on the TAM, to examine individual attitudes towards using search engines as information retrieval tools. The findings of their study validated the theories of TAM and suggested that computer experience and

the quality of the search engine are key determinants of motivation which, in turn, influences one's behavioural intention to use technology.

In this study, the role of previous computer experience is assumed to exert an influence on attitudes and, consequently, the impact on usage of the two examined systems.

2.5.4.4. Age

Morris & Venkatesh (2000) investigated the influence of age difference on individual adoption and sustained usage of a new software system at an accounting firm. Their findings, found within a voluntary context, suggest that younger workers found the attitude construct to be influential, whereas the older workers were influenced more by subjective norm and perceived behavioural control. As experience was gained with the system, it was noted that the influence of subjective norm weakened for the older workers to a point where subjective norm measured nonsignificant for both groups. The authors suggested that attitude might be important to the younger workers because of their time exposed to the technology whilst the older workers valued security and social relations more.

Arthur (1998, cited by Spacey, 2003: 47) argued against popular assumptions, and found in age-related research that “[o]verall, 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”.

In relation to attitudes, Spacey (2003) found that younger workers had higher than average intentions to use the Internet, as well as higher ease of use scores than older workers and found that older workers found the Internet more difficult to use than the younger workers. In terms of computer skills, younger workers indicated a higher proficiency than the older workers, which could be due to older staff not receiving computer training in their own schooling. It is interesting to note that while the older staff did not rate their computer proficiency and skill in using the Internet high, no relationship was found “to suggest that older staff used the Internet any less frequently than younger staff” (Spacey et al., 2004: 273).

This chapter has defined the attitude concept and its relation to behaviour in a way supportive of the methodological approach undertaken in this study. Since the primary aim of this study is to ascertain the attitudes of library staff to the introduction of ICTs in the workplace, an appropriate attitudinal measurement instrument was required and found in the TAM. The TAM, being an extension of the TRA, focuses on factors influencing attitudes and subsequent behaviour towards the adoption of IT. The external factors affecting attitude and behaviour selected for inclusion in the TAM section of this study include: gender, computer experience, subjective norm and age.

Although mixed results were obtained from the professional literature on the variables of gender, subjective norm, computer experience and age, their inclusion in research into the understanding of ICTs and libraries is essential if libraries wish to remain vital in a technological future.

2.6. Conclusion

The exponential growth of networked technologies, especially the Internet, has revolutionised the ways in which people communicate and share information with one another. The Library and Information Science (LIS) profession has not been unaffected by this IT revolution, because today skilled librarians have to be “specialists in managing, retrieving, filtering, and evaluating information” (Baruchson-Arbib & Bronstein, 2002: 398). Librarians are faced with unique challenges that demand the acquisition of new skills and competencies in order to cope with the information overload taking place in networked environments.

A review of the appropriate literature indicates that when technological change takes place in the libraries, it is accompanied by positive and negative reactions from librarians. The negative responses from librarians are of particular interest to those implementing new IT technologies, because successful adoption and usage of the new technologies is dependent on positive attitudes and behaviour of staff towards the new systems. In view of this, the importance of obtaining an assessment of staff perceptions towards a new technology becomes ever more critical, especially when large investments are involved. A review of the relevant literature has revealed that no

assessment of public library staff attitudes towards ICTs has taken place in South Africa using a measurement model.

Informed by research investigating user acceptance or rejection of ICTs, and guided by the work of Spacey (2003) that investigated the influences on public library staff attitudes to the Internet, the author chose an amended version of the TAM to ascertain the influences on staff attitudes towards the Internet and BookPlus, as well as to determine the impact staff attitudes had on their behaviour towards the two systems. It is hoped that this research will add to the body of knowledge regarding user acceptance of ICTs in the librarianship field.

The following chapter will detail the chosen research methodology employed to fulfil the aims and objectives of this study.

University of Cape Town

Chapter 3: RESEARCH METHODS

3.1. Introduction

Based on the aims and objectives of this study, a review of the pertinent literature and local factors, the author decided to employ one research method — the survey questionnaire — for the collection of data. The reasons behind the choice of this quantitative technique, as well as a thorough evaluation of the methodology undertaken will be presented in the following section.

3.2. Data Gathering Techniques

3.2.1. *Surveys*

The survey method was used because it “allows the collection of a large amount of data from a sizeable population in a highly economical way” (Saunders et al, 1997: 76). The data collection device used in this survey undertaking is the self-administered questionnaire. This data-collection tool was chosen for the following reasons (Moore, 2000: 108-9): it is easy to administer, relatively cheap, allows for “a wide range of data in a variety of different circumstances” to be collected, many options exist for delivery to respondents, it can be completed at a time convenient to the respondents, and questions can be presented in a standard way without the bias of an interviewer.

The main drawback of this technique is the frequently low response rate, which can affect the validity of the data produced (Moore, 2000: 109). Because of the nature of questionnaires, a researcher can use this tool to conduct descriptive research, namely identifying and describing the “variability in different phenomena”; and explanatory or analytical research, namely the examination and explanation of “relationships between variables, in particular cause and effect relationships” (Saunders et al, 1997: 244). Dillman (1978, cited by Saunders, 1997: 250) groups the different sorts of data that can be collected through questionnaires into four variable types: attitudes, beliefs,

behaviour and attributes. The choice of questions in the questionnaire reflects the need to obtain information on selective demographic and organisational details from respondents in order to satisfy the aims and objectives of the study.

For the assessment of staff attitudes to the introduction and use of ICTs, an attitude measurement scale that matched the unique focus and nature of this study was deemed necessary. In this investigation, the questionnaire will allow the author to compare the attitudes of different employee groups: age, gender, duration of service, qualification, computer experience and occupation.

3.2.2. Measuring Attitudes

The literature indicates that only a few attitude measurement scales exist commercially, and it is often the task of researchers to compile their own scales to match the unique requirements of their research (Welman & Kruger, 2001: 150). Due to its recognised robustness and reliability, as noted by Dillon & Morris (1996: 23), “TAM offers tight theoretical linkage of constructs that have been shown to be important in user acceptance” (refer to section 2.5.2.3: 25), as well as the successful implementation of an amended version of the TAM by Spacey (2003: 65), the TAM was chosen as the scale most appropriate for this study. The TAM section of the questionnaire used in this study closely resembles the implementation of the TAM in Spacey’s work (2003: 336-7), which functions as an important strategy in the analysis of external factors influencing the attitudes of staff towards the Internet and the BookPlus LMS.

3.2.3. Sampling

In determining the population for this study, the author had to identify staff that regularly used the Internet and BookPlus in the library. It was determined that the professional staff category would include: principal librarians, senior librarians, librarians and assistant librarians. The non-professional staff would consist solely of senior library attendants. At the time of this study, the author was employed at the head office of CTA libraries as the systems librarian responsible for the network

administration of the BookPlus LMS. At the time of this study, the author had been employed in the above position for 8 years, and was very familiar with the library network infrastructure and the functionality of the BookPlus LMS. With regards to the Internet, the authors experience in this domain started in 1985, and continues today as an ardent hobby. With the permission of management, access was granted to staff statistical data, as well as use of the internal delivery system and network messaging facility. On the 1 June 2005, staff statistical data was obtained, and after numerous calculations it was determined that the staff numbers of the chosen categories were feasible for the study, especially since management had endorsed the project and access had been granted to network and delivery systems.

The entire target population was selected for assessment in this study. The degree of validity of the findings, as they are generalised against the total population, can therefore be expected to be high. This decision seemed prudent since it is suggested that a low return of questionnaires inherits a biases “and consequently unrepresentative sample” (Welman & Kruger, 2001: 147). The total population of 195 staff included the following categories of staff from 36 library branches:

- Principal librarian;
- Senior librarian;
- Librarian;
- Assistant librarian;
- Senior library attendant.

As of 1 June 2005 the total number of staff for each category is listed below:

Table 3.1. Total population breakdown

CATEGORY	TOTAL
Principal librarian (professional)	11
Senior librarian (professional)	29
Librarian (professional)	70
Assistant librarian (professional)	39
Senior library attendant (non-professional)	46
TOTAL POPULATION	195

As a result of the death of a librarian prior to the dispatch of the questionnaires, a total of 194 questionnaires were sent out through the services' internal delivery system during the week of 10th October 2005.

To distinguish between the various types of library premises, the following categories were identified: head office (the administrative offices), district library (the main library in a particular geographical area), branch library (the remaining libraries that occupy a particular geographical area), and mobile library (depot for mobile libraries).

3.2.4. Pilot

The objective of the pilot study was to produce a questionnaire that the respondents would have no difficulty in completing and that there would be no problems in capturing the data. Saunders et al (1997: 269) noted that an additional advantage is the "assessment of the questions' validity and the reliability of the data collected" by means of preliminary data analysis. The outcome of the preliminary analysis will determine whether the research questions can be correctly answered.

The pilot was administered to staff in various departments at the CTA library service's head office on the 3rd October 2005 and collected the following day. The staff selected for the pilot was chosen to closely resemble the population of the main study as suggested by Saunders et al (1997: 269). A few of the staff that participated in the pilot also took part in the final questionnaire. Fourteen copies of the pilot were handed out and thirteen copies were collected representing a response rate of 92.8%.

Following responses from the project's supervisor and feedback received from the pilot, a number of amendments were made to improve the clarity and readability of the questionnaire. In Section A, under educational qualifications (Question 3), the answer options were amended to reflect the local situation more closely.

The above modifications, together with the open question option — *Other, please specify* — created depth of choice, and would assure correct completion of this question. In Section B, four questions were amended with the aim of improving the comprehensibility and completion of the questions.

The time required to complete the pilot was calculated, and an average time of ten minutes was recorded, which is the duration that Moore (2000: 115) suggests, as “longer than that and your response rate will suffer.”

3.2.5. Response Rate

Moore (2000: 107) cautions against response rates in social research below 50 per cent as they can “be subject to wide margins of statistical error,” and suggests aiming “for a response rate of 60 per cent or above.” The survey questionnaire used in this study reported a response rate of 59.7%, which falls marginally outside of Moore’s recommended range. Since Spacey (2003: 95) reported a response rate of 51.6%, research upon which this study is primarily based, this would appear to be a satisfactory result.

3.3. Data Collection

3.3.1. Questionnaire: Design and Structure

This section will detail the design and structure of the data-collection tool chosen as the most appropriate means for fulfilling the aims and objectives of this study. Prior to the dissemination of the questionnaire, an internal communication was sent to all computer terminals at the branches preparing staff for the arrival of the questionnaire and instructing the librarian-in-charge to oversee the handing out of the questionnaires. It was hoped that since management sent out the communication, that staff would acknowledge management’s support of the project, and be motivated to complete and return the questionnaire (see Appendix B for the text of the questionnaire).

3.3.1.1. Instruction Sheet

A single A4 page providing instructions for the correct circulation and return of the questionnaire accompanied all batches of the questionnaire. The categories of staff selected for this study were clearly indicated as recipients of the questionnaire. The

librarian-in-charge was instructed to collect all questionnaires completed and to seal them in the provided envelope before the branch's next delivery drop. The original A3 envelope with the return name and address details was to be used for returning all completed questionnaires to the service's head office. A closing statement thanked the librarian-in-charge for his/her time and effort in this task.

3.3.1.2. Front Cover

The front cover of the questionnaire (see Appendix A) included the emblem of the University of Cape Town since the research project was registered at that institution, and the worldwide status of the institution was intended to convey credibility and endorsement of the project. The title was followed by a brief statement explaining the purpose of this study. Confidentiality and anonymity was guaranteed, and a request was made for the honest completion of all questions. The author's contact number was provided for feedback and any queries relating to the survey, as was suggested by Moore (1996: 115). An instruction for the return of the questionnaires was followed by the return name and address details. Finally, the respondent was thanked for his/her time and co-operation.

3.3.1.3. Demographical Information

This section made use predominately of closed-ended questions to ascertain gender, age, education, and the respondent's role in the library. The selective use of the option *other, please specify* was provided to encourage completion of the questions and accommodate other possible categories that were not listed.

3.3.1.4. The Respondent, Computers and the Internet

The level of respondent's computer skills was determined by responses indicated on a five-point Likert scale ranging from 1, *poor*, through to 5, *excellent*. The Likert scale is the most popular attitudinal scale in the social sciences, because it is the easiest to compile and can be used for multi-dimensional attitudes (Welman & Kruger, 2001: 150). The remaining questions addressed the time staff have spent using the Internet,

the frequency of usage and their level of confidence in helping the public use the Internet.

These sections, entitled *All about you* and *You, computers and the Internet* consisted of questions which determine the value of external variables: demographic, organisational and technological proficiency (i.e. computers and the Internet). The inclusion of these sections are significant because Spacey (2003) empirically concluded that these external “variables influenced public library staff attitudes to the Internet” (p. 291).

3.3.1.5. Amended TAM section

This section comprised of three groups of adapted statements representing the following three belief variables: usefulness, ease of use and intention to use the Internet and BookPlus at work (Tables 3.2, 3.3 and 3.4 respectively). The questions were adapted from the following sources:

Table 3.2. Perceived usefulness: statements and source

Perceived Usefulness Statements	Source
Using the Internet improves the quality of the work I do	Davis 1989
Using the Internet gives me greater control over my work.	Davis 1989
Using the Internet enables me to accomplish tasks more quickly	Davis 1989
Using the Internet supports critical aspects of my job	Davis 1989
Using the Internet improves my job performance	Davis 1989
Using the Internet enhances my effectiveness on the job	Davis 1989
Using the Internet makes it easier to do my job	Davis 1989
Using the Internet increases my productivity	Davis 1989
Overall, I find using the Internet useful in my job	Davis 1989

Table 3.3. Perceived ease of use: statements and source

Perceived Ease of Use Statements	Source
I find the Internet awkward to use	Davis 1989
It is difficult to learn how to use the Internet	Davis 1993
Using the Internet is often frustrating	Davis 1989

I find it easy to get the Internet to do what I want it to do	Davis 1989
The Internet is rigid and inflexible to use	Davis 1989
It is easy for me to remember how to perform tasks using the Internet	Davis 1989
Using the Internet requires a lot of mental effort	Davis 1989
My use of the Internet is clear and understandable	Davis 1993
I find it takes a lot of effort to become skilful at using the Internet	Davis 1993
Overall, I find the Internet easy to use	Davis 1993
It will be impossible to use the Internet without expert help	Davis 1993

Table 3.4. Behavioural intention: statements and source

Behavioural Intention	Source
I always try to use the Internet to do a task whenever it has a feature to help me perform it	Chau 1996
I always try to use the Internet in as many cases/occasions as possible	Chau 1996
I intend to increase my use of the Internet in the future	Agarwal & Prasad 1997
I will use the Internet on a regular basis in the future	Moon & Kim 2001
I will frequently use the Internet in the future	Moon & Kim 2001
I strongly recommend others to use the Internet	Moon & Kim 2001

The sequence of the grouped questions was kept consistent with layout used in similar TAM studies found in the literature (Shih, 2004: 727; Igarria et al, 1995: 235-6; Spacey, 2003: 336-7). A random order was selected for the statements included in the ease of use section according to whether they represented a positive or negative tone, which prevented a pattern, called response set, emerging on the five-point Likert scale (Moore, 2000: 111). In choosing whether to use “Internet” or “WWW,” the author followed Spacey’s (2003: 75) example of using “Internet” based on the popularity of the term, and that it is often used to reflect both terms.

The behavioural intention statements (Table 3.4) were omitted from Section D of the questionnaire. This is because the use of the BookPlus LMS is mandatory and relevant studies in the literature (Thompson et al, 1991 cited by Al-Gahtani & King, 1999: 278; Davis, 1993: 476) have shown that behavioural intention is concerned with future behaviour, which is irrelevant when considering usage of the BookPlus LMS.

Since system use is a requirement for the fulfilment of work duties and management insists on usage of the system to fulfil one's duties, a decision was made to omit behavioural intention statements. It is irrational to measure staff intentions to use the BookPlus system when they are compelled to use the system to complete normal job responsibilities, and all staff is currently using the system. Therefore, instead of measuring behavioural intention as a determinant of the actual usage of BookPlus, the attitude and subjective norm variable will be directly linked to usage behaviour. For the BookPlus section of this research, the respondents' perceptions of using the BookPlus system and the influence of these perceptions on attitude and subjective norm will be used to explain users' behaviour towards the system.

3.3.1.6. Amended TAM Section: Subjective Norm

The definition and discussion of subjective norm can be found in section 2.5.4.2. Davis (1989) initially excluded subjective norm from the original TAM because he found that "subjective norm had no significant effect on intentions over and above perceived usefulness and ease of use" (Spacey, 2003: 77). The rationale for assuming the direct effect of subjective norm on usage and its indirect effect on usage by way of attitude is the result of Venkatesh and Davis' (2000: 187) reasoning that "people may choose to perform a behaviour, even if they are not themselves favourable toward the behaviour or its consequence, if they believe one or more important referents think they should, and they are sufficiently motivated to comply with the referents." The inclusion of subjective norm in this study's questionnaire is the result of the incorporation of this variable into the extended TAM model, called TAM2 by Venkatesh & Davis (2000: 186), which aimed to understand the effects of additional determinants (subjective norm being one) on perceived usefulness and behavioural intention, and how the influence of these determinants is affected by time as the end-user gains experience using the system. The results for TAM2, with respect to subjective norm, are as follows:

- The influence of subjective norm on intentions decreased over time as experience increased;

- Subjective norm only exerts a direct influence over intention in the early usage stage when experience is minimal and usage is mandatory (Venkatesh & Davis, 2000: 198);
- Subjective norm only exerts a direct influence over perceived usefulness in the early usage stage when experience is minimal (Venkatesh & Davis, 2000: 199);
- Subjective norm has a significant direct effect on usage intentions “over and above perceived usefulness and perceived ease of use for mandatory (but not voluntary) systems” (Venkatesh & Davis, 2000: 198);
- Subjective norm was found to have a positive influence on image (Venkatesh & Davis, 2000: 196).

The findings of Venkatesh & Davis (2000: 194-198), and the inclusion of subjective norm in this study’s questionnaire are significant since a voluntary and a mandatory IT system have been selected for assessment. The amended TAM section of the questionnaire incorporates the subjective norm variable through the addition of two statements (Table 3.5).

Table 3.5. Subjective norm from Spacey (2003: 77)

Subjective Norm	Source
People who influence my behaviour at work think that I should use the Internet	Morris & Venkatesh 2000
People who are important to me at work think that I should use the Internet	Morris & Venkatesh 2000

3.3.1.7. Amended TAM Section: Attitude

The attitude construct was included in the questionnaire because a number of studies in the information systems literature used the variable (Davis et al, 1989; Taylor & Todd, 1995 and Morris & Dillon, 1997) and found that attitude had an influence on behavioural intention. The attitude section (Table 3.6) of the questionnaire consisted of five statements scored on a semantic differential scale, which according to Bailey (1987: 359) measure the respondent’s “underlying, perhaps even subconscious, feelings of a subject about a particular concept or word.” The sequence of the five-

attitudinal statements followed the order of the first three eliciting emotional responses from respondents concerning their use of the Internet and BookPlus at work while the remaining two gauged their perceptions about the need for the Internet and BookPlus in the public library.

Table 3.6. Attitude rating categories from Spacey (2003: 78)

Attitudes
<ul style="list-style-type: none">• Negative/Positive• Unpleasant/Pleasant• Unenjoyable/Enjoyable• Unnecessary/Necessary• Optional/Required

3.3.1.8. Respondent Feedback

Following the attitudes section, respondents were given an opportunity to express remarks regarding the questionnaire and its content. A reminder was provided regarding the return procedure, and a thank you was extended for participation in the survey.

3.4. Data Analysis

The quantitative data from the questionnaire was entered into the Statistical Package for the Social Sciences, SPSS, for analysis while the qualitative data from respondents' comments was analysed and recorded separately under appropriate subject headings. Initial statistical analysis included descriptive statistics for the description and comparison of variables numerically. After this exploratory approach, appropriate statistical techniques, such as correlation and factor analysis were used to compare and to look for relationships between variables. Spacey's (2003) methodology was followed closely but critically.

3.4.1. Statistical Methods

3.4.1.1. Descriptive Analysis

To aid in the analysis and summarizing of the collected data and ultimately answer the research questions, initial analysis consisted of descriptive statistical techniques. The choice of specific techniques depended on whether the data type was nominal, ordinal, interval or ratio. Since this study consists only of nominal and ordinal data types, only these will be explained. The data analysed in this section were obtained through the following measurement scales (Fink, 1995: 4-5):

- Nominal scales, which have no numerical value and produce data that fit into mutually exclusive categories such as country of birth;
- Ordinal scales, which have an inherent order among categories, but the actual numerical measure of the category is unknown.

When describing data in terms of the location of the centre of a distribution, in other words central tendency — three measures are employed: mean, median and mode. Saunders et al (1997: 312) define these measures as:

- Mean: value often known as the average and is suitable for interval data (a scale that has equal distances between adjacent numbers);
- Median: middle value or mid-point after the data have been ranked and is suitable for ordinal data;
- Mode: most frequent value and is suitable for nominal data.

3.4.1.2. Exploratory Analysis

Bailey (1987: 370) notes that this technique can take various forms “but generally consists of the analysis of a relationship...between two or more variables.” Bailey asserts that if a significant relationship is found, the next statistic used is coefficients of correlation to determine the strength of the relationship between the variables (1987: 370). Statistical significance or p-value is obtained by “testing the probability of a relationship between variables having occurred by chance” (Saunders et al, 1997: 316). For example, a p-value of .05 indicates that there is a 5% probability that the

relation between the variables in the sample occurred by chance. In this study, significance levels of .05 and lower are reported, which is commonly found “within the social and behavioural sciences” (Saunders et al, 1997: 230).

Since the majority of the variables in the study are ordinal, the Gamma (Γ) measure of association was used to indicate the strength of the relationship. Gamma is a popular choice for analysis with ordinal data because its mathematical formula “takes advantage of the fact that ordinal data can be ranked” (Miller et al, 2002: 143) and because it is “preferable to Spearman Rho or Kendall Tau when the data contain many tied observations” (The Statistics Homepage, 2006). The value of Gamma can be interpreted as “0 representing independence [or no relationship exists], -1 representing perfect negative correlation, and 1 representing perfect positive correlation” (Bailey, 1987: 391). Fink (1995: 32) elaborates further by explaining that “a perfect correlation of +1 means that the value of Y [dependent variable] increases by the same amount for each unit of increase in the value of X [independent variable],” and “a correlation of -1 indicates a perfect inverse relationship, in which the value of the dependent variable decreases by the same amount for each unit increase in the value of the independent variable.” Saunders et al (1997: 321) have classified the Gamma value range as follows: -1 (perfect negative), -0.7 (strong negative), -0.3 (weak negative), 0 (perfect independence); +0.3 (weak positive), +0.7 (strong positive) and +1 (perfect positive). This classification is important for interpreting the correlations obtained through the Gamma measure of association.

The statistical techniques used for the comparison of groups were the Mann-Whitney U test and one-way analysis of variance (ANOVA). Before explaining these two methods, it is important to understand what is meant by variance. Miller et al (2002: 65) explains variance as the measure that informs us of “how widely dispersed the values in a distribution are around the mean” or, put simply, the “average deviation from the mean” (Bailey, 1987: 225).

The Mann-Whitney U test is a nonparametric statistic, which means it is a test that “makes no assumptions about the value of a parameter such as a mean; does not require any assumptions about the shape or distribution of the parent population,” and is used when the data is ordered or ranked (Honert, 1999: 226). Furthermore, the test

is used to compare the median (M) values of two independent groups and “focuses on differences in distributions” (Christensen & Stoup, 1991: 388). The z-score is used as a measure of the strength and direction “by which a score deviates above or below the mean” (Christensen & Stoup, 1991: 89).

Analysis of variance or ANOVA is used for analysing “variations within and between groups of data by comparing means,” and “if the means are significantly different between groups this will be represented by a large F ratio with a probability of less than 0.05” (Saunders et al, 1997: 320). ANOVA provides an overall status of the differences among groups, but will not indicate which groups or pairs of groups are responsible for these differences. A follow-up test or post hoc comparison of the means, such as Tukey’s HSD will assist in determining “the source of the significant F-value; that is, are all the differences we note significant, or just some of them?” (Miller et al, 2002: 148). To assist in clarifying the associations identified by Tukey’s HSD, the correlation proportion, or eta squared (η^2) gives us the proportion of variance (which can be converted to a percentage) or the effect size — a standardized measure of the strength of the relationship between the independent and dependent variable (Bailey, 1987: 396). For example, eta squared (η^2) equalling 0.2 is interpreted as a very large effect representing a 20% proportion of variance in the dependent variable that is explained by the independent variable. The ANOVA statistic was selected as the most appropriate method for identifying correlations between a number of continuous variables. Section 4.4 will elaborate further on the factor analysis process.

The procedure for determining correlations between the TAM total scale scores of the Internet and BookPlus sections was guided by Spacey’s (2003: 92) research project. Pearson’s correlation coefficient (r) was used to uncover relationships between the TAM scales. This method was selected for its flexibility in coping with various data types, in this case continuous variables derived from ordinal data.

3.5. Conclusion

This section presented an explanation of the research strategy undertaken in this project, highlighting the choice of the questionnaire survey as the data collection

instrument, and provided a detailed account of the design and structure of the questionnaire. The quantitative and qualitative methods employed for the processing, analysis and interpretation of the data are chosen with consideration of the aims and objectives of the project. The following section will present and explain the results obtained from the data analysis methods explained in this section.

University of Cape Town

Chapter 4: RESULTS

4.1. Introduction

This chapter presents an overview of the results of the survey: *Public Library Staff: Attitudes to ICT*, together with an analysis of the qualitative information obtained from comment sections strategically positioned throughout the survey. Although the content, scope and purpose of this project is different from that of Spacey's dissertation (2003), the author acknowledges direction taken from Spacey's work with regard to structure, methodology and statistical approach.

The section *Overview of respondents* presents an overview of the characteristics of the survey respondents, including demographics such as gender, age, education, post, duration of employment, and place of work.

The next section *Staff attitudes to ICT and the Internet* ascertains library staff's perceived level of computer proficiency, their reported Internet usage behaviour and staff responses to helping the public use the Internet.

Section 4.4 describes the process of factor analysis as applied to both the Internet and the BookPlus system. Section 4.5 (Internet analysis) presents the results of statistical tests used to detect relationships and explore differences between demographic and organisational factors. Section 4.6 presents a brief summary of the salient findings of the Internet section.

Section 4.7 (BookPlus analysis) reports on the statistical tests used to uncover relationships and patterns between demographic and organisational factors with attitudes. Section 4.8 presents a brief summary of important findings of the BookPlus section.

The conclusion (section 4.9) highlights the main findings of the Internet and BookPlus sections.

4.2. Overview of Respondents

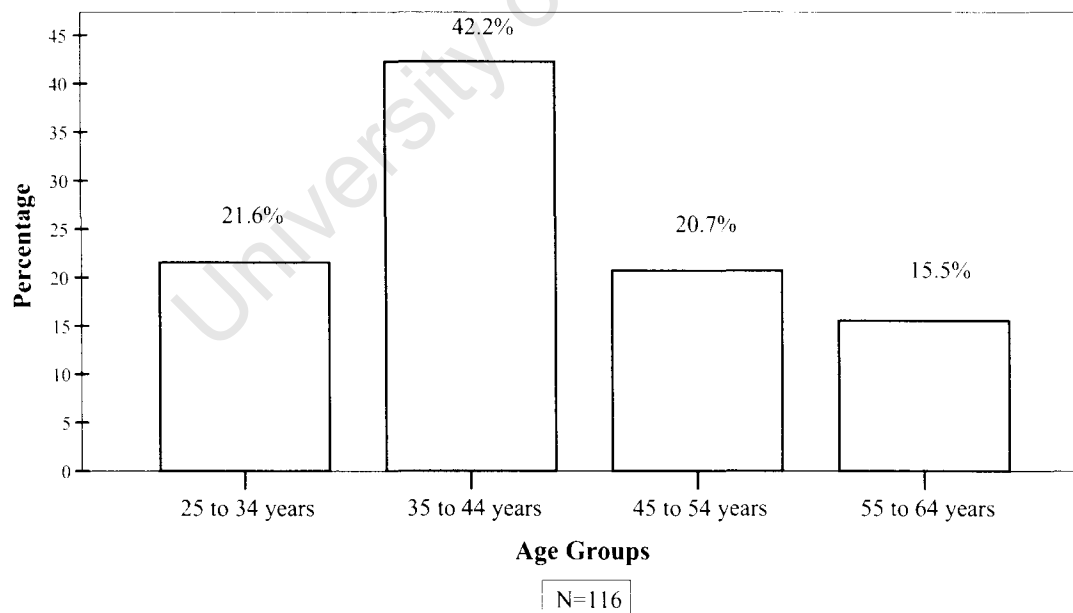
The questionnaire survey was completed by 116 respondents from a total population of 194; a response rate of 59.7%. The questionnaire can be found at Appendix B.

The descriptive measure selected for the presentation of four nominal variables (current post, nature of post and place of work) is the mode, the value occurring most frequently. The median measure, the middle value in a distribution, is used to describe data obtained from ordinal scales (Welman & Kruger, 2001: 203-205).

4.2.1. *Gender and Age*

There were a total of 114 responses consisting of 87 females (76.3%) and 27 males (23.7%). The median age was between 35 and 54 years old (42.2%) (Fig. 4.1).

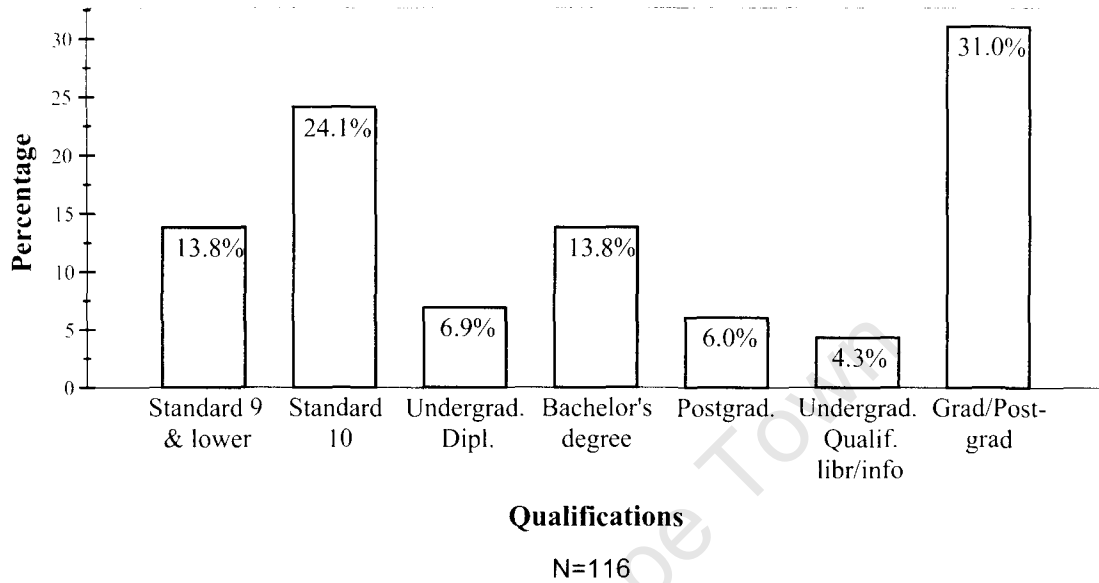
Fig. 4.1. Age of respondents



4.2.2. *Education*

The respondents were asked to indicate the highest level of education achieved. The median qualification completed was a graduate/ post-graduate qualification in library and information studies (Fig. 4.2). A total of 50.8% of respondents had obtained a university qualification

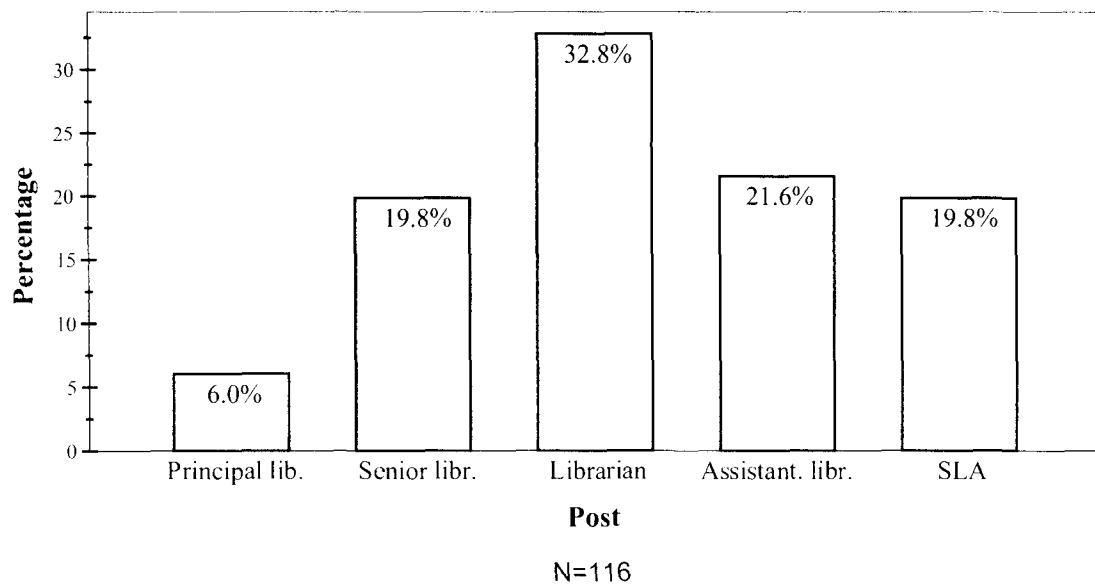
Fig. 4.2. Education level of respondents



4.2.3. Post

The most common post held by the respondents was that of librarian — 32.8% — (23 out of 116) (Fig. 4.3). The senior librarian and senior library attendant positions shared the same proportion (19.8%), while the smallest group was principal librarians with a 6% share.

Fig. 4.3. Post of respondents

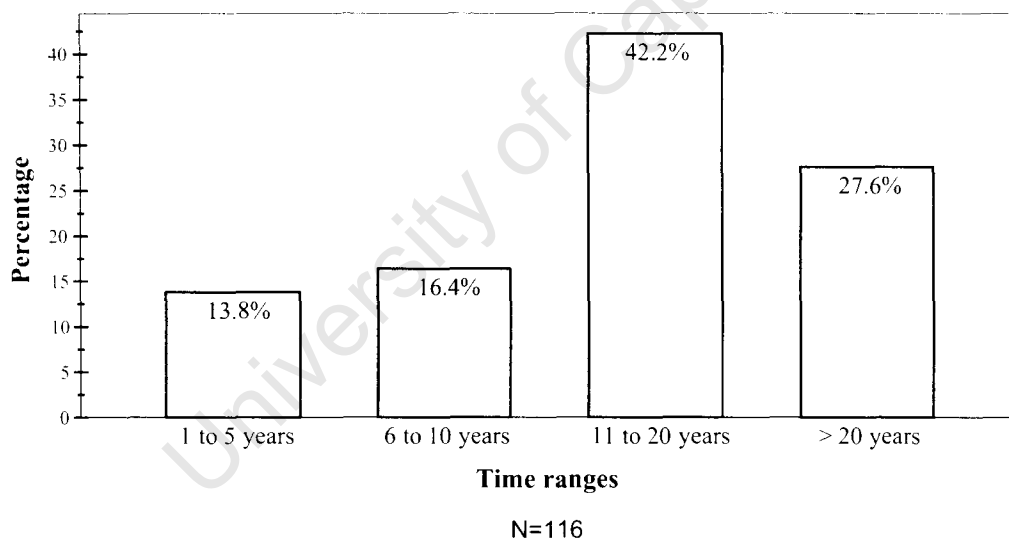


When the respondents were asked to describe the nature of their posts, an overwhelming majority (86.2%) held a full time permanent post. The next significant selection was held by full time temporary respondents (7.9%), while the remaining categories (part time permanent and part time temporary) accounted for 5.9% of the total.

4.2.4. Duration of Employment

The median duration of employment was between 11 and 20 years (42.2%) (Fig. 4.4). The next significant category, greater than 20 years (27.6%), represented an actual count of 32 respondents out of 116.

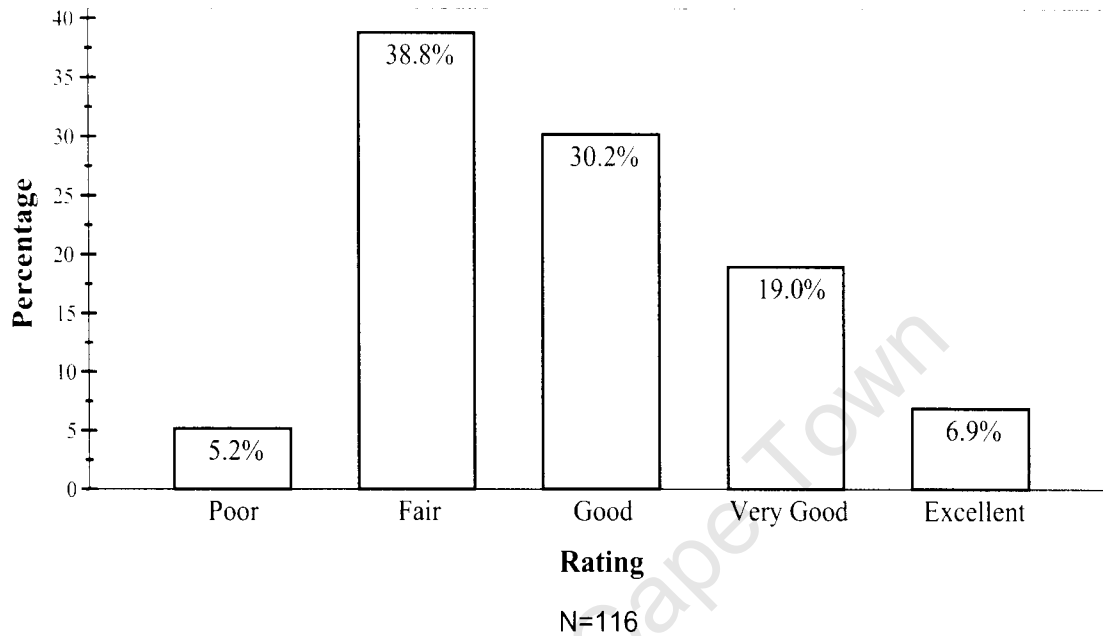
Fig. 4.4. Duration of employment



4.2.5. Place of Work

The most common place of employment was the branch library (70.7%), not surprising since the survey was specifically targeted at the branches where certain libraries are designated district libraries (25%) (Fig. 4.5). A total of 29 respondents come from district libraries.

Fig. 4.6. Proficiency with computers



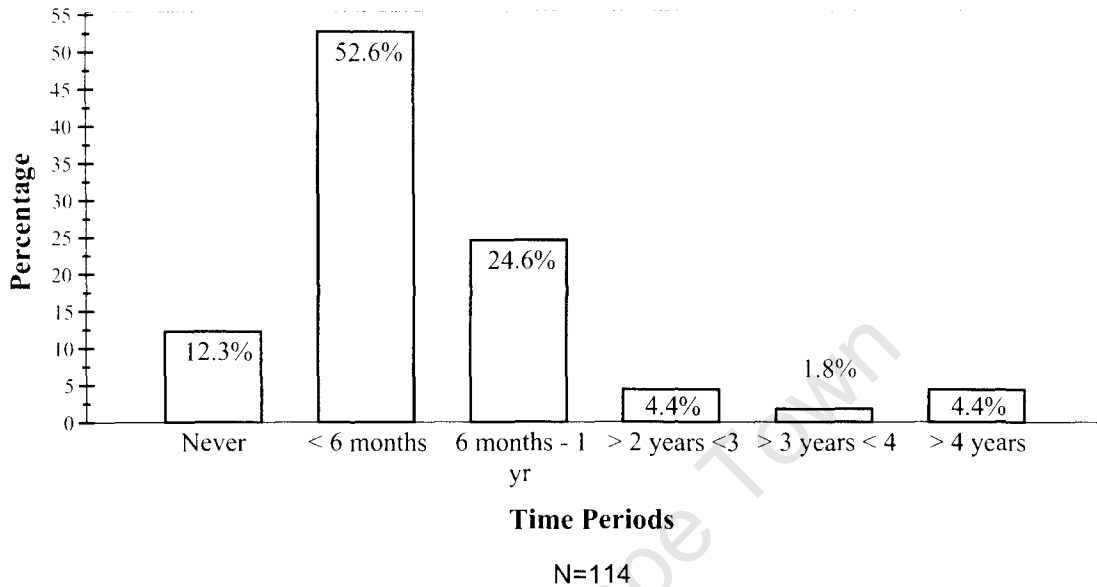
According to survey comments, a number of staff indicated that they either needed training in computers and the Internet or that the training they have received was inadequate:

“My comments are based on the situation as I experience it at this stage. With one training session and a book with guidelines of how to use the Internet, this is not enough for me. As the Internet is extremely slow the staff spends a lot of valuable time waiting for results, neglecting other functions” (Senior librarian, female, full time permanent, branch: survey comments).

“Staff has repeatedly asked for training in computers and specifically Internet, and never received any” (Librarian, female, full time permanent, district: survey comments).

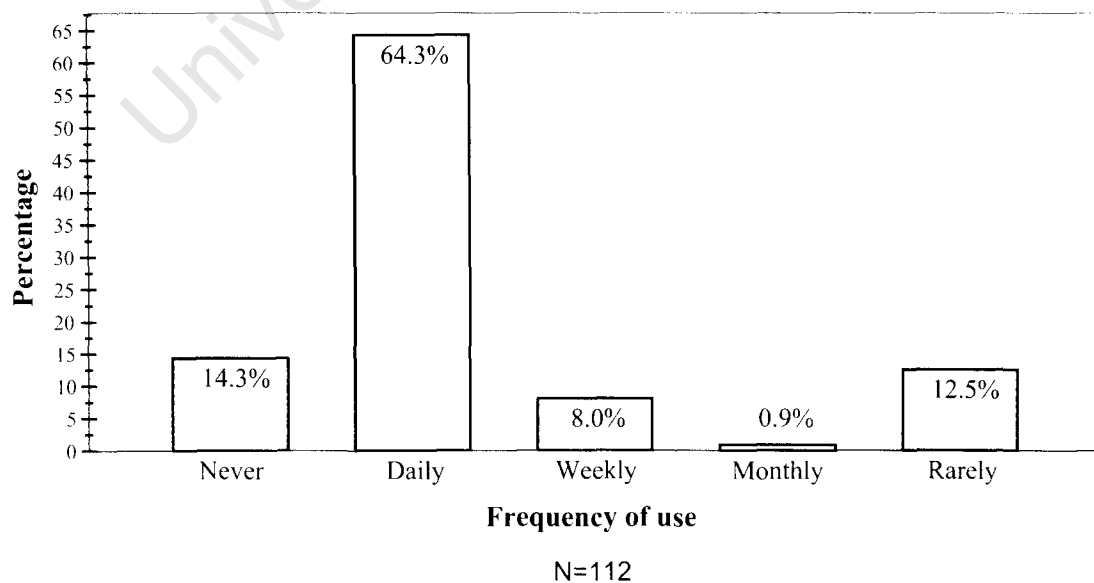
The majority of staff (52.6%) reported having used the Internet for less than six months (Fig. 4.7). While fourteen respondents indicated never using the Internet at work, five respondents indicated having used the Internet for longer than 4 years — the maximum period offered.

Fig. 4.7. Length of time using the Internet



The majority of staff (64.3%) used the Internet on a daily basis, followed by 14% of respondents who never used the Internet, and the remaining 21% of respondents used the Internet either weekly, monthly or rarely (Fig. 4.8).

Fig. 4.8. Frequency of Internet use



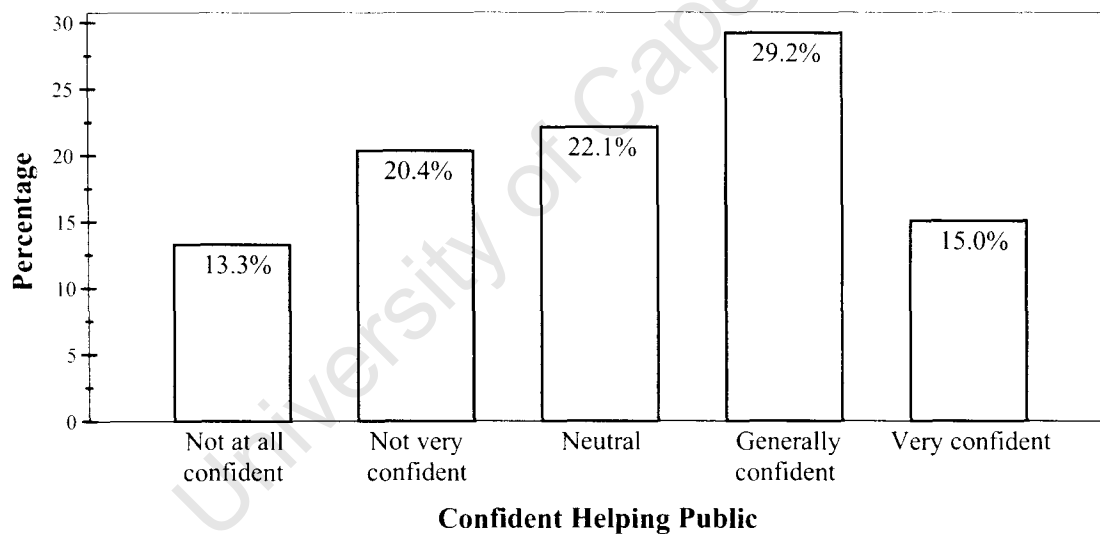
Twenty-three respondents indicated in the survey that the Internet connection was slow. Five respondents blamed staff shortages for not getting a chance to use the Internet and five respondents became frustrated with the slow Internet connection:

“What could be fruitful work becomes a waste of time because of bandwidth frustrations” (Librarian, full time permanent, branch: survey comments).

“I find the Internet slow and we don’t really get a chance to use it in our work environment (yet). I hate waiting for sites to open and generally get bored/ lose interest” (Assistant librarian, full time temporary, branch: survey comments).

“Owing to lack of training and extreme staff shortages, the Internet is not used in our (personal) work at the library. It is mainly for the use and convenience of the public” (Librarian, full time permanent, district: survey comments).

Fig. 4.9. Confidence helping the public



N=113

The median rating was *generally confident* (29.2%) (Fig. 4.9). The proportions were close for the *neutral* (22.1%) and *not very confident* (20.4%) categories, as well as for the *not at all confident* (13.3%) and *very confident* (15%) categories. When the *generally confident* and *very confident* categories were combined a confidence rating of 44.2% was achieved. When the *not at all confident* category was combined with the *not very confident* category a confidence rating of 33.7% was achieved. A weak margin of 11% separates the confident group from the not confident group.

When respondents commented on helping the public use the Internet, feelings were expressed regarding the impact of a slow Internet connection on properly assisting the public with using the Internet; the difficulty of assisting the public with limited staff and being ashamed when not knowing how to assist the public in using the Internet:

“The only access to the Internet is Smartcape [local government Internet access project at public libraries] which is a slow connection and taxing to assist borrowers with queries” (Senior librarian, male, full time permanent, branch: survey comments).

“Our wish is to be able to access knowledge quickly and efficiently and not to feel ashamed in front of borrowers for not being able to help them properly” (Senior librarian, female, full time permanent, branch: survey comments).

This section has shown that most respondents possessed an average confidence with computers; over half of the respondents were new to the Internet experience; most of the respondents used the Internet daily and a neutral position was held by respondents regarding assisting the public use the Internet.

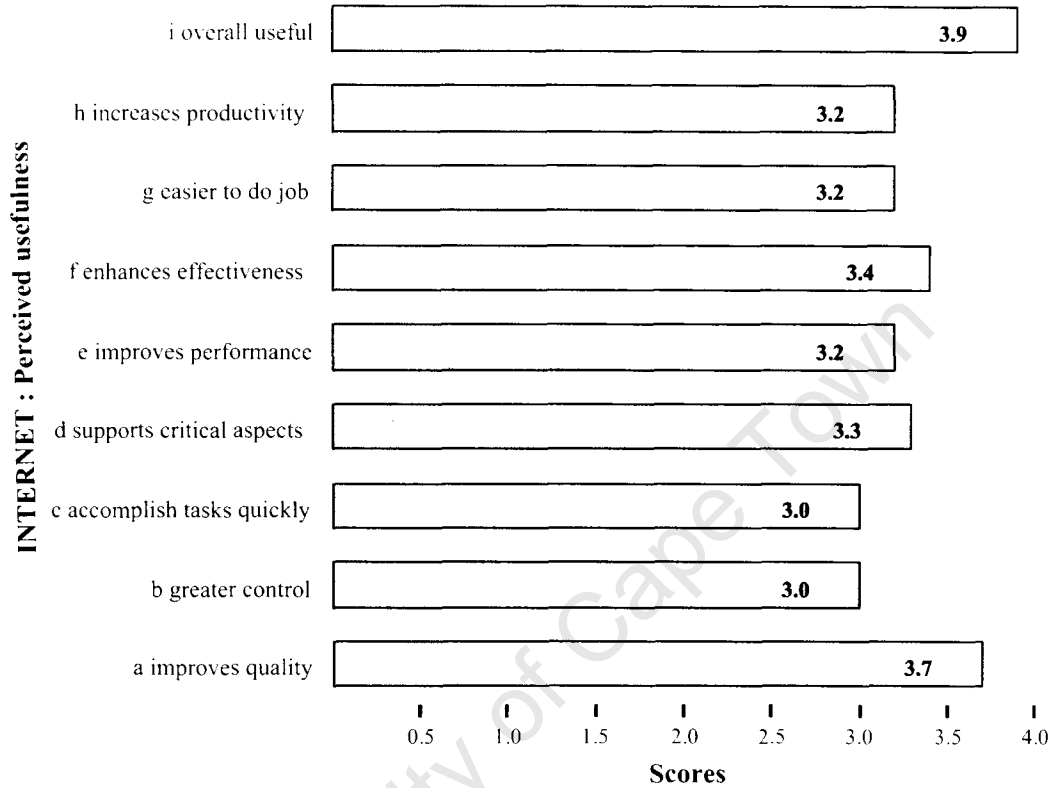
4.3.2. Amended TAM: Attitudes Towards the Internet and BookPlus

This section will evaluate staff perceptions towards using the Internet and the BookPlus LMS at work. An amended TAM model (as was discussed in paragraph 3.3.1.5) evaluating perceived usefulness, perceived ease of use, behavioural intention, subjective norm and attitudes, was used to elicit staff perceptions on a Likert scale ranging from 1 = *strongly disagree* to 2 = *strongly agree*, and a semantic differential scale for the attitude section of the TAM.

4.3.2.1. Internet: Perceived Usefulness

In relation to nine statements expressing perceived usefulness (Fig. 4.10), Likert scores ranged from 3.0 to 3.9.

Fig. 4.10. Internet: Perceived usefulness

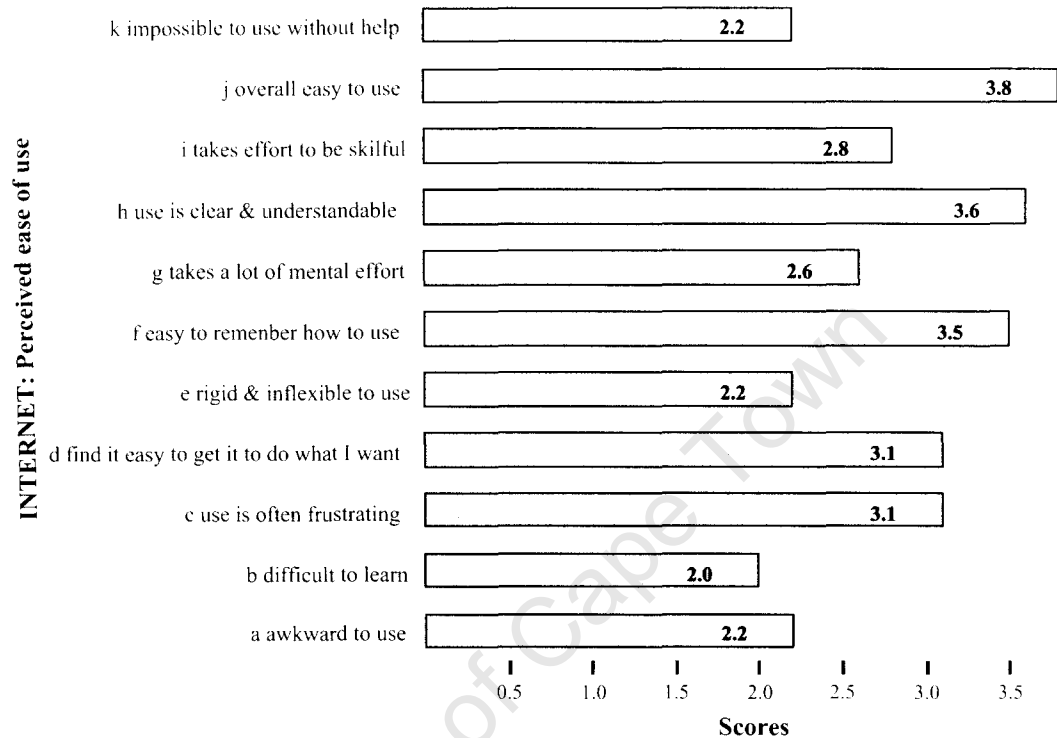


The lowest score of 3.0 came from respondents' feelings about the Internet helping them to *accomplish tasks quickly* and giving them *greater control* over their work. Respondents were more appreciative of the Internet's *overall usefulness* (3.9) and its ability to *improve the quality of work produced* (3.7). The remaining scores, for statements d through f, hovered between 3.2 and 3.4 indicating that respondents rated these less favourably. The perceived usefulness mean score was 3.3.

4.3.2.2. Internet: Perceived Ease of Use

Eleven statements expressed respondents' perceived ease of use. Scores ranged from 2.0 (*difficult to learn* how to use the Internet) to 3.8 (*overall easy to use*) (Fig. 4.11). In this section questions a, b, c, e, g, i and k were negatively worded to prevent respondents selecting one rating choice for all statements.

Fig. 4.11. Internet: Perceived ease of use

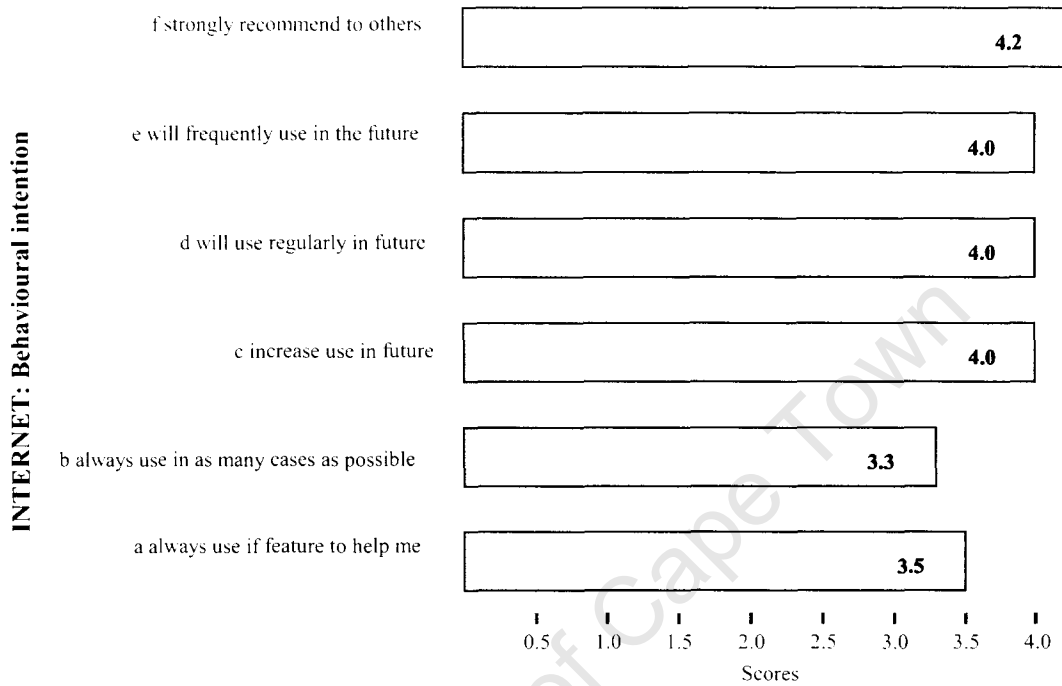


Strong disagreement scores were received for negative statements (*a*, *b*, *e* and *k*) regarding the *mental effort*, *memory*, *flexibility* and *assistance* directed at ease of use functionality of the Internet. A balanced position was held with regards to *use is often frustrating* (3.1) and *find it easy to get it to do what I want* (3.1). Responses to statements *g* and *i* tended to sway more in the direction of *disagree* than *agree*. Respondents were clear about their agreement with the Internet being *easy to remember how to use* (3.5), *is clear and understandable* (3.6) and *overall easy to use* (3.8).

4.3.2.3. Internet: Behavioural Intention

Responses to statements in this section tended to range from mixed perceptions — (*b*) *always use in as many cases as possible* (3.3) to strong agreement — (*f*) *strongly recommend to others* (4.2) (Fig. 4.12). Strong support was given for statements suggesting increased future use of the Internet (*c*, *d* and *e*), and the majority of agreed to *strongly recommend* (4.2) use of the Internet to others.

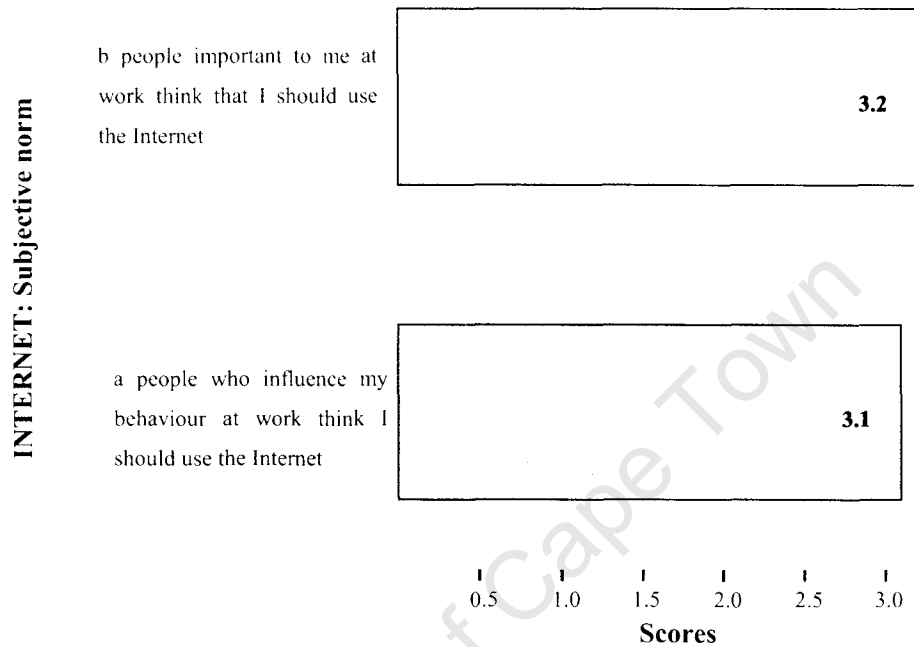
Fig. 4.12. Internet: Behavioural intention



4.3.2.4. Internet: Subjective Norm

This section used two statements to determine the measure of influence that peers exerted on the respondents with regards to using the Internet (Fig. 4.13). The close scores (3.1 and 3.2) for both statements and the fact that the actual numbers favoured agreement towards the two statements, suggest that the respondents were to some extent influenced by their peers. For each statement, seventeen respondents did not complete this section because they had no Internet access or did not use it at the library.

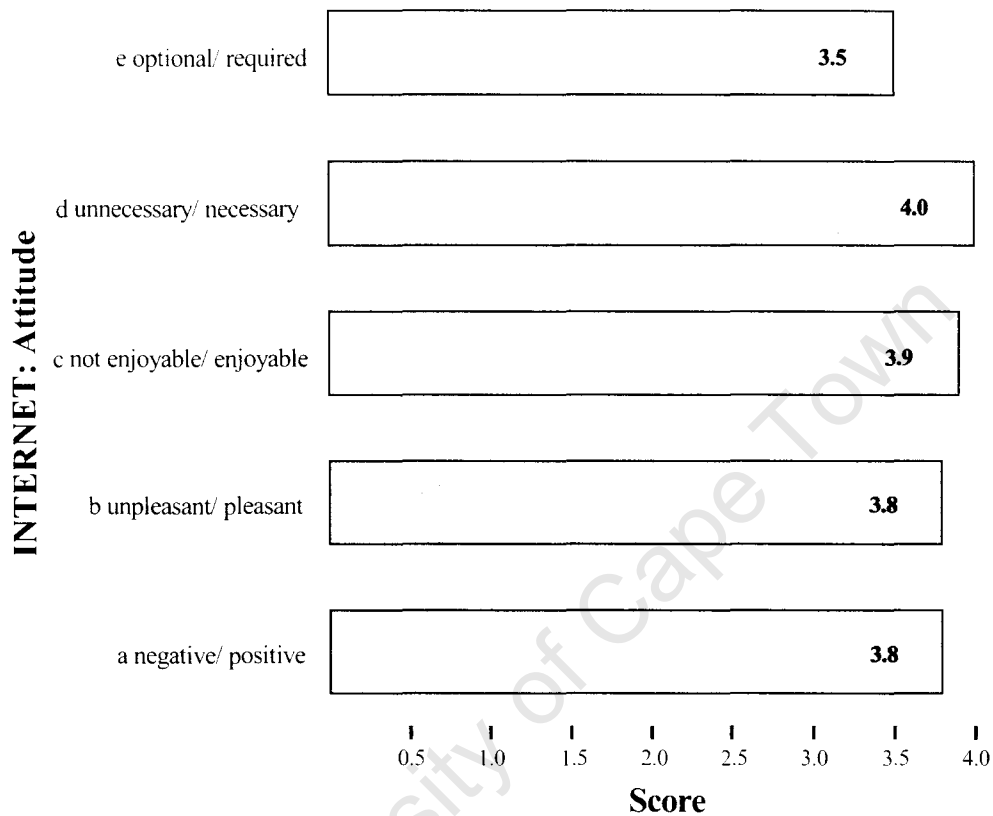
Fig. 4.13. Internet: Subjective norm



4.3.2.5. Internet: Attitudes

In this section, the measurement of attitudes was scored on a semantic differential scale (Fig. 4.14). The scores were generally positive for all statements with the highest score (4.0) supporting the necessity of Internet use at work. Respondents felt that their use of the Internet at work was *quite pleasant* (3.8), *quite enjoyable* (3.9) and *quite positive* (3.8) while a score of 3.5 for *optional/required* suggests that an indifferent position was held by respondents for statement e.

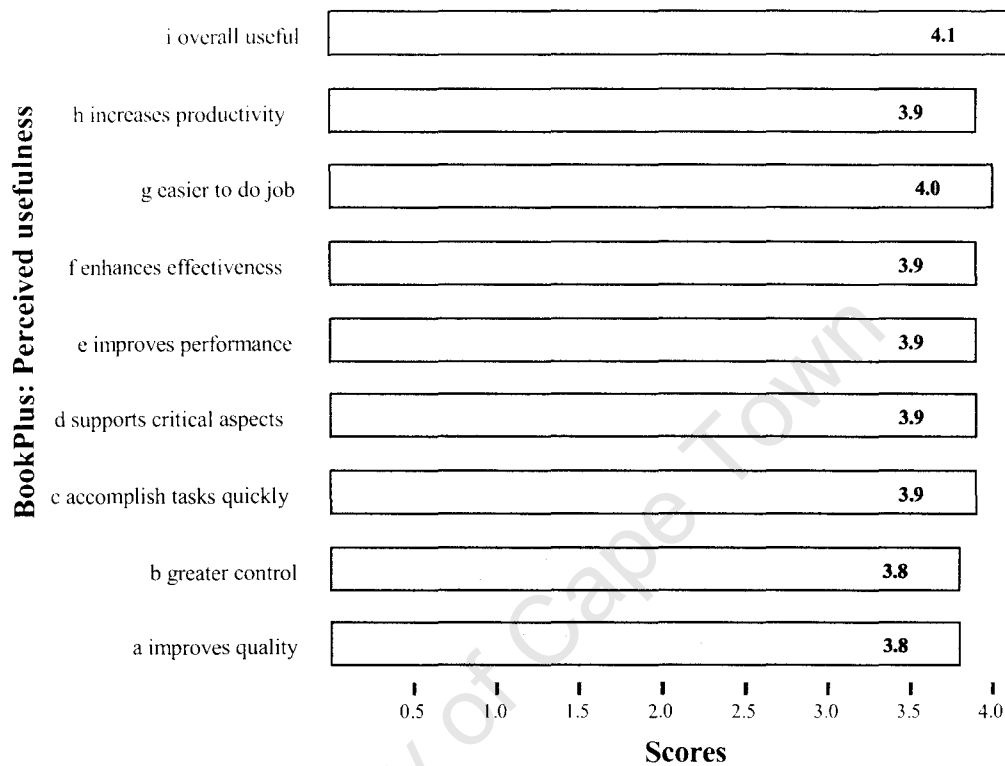
Fig. 4.14. Internet: Attitudes



4.3.2.6. BookPlus: Perceived Usefulness

The BookPlus perceived usefulness mean score of 3.9 is substantially higher than the Internet's perceived usefulness mean score of 3.3, which could be attributed to BookPlus being used in the libraries for fourteen years, as well as its mandatory usage attribute (Fig. 4.15). The highest score of 4.1 for *overall usefulness* validates the general, strong feeling from respondents that the BookPlus system is very useful in the library.

Fig. 4.15. BookPlus: Perceived usefulness



Staff comments regarding the functionality of BookPlus ranged from negative concerns about the rigid menu system, the steep learning curve, the limited database, its outdated status and its inability to communicate with other LMS.

“BookPlus is easy to use but very limited” (Senior librarian, branch: survey comments).

“I think that although this system might appear old and outdated it is very reliable in terms of how one retrieves information etc” (Librarian, full time, permanent, district: survey comments).

“Slow and outdated; lack of information keeps one in the dark; and difficult because BookPlus and Pals [refer to paragraph 1.2] don’t talk to each other” (Senior librarian, full time, permanent, district: survey comments).

“BookPlus can be very limiting i.e. one does not have access to a wider database for information” (Senior librarian, full time, permanent, mobile: survey comments).

“It is a pain to teach new people — it’s not self-explanatory.” (Librarian, full time, permanent, district: survey comments).

An equal proportion of staff commented positively on BookPlus, noting its vital role in the library, easy navigation system, advantages over the old card system and that its mandatory nature has made it integral to the functioning of the library service.

“BookPlus is invaluable in our present library setup” (Librarian, full time, permanent, district: survey comments).

“As a matter of fact this was the best thing done for libraries — it opened the window of possibilities to acquire knowledge much quicker and more comprehensive than any card system” (Senior librarian, full time, permanent, branch: survey comments).

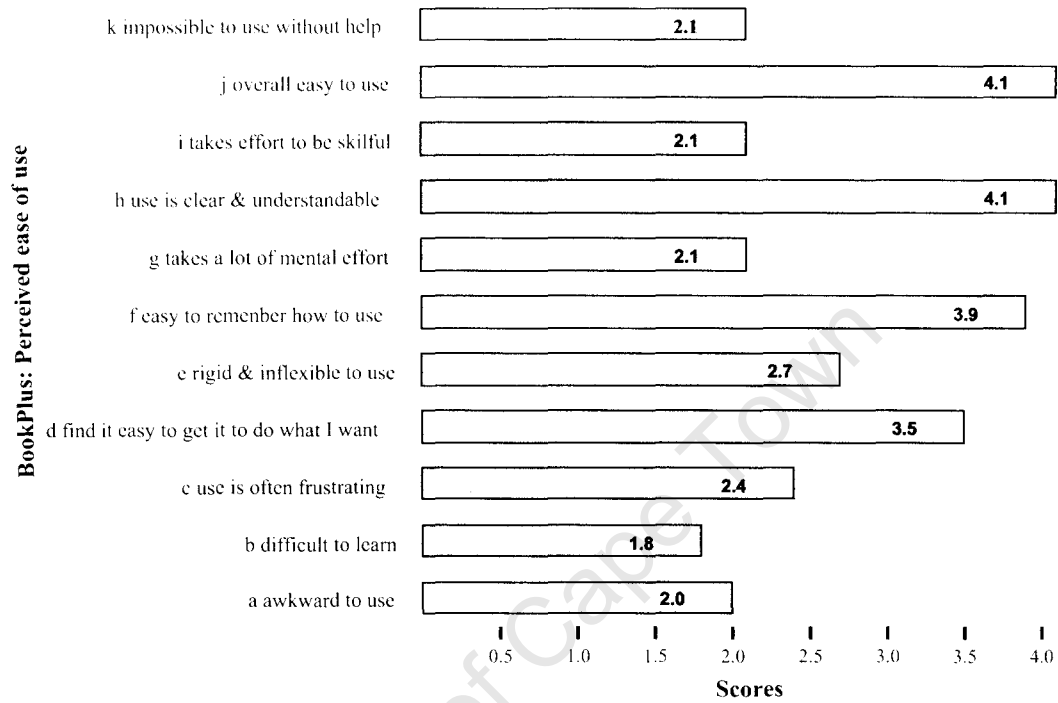
“If you don’t know how to use BookPlus it’s very easy to follow just the instructions at the bottom of the screen even without the help of a librarian that is the very easiest and accessible catalogue I have used in libraries” (Assistant librarian, full time, temporary, branch: survey comments).

“[My] replies influenced by the fact that BookPlus is the only system I am familiar with. I rave because used to this system and use of it has become second nature” (Principal librarian, full time, permanent, district: survey comments).

4.3.2.7. BookPlus: Perceived Ease of Use

Once again the scores overwhelmingly support the ease of use nature of the BookPlus system with high scores of agreement for positive ease of use statements ($d=3.5$, $f=3.9$, $h=4.1$, $j=4.1$), and low disagreement scores for negative ease of use statements ($a=2.0$, $b=1.8$, $c=2.4$, $e=2.7$, $g=2.1$, $i=2.1$ and $k=2.1$)(Fig. 4.16). For both, perceived usefulness and ease of use, the *overall* statements are the highest and the same — 4.1.

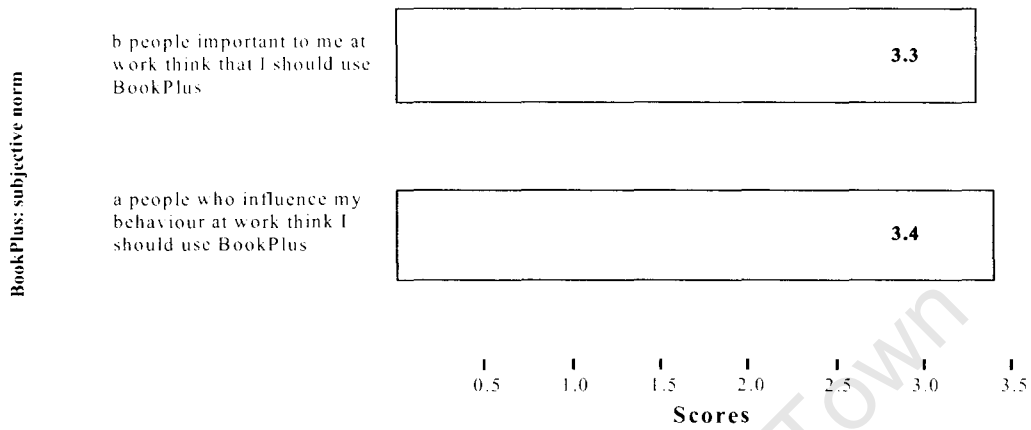
Fig. 4.16. BookPlus: Perceived ease of use



4.3.2.8. BookPlus: Subjective Norm

The mean subjective norm score for the BookPlus system is 3.4, only marginally higher than the Internet's subjective norm score of 3.2 (Compare Fig. 4.17 with 4.13). There is strong agreement among respondents that peers exert a strong influence over their decision to use the BookPlus system at work. The mandatory nature of the system and management's persuasive endorsement of it could explain respondent's strong, positive feelings regarding these two statements.

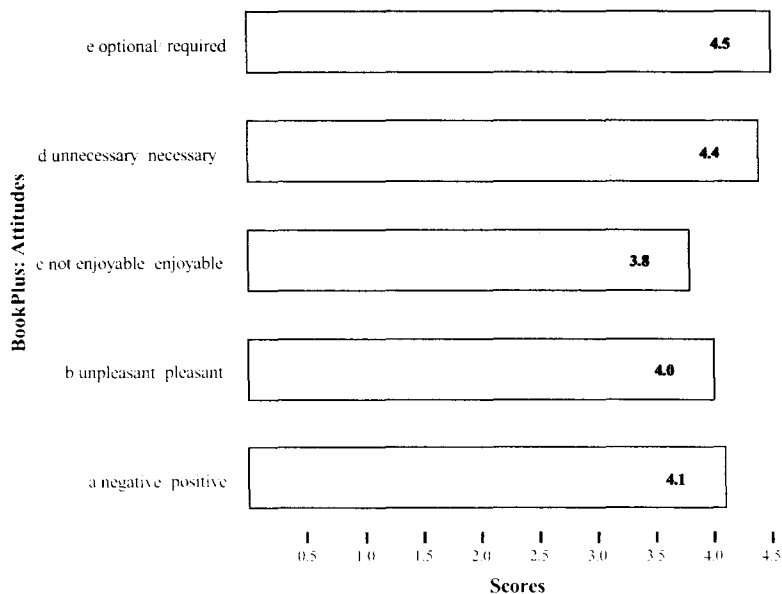
Fig. 4.17. BookPlus: Subjective norm



4.3.2.9. BookPlus: Attitudes

The respondents indicated strong emotional responses (statements *a*, *b* and *c*) towards the use of the BookPlus system at work, favouring the positive, right-hand side of the Likert scale (Fig. 4.18). The respondents indicated that their use of the BookPlus system at work was *extremely necessary* (4.4) and *extremely required* (4.5), which conforms to the mandatory nature of the system.

Fig. 4.18. BookPlus: Attitudes



4.3.2.10. Summary

This section combined the findings of staff perceptions of their usage of the Internet and the BookPlus system, which was derived from an amended TAM model. The respondents were strongly in favour of the Internet being useful and easy to use, and intended to recommend its use to others and increase their use of it in the future. Due to the mandatory usage requirements and persuasive endorsement from management of the BookPlus system, scores for all sections of the amended TAM were marginally higher for BookPlus than the Internet.

4.4. Factor Analysis and Reliability Testing of the TAM

This section describes the factor analysis process undertaken as a means of reducing a large set of variables into a smaller set of factors or components, which will assist in “simplifying the relationships and identifying within them what factors, or common patterns of association between groups of variables, underlie the relationships” (Miller et al, 2002: 174).

The reliability of the TAM was demonstrated by comparing the study’s Cronbach coefficient alpha score for the five TAM sections against the scores of similar studies, as will be seen in Table 4.3. Cronbach’s ALPHA, a “fairly standard [test] in most discussions of reliability,” measures the average correlation of the items within a test, and is rated against a scale where 0 represents no consistency and 1 represents perfect consistency (Moore & Benbasat, 1991: 205). Comrey (1973, cited by Moore & Benbasat, 1991: 207) “indicated that loadings in excess of 0.45 could be considered fair, greater than 0.55 good, 0.63 very good, and 0.71 excellent.”

4.4.1. Factor Analysis

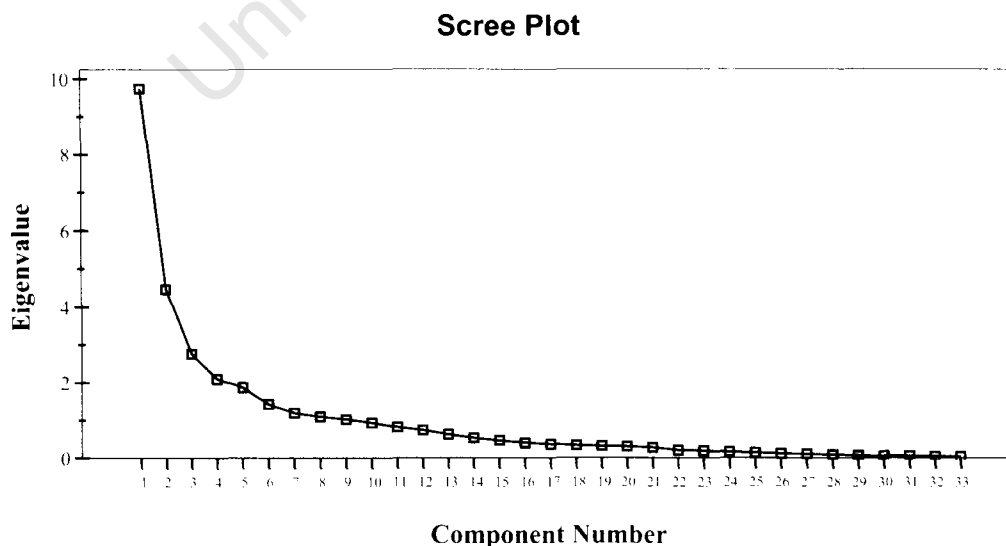
The Internet and BookPlus TAM sections were subjected to correlation analysis and two tests specifically for suitability of the data for factor analysis. The correlation matrix — a table that shows “the correlations among all pairs of variables to be analysed” (Bailey, 1987: 353) — revealed many coefficients of 0.3 and above for both the Internet and BookPlus TAM sections. According to Moon & Kim (2001: 223)

two popular methods may be used to examine the entire correlation matrix “to validate [the] appropriateness of [the data] for factor analysis. The first method is the Kaiser-Meyer-Oklin (KMO) score, a standard statistical method used to predict whether data are likely to factor well. The overall KMO score should be 0.6 or higher to proceed with factor analysis. This study generated scores of .730 and .823 for the Internet and BookPlus, respectively. The second method, Bartlett’s Test of Sphericity tests the strength of relationships among variables. A significance score less than .05 indicates probable significant relationships among the variables (SPSS 13.0 for Windows software, 2004). A significant score of .000 was obtained for both the Internet and BookPlus. The results clearly indicate the suitability of the TAM data for factor analysis.

4.4.1.1. Factor Analysis: Internet

Five suitable factors emerged after the data reduction procedure, principal component extraction, was generated using SPSS (Table 4.1). The scree plot diagram also revealed a break around the fifth and sixth component (Fig. 4.19).

Fig. 4.19. Internet: Screeplot of the eigenvalues of the factors



4.4.1.2. Internet: Naming the Factors

Factor 1 included all the perceived usefulness statements and one perceived ease of use statement. After rotation, the highest factor loadings included effectiveness, overall useful, easier to do job and improve performance whilst the ease of use statement was finding it easy to get it to do what I want (Table 4.1). Since this factor loaded heavily on the usefulness statements it was named — Internetf1: perceived usefulness.

Factor 2 loaded heavily on four of the five attitude statements (a to d), and included two weak loadings on behavioural intention statements a and b (.444 and .448 respectively). As a result of this factor favouring the attitude statements, it was aptly named — Internetf2: attitude.

Factor 3 loaded exclusively on seven of the eleven ease of use statements, and accordingly was named — Internetf3: perceived ease of use.

Factor 4 loaded heavily and exclusively on five of the six behavioural statements, and accordingly was named — Internetf4: behavioural intention.

Factor 5 loaded fairly heavily and exclusively on both subjective norm statements, and accordingly was named — Internetf5: subjective norm.

Table 4.1. Internet: rotated component matrix of the five-factor solution

	Rotated Component Matrix				
	1	2	3	4	5
PERCEIVED USEFULNESS					
a improves quality	.824				
b greater control	.788				
c accomplish tasks quickly	.770				
d supports critical aspects	.829				
e improves performance	.831				
f enhances effectiveness	.932				
g easier to do job	.850				
h increases productivity	.829				
i overall useful	.867				
PERCEIVED EASE OF USE					
a awkward to use			.653		
b difficult to learn			.693		
c use is often frustrating			.504		
d find it easy to get it to do what I want	.471				
e rigid & inflexible to use			.534		
f easy to remember how to use					
g takes a lot of mental effort			.663		
h use is clear & understandable					
i takes effort to be skilful			.743		
j overall easy to use					
k impossible to use without help			.590		
BEHAVIOURAL INTENTION					
a always use if feature to help me		.444			
b always use in as many cases as possible		.448		.529	
c increase use in future				.857	
d will use regularly in future				.763	
e will frequently use in the future				.487	
f strongly recommend to others				.735	
SUBJECTIVE NORM					
a people who influence my behaviour at work think I should use the Internet					.696
b people important to me at work think I should use the Internet					.567
ATTITUDE					
a negative/ positive		.701			
b unpleasant/ pleasant		.785			
c not enjoyable/ enjoyable		.779			
d unnecessary/ necessary		.545			
e optional/required					

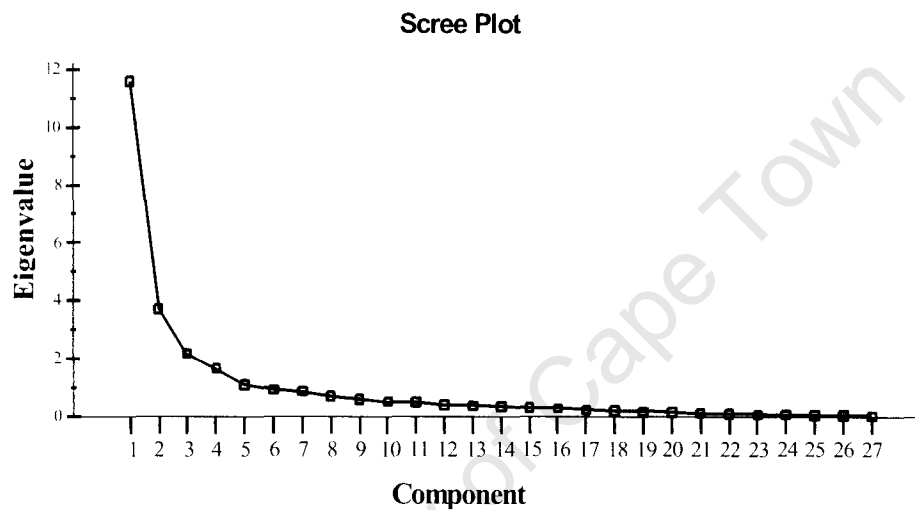
Extraction Method: Principal Component Analysis
 Rotation Method: Varimax with Kaiser Normalization
 a. Rotation converged in 8 iterations.

4.4.1.3. Factor Analysis: BookPlus

The principal component extraction method revealed five components, but guided by the screeplot graphic and performing numerous extraction and rotation techniques, it was decided to retain 3 components (Table 4.2), which were then subjected to Promax

rotation for easier interpretation (Fig. 4.20). The behavioural intention scale was omitted from the TAM section of BookPlus because of the system's long usage record and its mandatory usage status in the library service. An attitude factor could not be identified because the attitude statements did not load strongly on only one factor.

Fig. 4.20. BookPlus: screeplot of the eigenvalues of the factors



4.4.1.4. BookPlus: Naming the Factors

Factor 1 loaded heavily and exclusively on all nine perceived usefulness statements (Table 4.2). The highest factor loadings included accomplishing tasks quickly (.991), enhance effectiveness (.939) and improve quality (.915). Since this factor loaded heavy on the usefulness statements it was named — BPf1: perceived usefulness.

Factor 2 loaded heavily and exclusively on five ease of use statements with highest loadings on *takes a lot of mental effort* (.790), *takes effort to be skilful* (.789) and *impossible to use without help* (.784). As a result of this factor favouring ease of use statements, it was aptly named — BPf2: perceived ease of use.

Factor 3 loaded heavily on the two subjective norm statements (.715 and .701 respectively), as well as attitude statements d and e (.831 and .754 respectively). For purposes of this study, factor 3 was named — BPf3: subjective norm. As noted in paragraph 2.5.4.2, subjective norm is an influential variable operating within mandatory systems, such as BookPlus.

Table 4.2. BookPlus: Pattern matrix of the three factor solution

	Pattern Matrix		
	1	2	3
PERCEIVED USEFULNESS			
a improves quality	.915		
b greater control	.912		
c accomplish tasks quickly	.991		
d supports critical aspects	.858		
e improves performance	.899		
f enhances effectiveness	.939		
g easier to do job	.905		
h increases productivity	.885		
i overall useful	.686		
PERCEIVED EASE OF USE			
a awkward to use		.562	
b difficult to learn		.665	
c use is often frustrating			
d find it easy to get it to do what I want			
e rigid & inflexible to use			
f easy to remember how to use			
g takes a lot of mental effort		.790	
h use is clear & understandable			
i takes effort to be skilful		.789	
j overall easy to use			
k impossible to use without help		.784	
SUBJECTIVE NORM			
a people who influence my behaviour at work think I should use BookPlus			.715
b people important to me at work think I should use BookPlus			.701
ATTITUDE			
a negative/ positive			
b unpleasant/ pleasant			
c not enjoyable/ enjoyable			
d unnecessary/ necessary			.831
e optional/required			.754

Extraction Method: Principal Component Analysis
 Rotation Method: Promax with Kaiser Normalization
 a. Rotation converged in 8 iterations.

4.4.2. Reliability of the TAM

To test the reliability of the TAM for both the Internet and BookPlus, a comparison of the Cronbach's coefficient alpha for all TAM sections was made with similar credible studies (Table 4.3).

Table 4.3. Reliability of the TAM: Internet and BookPlus

TAM sub scales (Internet)	Cronbach alpha coefficient	This study
Perceived usefulness	0.95 (8 items) Agarwal & Prasad (1999)	0.95 (9 items)
Perceived ease of use	0.87 (4 items) Agarwal & Prasad (1999)	0.32 (11 items)
Behavioural intention	0.87 (6 items) Spacey (2003)	0.79 (6 items)
Subjective norm	0.92 (2 items) Spacey (2003)	0.87 (2 items)
Attitude	0.82 (5 items) Spacey (2003)	0.82 (5 items)

TAM sub scales (BookPlus)	Cronbach alpha coefficient	This study
Perceived usefulness	0.95 (8 items) Agarwal & Prasad (1999)	0.98 (9 items)
Perceived ease of use	0.87 (4 items) Agarwal & Prasad (1999)	0.53 (11 items)
Subjective norm	0.92 (2 items) Spacey (2003)	0.95 (2 items)
Attitude	0.82 (5 items) Spacey (2003)	0.86 (5 items)

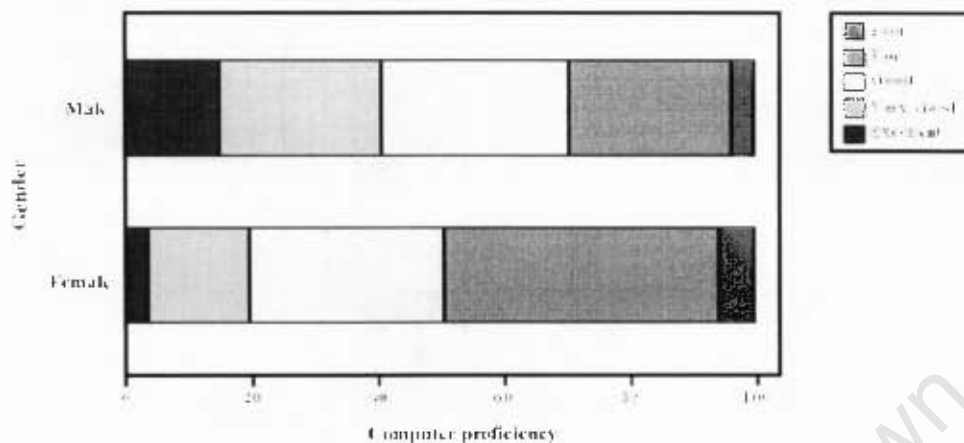
4.5. Analysis: Influences on Public Library Staff Attitudes to the Internet

This section will analyse the data from the questionnaire to detect relationships and explore differences among the demographic and organisational factors and staff attitudes to the Internet. Only significant results, as they pertain to the aims of the investigation, from numerous tests will be presented together with a brief discussion of the effects of the findings on staff attitude and behaviour.

4.5.1. Gender and ICT

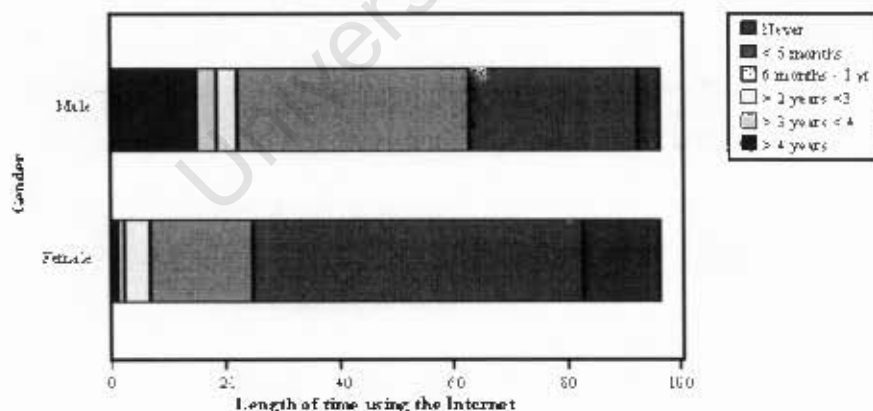
Women who considered their computer proficiency *fair* (43.7%) were substantially more than the men (25.9%) whilst more men rated their proficiency higher (25.9% for *very good* and 14.8% for *excellent*) than women (16.1% for *very good* and 3.4% for *excellent*) (Fig. 4.21). The Gamma (Γ) statistic for significance ($p = 0.03$) revealed a relationship between the two variables, but the Gamma value (0.4) indicated a moderate relationship between the two variables. The implications of these findings will be discussed in chapter 5.2.1.1.

Fig. 4.21. Gender and computer proficiency



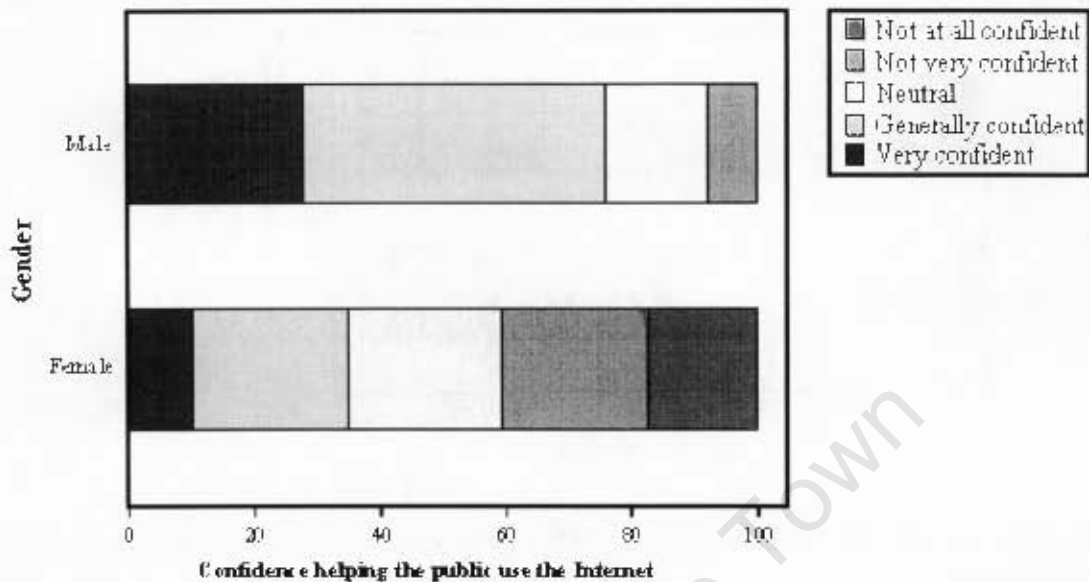
As for the length of time using the Internet at work, more women had been using the Internet for less than six months (60.5%) as compared to men (30.8%), and 15.4% of men indicated using the Internet for more than four years, compared to 1.2% of women (Fig. 4.22). The results from the Gamma statistic ($p < 0.001$; $\Gamma = 0.6$; $n = 112$) indicated a strong positive relationship between gender and length of time using the Internet, with males generally having used the Internet longer than females.

Fig. 4.22. Length of time using the Internet



With regard to confidence in helping the public use the Internet, more men were generally confident (48%) and very confident (28%) as compared to women — 24.4% and 10.5% respectively (Fig. 4.23). More women than men felt *not at all confident* (17.4%) and *not very confident* (23.3%) as compared to men — 0% and 8% respectively. The results from the Gamma statistic ($p < 0.001$; $\Gamma = 0.6$; $n = 111$) indicated a strong, positive relationship between gender and confidence with helping the public use the Internet, with males being generally more confident than females.

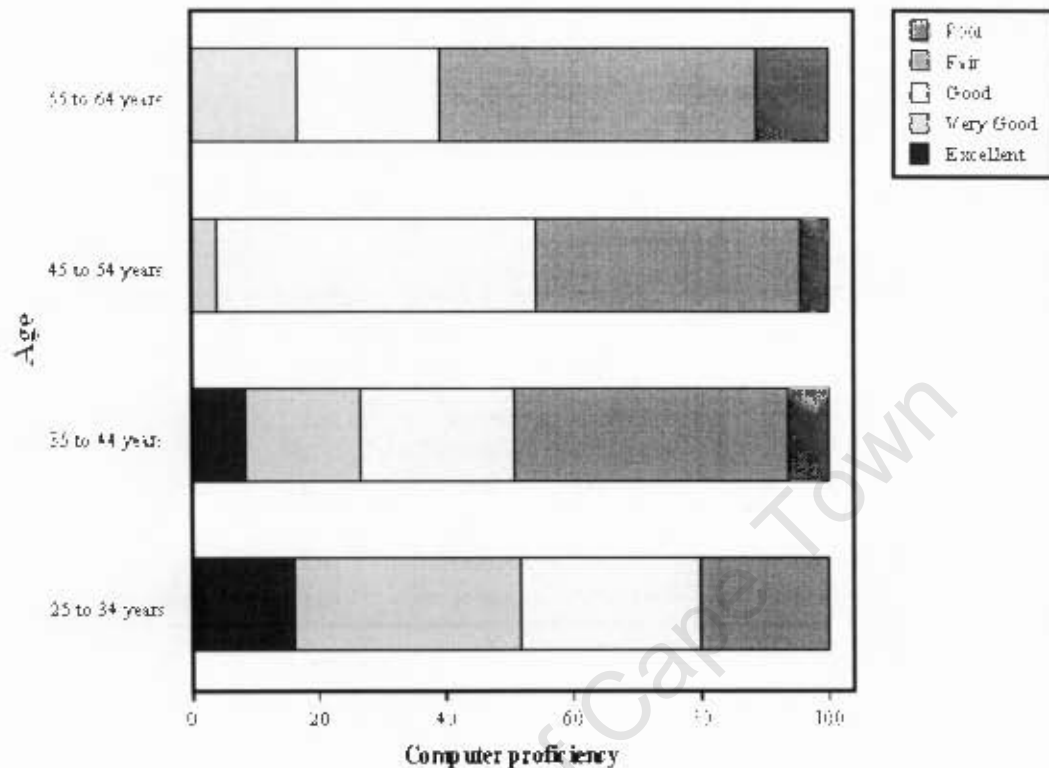
Fig. 4.23. Confidence helping the public use the Internet



4.5.2. Age and ICT

The Gamma statistic revealed a negative relationship of moderate strength between age and computer proficiency, $\Gamma = -3.7$; $p < 0.001$, $n = 116$ (Fig. 4.24). Perceptions regarding proficiency seem to be high among the 25 to 34 year olds with 36% rating their skills as *very good* and 16% as *excellent* whilst among the 55 to 64 year olds, 17% rated their skills as *very good* and 0% as *excellent*. Within the 55 to 64 year olds, 11% rated their skills as *poor* and 59% as *fair*. In comparison, 0% of the 25 to 34 year olds rated their skills as *poor* and 20% as *fair*. The youngest age group was therefore shown to be generally the most computer proficient.

Fig. 4.24. Age and computer proficiency



One-way analysis of variance was used to determine differences between the age groups and the five factor scores. The only significant difference uncovered was with the mean subjective norm scores for the four age groups $F(5,424) = 2.77, p < 0.05, n = 61$ (Table 4.4). Post-hoc comparisons using the Tukey HSD test indicated that the mean subjective norm scores for the 55 to 64 and 45 to 54 year olds ($M = 0.58, SD = 0.68$ and $M = 0.93, SD = 1.5$) were significantly higher than those aged 35 to 44 years ($M = -0.33, SD = 0.9$) whilst respondents aged 25 to 34 years did not differ significantly with any of the age groups. The strength of the association, measured as Eta squared ($\eta^2 = 0.22$), indicated a strong effect size that can be interpreted as age accounting for 22 per cent of the variance in subjective norm scores. The implications of these findings are discussed in chapter 5.2.1.2.

Table 4.4 ANOVA: Age and subjective norm

ANOVA					
Internet5: subjective norm					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13.326	3	4.442	5.424	.002
Within Groups	46.674	57	.819		
Total	60.000	60			

Table 4.5. Tukey HSD: age and subjective norm

Multiple Comparisons

Dependent Variable: Internet5:subjective norm
Tukey HSD

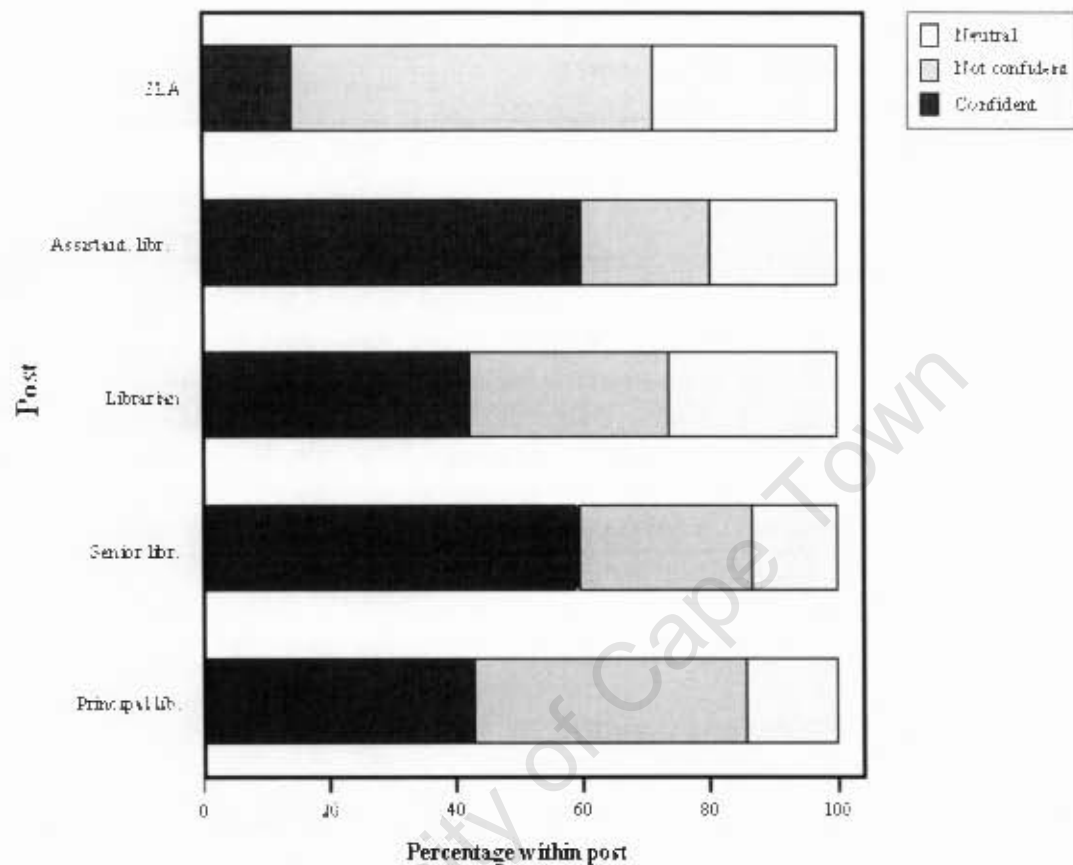
(I) Age Groups	(J) Age Groups	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
35 to 44 years	25 to 34 years	-.10989324	.30047216	.965	-.9060849	.6852954
	45 to 54 years	-.12675879 *	.40466519	.014	-1.3368716	1.083942
	55 to 64 years	-.91015107 *	.30960342	.022	-1.7351322	-.1001700
45 to 54 years	25 to 34 years	1.15796065	.44661345	.057	-.0239611	2.3390404
	35 to 44 years	1.25780289 *	.40466519	.014	-.1968942	2.7088716
	55 to 64 years	.34973182	.45245179	.866	-.8476699	1.5471336
55 to 64 years	25 to 34 years	.80825783	.36725135	.127	-.1504308	1.7669465
	35 to 44 years	.91815107 *	.30960342	.022	-.001700	1.7361322
	45 to 54 years	-.34973182	.45245179	.866	-1.5471336	.8476699

*. The mean difference is significant at the .05 level.

4.5.3. Post and ICT

The rating categories for confidence in helping the public use the Internet were combined and recoded for statistical purposes. The result was that *not confident* replaced *not at all confident* and *not very confident*, and *confident* replaced *generally confident* and *very confident*. The Gamma statistic revealed a weak, negative relationship between post and confidence in helping the public use the Internet, $\Gamma = -.199$; $p = 0.05$, $n = 113$ (Fig. 4.25). More than half of the senior library attendants (57.1%) did not feel confident about helping the public use the Internet, and only 14.3% indicated that they were confident helping the public. Assistant librarians constituted 60% of those who felt *confident* (the largest proportion of all categories), and 20% of those who were *not confident* (the smallest proportion of all categories).

Fig. 4.25. Post and confidence helping the public use the Internet



The ANOVA statistic was used to explore differences between current post and the five factors. A significant difference was found between post and subjective norm but not with the other four factors, $F(3.384) = 2.54, p < 0.05, n = 61$ (Table 4.6). Post-hoc comparisons using the Tukey HSD revealed a significant difference with regards to subjective norm between senior library attendants and librarians ($p = 0.014$) (Table 4.7). The gross differences between the mean levels of the subjective norm variable indicate that senior library attendants' score higher than librarians, suggesting that senior library attendants are more prone to social influences at work than librarians.

Table 4.6. ANOVA: Post and subjective norm

ANOVA					
Internet5.subjective norm					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	11.681	4	2.920	3.384	.015
Within Groups	48.319	56	.863		
Total	60.000	60			

Table 4.7. Tukey HSD: Post and subjective norm

Multiple Comparisons

Dependent Variable: Internet5:subjective norm
Tukey HSD

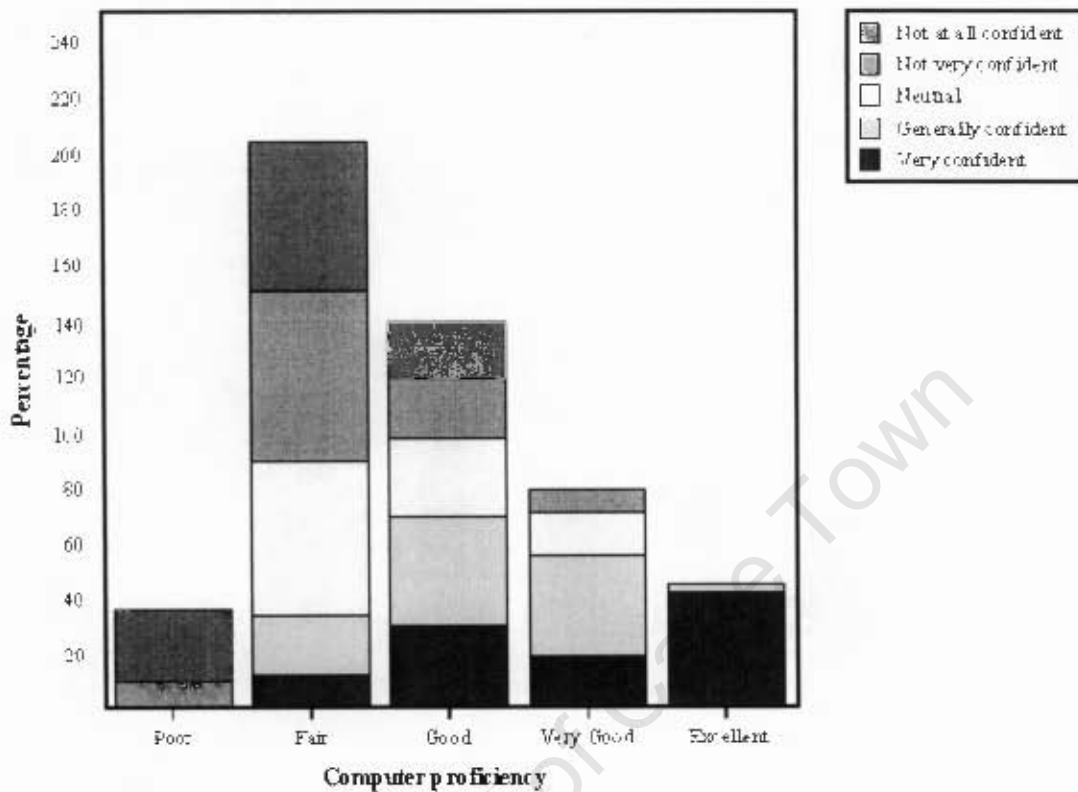
(I) Post	(J) Post	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Librarian	Principal lib.	-.86821141	.40097139	.208	-1.9984051	.2619822
	Senior libr.	-.35937329	.32231562	.798	-1.2678647	.5491181
	Assistant. libr.	-.20904841	.32231562	.966	-1.1175398	.6994430
	SLA	-.15098227*	.45834848	.014	-2.8017416	-.2179037
SLA	Principal lib.	.64161124	.54390406	.763	-.8914580	2.1746805
	Senior libr.	1.15044937	.48881584	.144	-.2273461	2.5282448
	Librarian	1.50982266*	.45834848	.014	.2179037	2.8017416
	Assistant. libr.	1.30077424	.48881584	.073	-.0770212	2.6785697

*. The mean difference is significant at the .05 level

4.5.4. Computer Proficiency and ICT

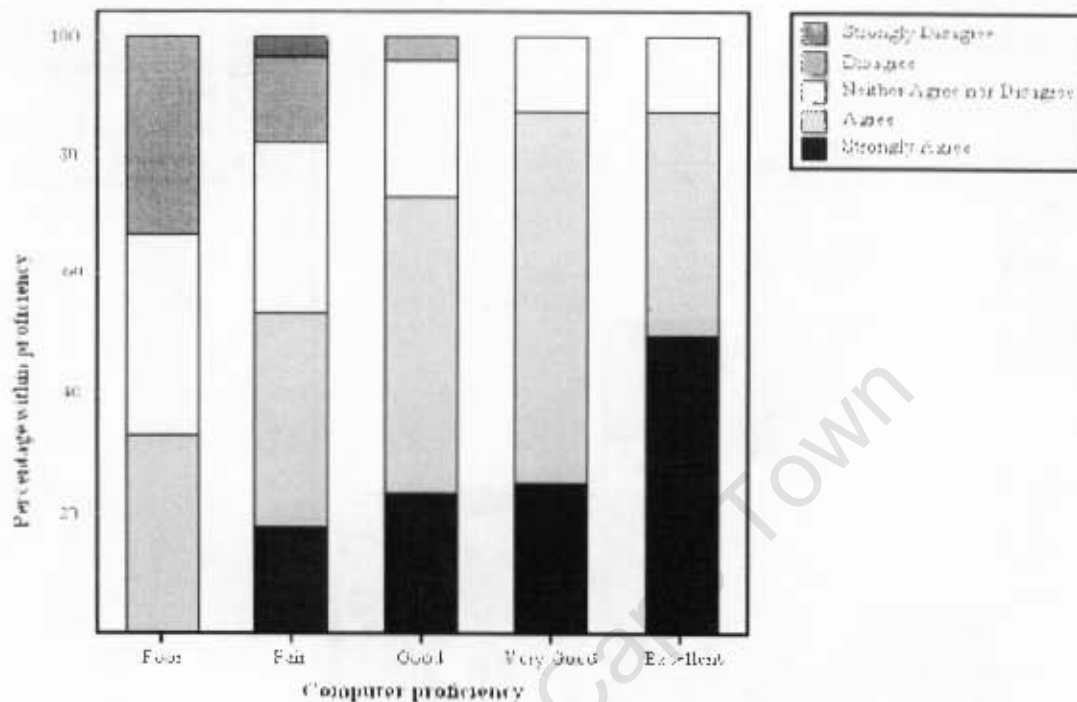
There was a strong positive relationship between staff proficiency with computers and their confidence in helping the public to use the Internet, $r = 0.65$, $p < 0.001$, $n = 113$ (Fig. 4.26). Staff who rated their computer proficiency as *excellent* felt *very confident* (41.2%) about helping the public use the Internet. Staff who judged their proficiency as *poor* (26.7%) and *fair* (53.3%) also indicated that they were *not at all confident* in helping the public use the Internet. The higher staff rated their proficiency with computers, the more confident they felt about assisting the public use the Internet and vice versa.

Fig. 4.26. Computer proficiency and confidence helping the public use the Internet



There was a correlation between the statement *overall, I find the Internet easy to use* and staff proficiency rating, $r = 0.42$, $p = 0.001$, $n = 81$ (Fig. 4.27). Of those rating themselves as *excellent*, 50% *strongly agreed* with the statement whilst 0% *strongly disagreed*. Of those who rated their proficiency as *poor*, 33.3% *disagreed* with the statement while 0% *strongly agreed* with the statement. The value of Gamma suggests a strong, positive relationship between computer proficiency and ease of using the Internet.

Fig. 4.27. Computer proficiency and ease of using the Internet



The ANOVA statistic was used to explore differences between computer proficiency and attitude, $F(3.640) = 2.54, p < 0.05, n = 61$ (Table 4.8). The mean attitude scores indicated differences between the proficiency categories with regards to attitude staff who felt their computer skills were *excellent* ($M = 1.023, SD = 1.33$) were significantly different from those whose skills were *poor* ($M = -1.43, SD = 1.65$), and *fair* ($M = -0.18, SD = 0.64$) (Table 4.9). Staff indicating excellent computer proficiency exhibited positive attitudes towards use of the Internet at work whilst those with *poor* and *fair* ratings were less positive about the use of the Internet at work. Eta squared ($\eta^2 = 0.2$), a measure of the strength of association, indicated a very large effect, and accounted for 40% in the variance in attitude scores.

Table 4.8. ANOVA: computer proficiency and attitude

ANOVA					
Internet2 attitude					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12.382	4	3.095	3.640	.010
Within Groups	47.618	50	.952		
Total	60.000	54			

Table 4.9. Tukey HSD: computer proficiency and attitude

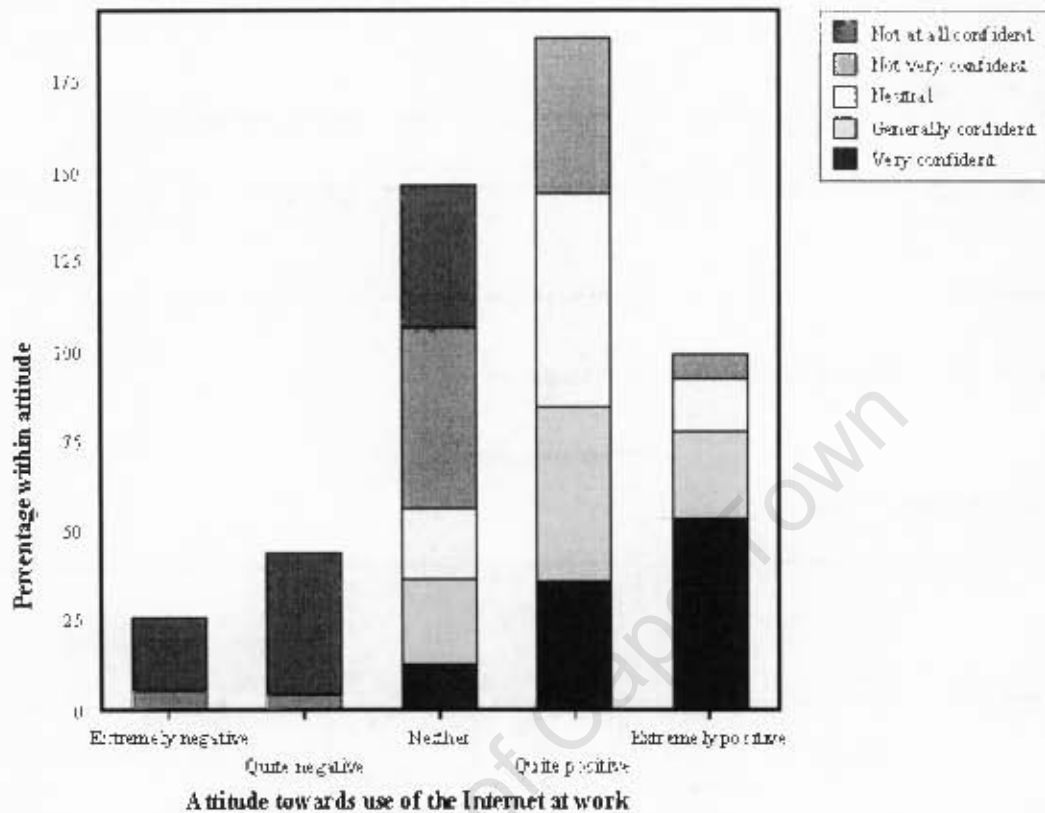
Multiple Comparisons						
Dependent Variable: Internet2 attitude						
Tukey HSD						
(i) Rating	(j) Rating	Mean Difference (i-j)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Excellent	Poor	2.45962631*	.73934796	.013	.3759703	4.5436804
	Fair	1.21617196*	.40246005	.031	.0755136	2.3416304
	Good	-.05496271	.40015687	.965	-.0424451	2.2128506
	Very Good	.91411612	.40476923	.295	-.3957024	2.2239932

*. The mean difference is significant at the .05 level.

4.5.5. Confidence Helping the Public Use the Internet and ICT

There was a strong association between *my use of the Internet at work is negative/positive* and confidence in helping the public use the Internet, $F = 0.52$, $p < 0.001$, $n = 85$ (Fig. 4.28). Fifty-three per cent of those who felt *extremely positive* about their use of the Internet at work also felt *very confident* about helping the public use the Internet at work. Conversely, 20% of those who felt *extremely negative* about their use of the Internet at work also felt *not at all confident* about helping the public use the Internet at work.

Fig. 4.28. Confidence helping the public use the Internet and attitudes



The ANOVA statistic was used to explore differences between confidence staff have with regards to helping the public use the Internet and the five factor scores. The initial ANOVA test indicated a significant difference between the confidence variable and the subjective norm factor, $F(3.471) = 2.54, p < 0.05, n = 61$ (Table 4.10). Post-hoc comparisons using the Tukey HSD test indicated that the mean subjective norm scores of those who felt *not at all confident* ($M = 1.34, SD = 1.78$) and *not very confident* ($M = 0.39, SD = 0.76$) were significantly higher than those who were *very confident* ($M = -0.31, SD = 0.95$) and *generally confident* ($M = -0.25, SD = 0.89$) (Table 4.11). This mean variation suggests that as staff confidence weakened, the more likely their colleagues at work influenced them. Eta squared ($\eta^2 = 0.19$), a measure of the strength of association, indicated a very large effect, accounting 19% in the variance in subjective norm scores.

Table 4.10. Confidence helping the public use the Internet and subjective norm

ANOVA

Internetf5:subjective norm

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	11.920	4	2.980	3.471	.013
Within Groups	48.080	56	.859		
Total	60.000	60			

Table 4.11. Tukey HSD: Confidence helping the public use the Internet and subjective norm

Multiple Comparisons

Dependent Variable: Internetf5:subjective norm

Tukey

(I) Confident Helping Public	(J) Confident Helping Public	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Not at all confident	Not very confident	.94221809	.5297990	.396	-.5510943	2.4355304
	Neutral	1.47701969	.5568123	.074	-.0924332	3.0464726
	Generally confident	1.58580861 *	.5019683	.021	.1709409	3.0006763
	Very confident	1.64576427 *	.5349679	.026	.1378827	3.1536459

*. The mean difference is significant at the .05 level.

4.5.6. Correlations Between the Internet TAM Scales

Total scores for the TAM scales were achieved by reversing the negatively worded items, particularly the ease of use statements, and instructing SPSS to calculate total scores for all TAM subscales. To determine and assess the strength of relationships between the TAM variables, Pearson’s correlation coefficient (r) was used which “varies between -1.00 and +1.00, with 0.00 signifying no relationship, or zero percent accuracy in prediction; +1.00 meaning 100 percent accuracy in predicting a positive relationship between the two variables; and -1.00 meaning 100 percent accuracy in predicting a negative relationship between variables” (Bailey, 1987: 45). According to Bailey (1987: 396), the most popular interpretation of r used by researchers is (r^2) which is “interpreted as the percentage of all possible variance that is explained by the relationship.” For example, an r of 0.4 yields an r^2 of 0.16, which is interpreted as 16

percent of the variance explained. A perfect positive relationship, $r = 1.00$ yields an r^2 of 1.00, which means that 100 percent of the correlation is explained.

Guided by a significance level of 0.05, correlations between the variables ranged from $r = 0.24$, $df = 79$, $p < 0.05$ to $r = 0.53$, $df = 77$, $p < 0.001$ (Table 4.12). Refer to paragraph 3.5.1.2 for an explanation on variance.

Attitudes towards use of the Internet at work accounted for 27.8% of variance on the behavioural intention scale, 23% on the perceived usefulness scale, 13.7% on the perceived ease of use scale and only 7.2% on the subjective norm scale. Perceived usefulness accounted for 18.7% of variance on the behavioural intention scale, 10.2% on the perceived ease of use scale, and only 5.7% on subjective norm. Perceived ease of use accounted for 14% of behavioural intention whilst behavioural intention accounted for 7.5% of variance on subjective norm. There was no significant correlation found between perceived ease of use and subjective norm. The greatest correlation was between behavioural intention and attitude; $r = 0.53$, $df = 77$, $p < 0.001$ and accounted for 27.8% of variance in total scores. This strong positive relationship would suggest that the more positive staff attitudes were, the more likely they intended to use the Internet at work. There was also a strong relationship between perceived usefulness and both behavioural intention and attitude, $r = 0.43$, $df = 77$, $p < 0.001$ and $r = 0.48$, $df = 84$, $p < 0.001$, respectively, suggesting that the more staff recognized the usefulness of the Internet, the more they intended to use the Internet and the more positive their attitudes grew towards using the Internet at work.

Table 4.12. Correlations between TAM sub scales

		Correlation			
		Internet: Perceived usefulness	Internet: Perceived ease of use	Internet: Behaviour intention	Internet: Subjective norm
Internet: perceived ease of use	Pearson Correlation Sig. (2-tailed) N	.319** .009 67			
Internet: behaviour intention	Pearson Correlation Sig. (2-tailed) N	.432** .000 75	.373** .002 66		
Internet: Subjective norm	Pearson Correlation Sig. (2-tailed) N	.239* .036 77	-.048 .698 67	.275* .016 76	
Internet: Attitude	Pearson Correlation Sig. (2-tailed) N	.480** .000 79	.370** .002 69	.528** .000 77	.269* .015 81

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

* Correlation is significant at the 0.05 level (2-tailed).

4.6. Section Summary

This section detailed an analysis of the influences affecting the attitudes of staff towards ICTs and the Internet. The gender demographic had relationships with each of the following variables: proficiency with computers, length of time using the Internet and confidence with helping the public use the Internet. The Gamma statistic revealed positive relationships between age and computer proficiency, and post and confidence with helping the public use the Internet. A strong positive relationship was found between computer proficiency and confidence with helping the public use the Internet, as well as computer proficiency and staff perception of the overall ease of use of the Internet.

When the TAM factors were subjected to one-way analysis of variance, relationships were identified between post and subjective norm; computer proficiency and attitude; and confidence helping the public use the Internet with both attitude and subjective norm.

An examination of correlations between attitude and the TAM scales revealed strong associations between attitude and both perceived usefulness and behavioural intention, as well as between perceived usefulness and behavioural intention.

4.7. Analysis: Influences on Public Library Staff Attitudes to BookPlus

This section will explore the influences on public library staff attitudes to BookPlus by examining interactions between the three factors extracted during factor analysis and demographic and organisational variables. These variables will also be tested individually with the five attitudinal statements of the amended TAM. Relationships between the TAM scales will be explored using appropriate statistical tests. Only significant results will be reported, and will include a brief discussion of the effects.

4.7.1. Gender

A Mann-Whitney U test for gender and the statement, *My use of BookPlus at work is unnecessary/necessary* revealed a significant relationship, $z = -2.4$, $p < 0.05$. Women's higher median scores (51.92) suggested that female staff members believed

more strongly than their male (38.13) counterparts that use of the BookPlus system at work is extremely necessary.

4.7.2. Age

The ANOVA statistic was used to explore differences between age groups and TAM factor scores. There was a statistically significant difference between age and perceived usefulness but not with ease of use and subjective norm.

A one-way analysis of variance found an effect of age on usefulness scores, $F(3,739) = 2.75$, $p < 0.05$, $n = 66$ (Table 4.13). Tukey's follow-up comparisons found that the 55 to 64 year olds ($M = 0.65$, $SD = 0.6$) had a higher regard for the usefulness of BookPlus than the 25 to 34 year olds ($M = -0.44$, $SD = 0.9$) (Table 4.14). Eta squared ($\eta^2 = 0.15$), a measure of the strength of association, indicated that age explained, a large, 15% of the variance in perceived usefulness scores.

Table 4.13. BookPlus: Age and usefulness

ANOVA

BPf1:perceived usefulness

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.957	3	3.319	3.739	.016
Within Groups	55.043	62	.888		
Total	65.000	65			

Table 4.14. Tukey HSD: Age and usefulness

Multiple Comparisons

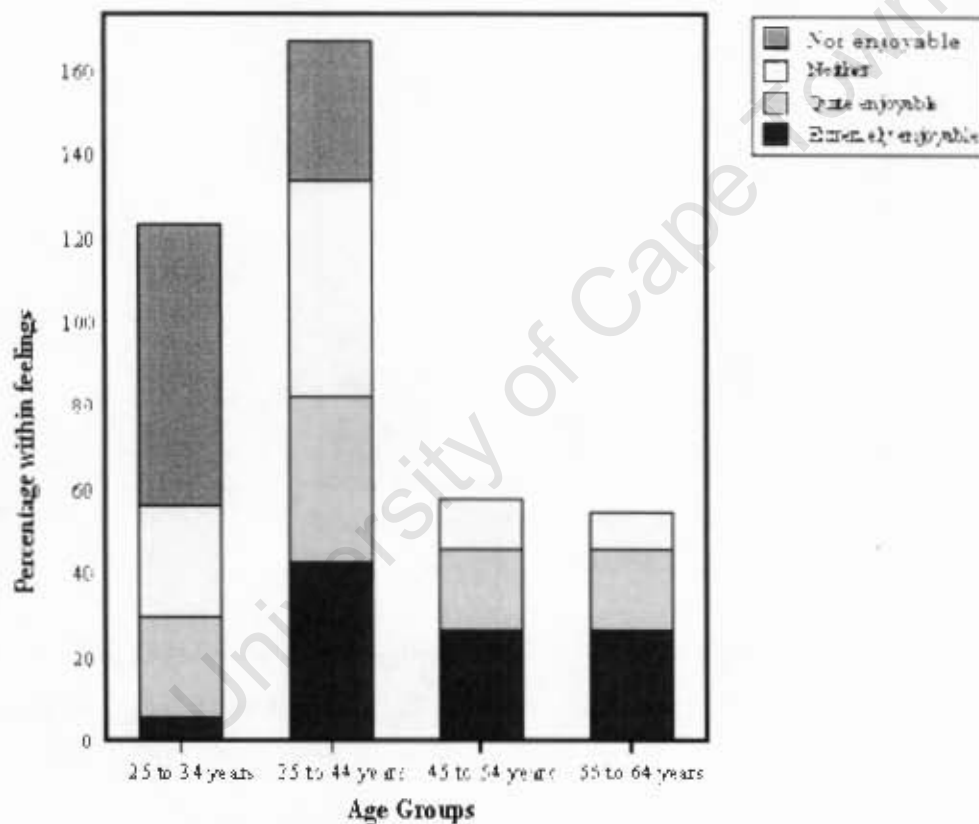
Dependent Variable: BPf1:perceived usefulness
Tukey HSD

(I) Age Groups	(J) Age Groups	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
25 to 34 years	35 to 44 years	-.28085919	.29795777	.782	-1.0674984	.5057800
	45 to 54 years	-.86908746	.37402396	.104	-1.8565492	.1183743
	55 to 64 years	-1.0933218*	.38466183	.030	-2.1088686	-.0777750

*. The mean difference is significant at the .05 level.

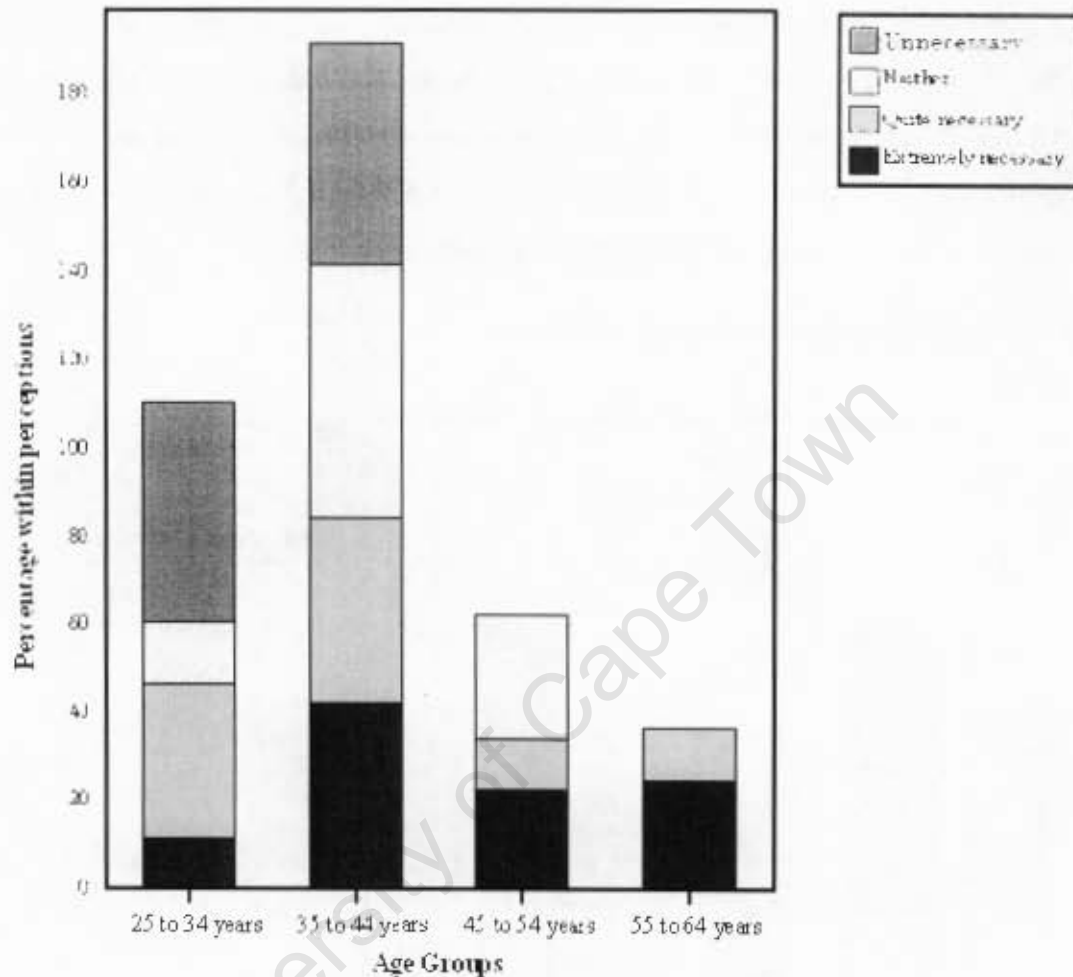
There was also a moderate relationship between age and the attitude statement, *My use of BookPlus at work is not enjoyable/ enjoyable*, $\Gamma = 0.37$, $p = 0.001$, $n = 98$ (Fig. 4.29). Within the 55 to 64 year old category, 26.3% rated their use of BookPlus at work as *extremely enjoyable* and 0% rated its use as *not enjoyable* whilst 66.7% of the respondents within the 25 to 34 year old category rated their use of BookPlus at work as *not enjoyable* and only 5.3% rated it as *extremely enjoyable*.

Fig. 4.29. Age and feelings about using BookPlus at work



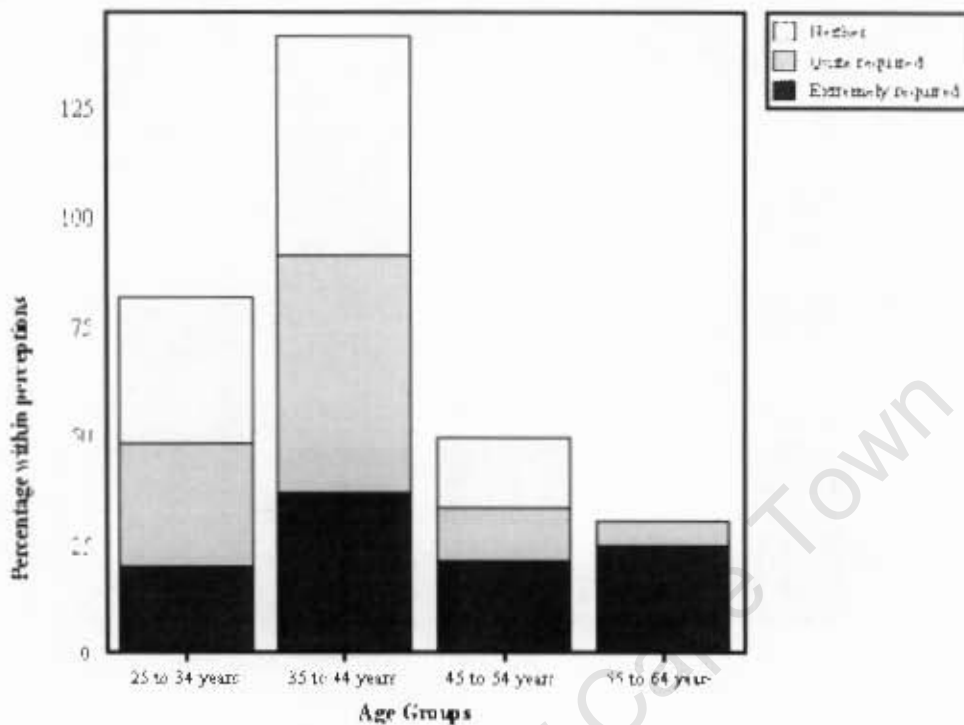
There was a strong positive relationship between age and the attitude statement, *My use of BookPlus at work is unnecessary/ necessary*, $\Gamma = 0.39$, $p = 0.001$, $n = 97$ (Fig. 4.30). Within the 55 to 64 year old category, 24.4% of the respondents considered the use of BookPlus at work as *extremely necessary*, 11.6% as *quite necessary* whilst within the 25 to 34 year old category, 11% considered the use of BookPlus at work as *extremely necessary* and 35% as *quite necessary*. In comparison, whilst 0% of respondents within the 55 to 64 year old category rated their use of BookPlus at work as *unnecessary*, 50% of respondents within the 25 to 34 year old category rated their use of BookPlus at work as *unnecessary*.

Fig. 4.30. Age and perceptions about the need for using BookPlus at work



A moderately positive relationship was found between age and the attitude statement, *My use of BookPlus at work is optional/ required*, $r = 0.39$, $p < 0.05$, $n = 99$ (Fig. 4.31). Respondents within the 25 to 34 year old category were less convinced of the need for using BookPlus at work with 33.3% remaining neutral and 19% believing that their use of BookPlus at work is *extremely required*. In comparison, 0% of respondents within the 55 to 64 year old category indicated a neutral position and 24% believed their use of BookPlus at work was *extremely required*.

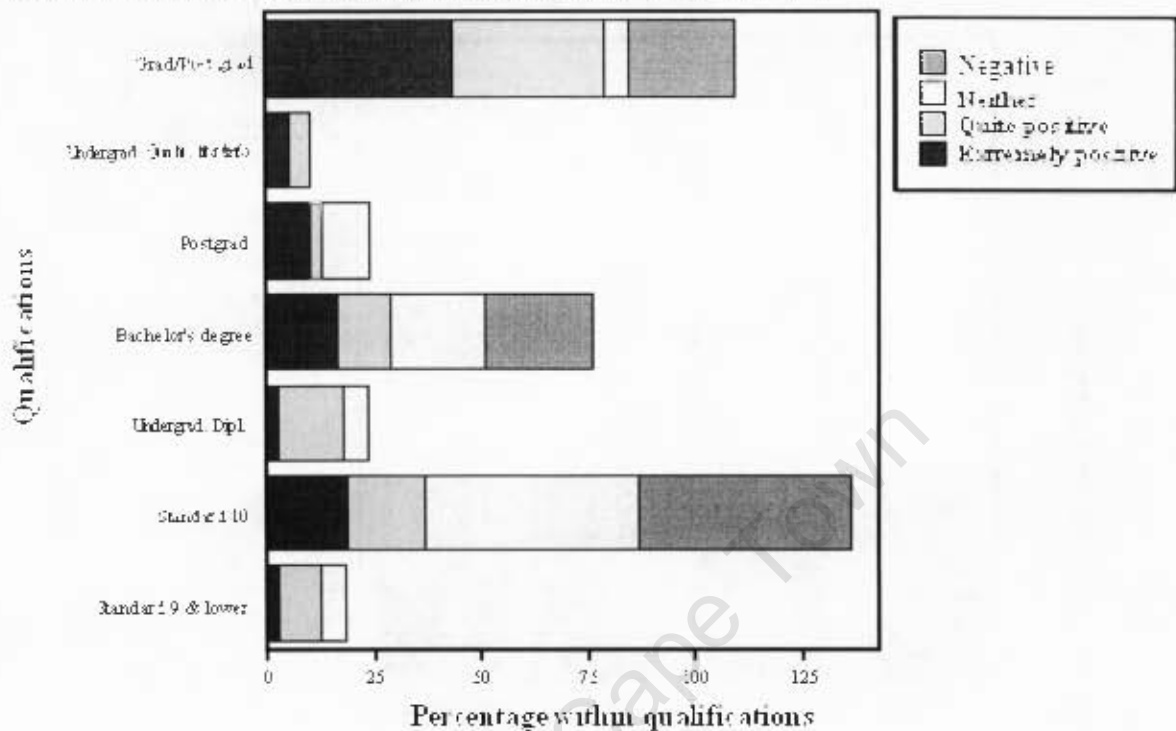
Fig. 4.31. Age and use of BookPlus at work is optional/ required



4.7.3. Education

There was a positive relationship of moderate strength between qualifications and the statement *My use of BookPlus at work is negative/ positive*, $\Gamma = 0.34$, $p = 0.001$, $n = 98$ (Fig. 4.32). Of those rating themselves as *extremely positive*, a comparative difference was noticed between the *Grad/ Post-grad* and *Standard 9 & lower* categories, 43.2% compared with 2.7% respectively. Similarly, 36% of *Grad/ Post-grads* felt *quite positive* compared to 10% of the *Standard ten & lower* category.

Fig. 4.32. Qualifications and the use of BookPlus at work is negative/positive



4.7.4. Correlations Between BookPlus TAM scales

Using the same process as outlined in section 4.5.7, correlations between the variables ranged from $r = 0.30$, $df = 74$, $p < 0.05$ to $r = 0.75$, $df = 95$, $p < 0.001$ (Table 4.15). Perceived ease of use accounted for 9% of variance on the perceived usefulness scale and 20% on attitude scores. Although subjective norm had no significant relationship with perceived ease of use, it accounted for the second highest correlation, 41%, with perceived usefulness.

Attitude towards use of BookPlus at work accounted for 56% of variance on the perceived usefulness scale, 20% on perceived ease of use and 31% on subjective norm scales. The greatest correlation was between perceived usefulness and attitude; $r = 0.75$, $df = 95$, $p < 0.001$ and accounted for 56% of variance in total scores. This strong positive relationship suggested that the higher staff rated the perceived usefulness of the BookPlus system, the more positive their attitudes towards the use of BookPlus in the library. There was also a strong relationship between subjective norm and both perceived usefulness and attitude, $r = 0.64$, $df = 93$, $p < 0.001$ and $r = 0.55$, $df = 95$, $p < 0.001$, respectively. This finding suggests that the more positive staff attitudes were

and the more they valued the usefulness of BookPlus, the more likely their colleagues would influence them.

Table 4.15. Correlations between TAM sub scales

Correlations

		BookPlus: perceived usefulness	BookPlus: perceived ease of use	BookPlus: subjective norm
BookPlus: perceived usefulness	Pearson Correlation			
BookPlus: perceived ease of use	Pearson Correlation	.303 **		
	Sig. (2-tailed)	.009		
	N	73		
BookPlus: subjective norm	Pearson Correlation	.642 **	.220	
	Sig. (2-tailed)	.000	.072	
	N	84	68	
BookPlus: attitude	Pearson Correlation	.759 **	.455 **	.554 **
	Sig. (2-tailed)	.000	.000	.000
	N	91	73	83

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

4.8. Section Summary

This section detailed an analysis of the influences affecting the attitudes of staff towards the BookPlus system. The gender demographic revealed a weak, negative relationship with the attitude statement, *My use of BookPlus at work is unnecessary/necessary*. The Gamma statistic revealed positive relationships between: age and *My use of BookPlus at work is not enjoyable/ enjoyable*; age and *My use of BookPlus at work is unnecessary/ necessary*; age and *My use of BookPlus at work is optional/ required* and qualifications and *My use of BookPlus at work is negative/ positive*.

When the three TAM factors were subjected to one-way analysis of variance, the following relationship was identified: age and usefulness.

Correlations between the TAM scales revealed a strong association between perceived usefulness and subjective norm; and between perceived usefulness and attitude.

4.9. Conclusion

The implementation of the Internet into libraries was criticised by respondents for, among other things, its slow connectivity, insufficient training, frequent down-time and that it added to the stress caused by staff shortages. Despite these concerns, survey scores for the Internet TAM factors suggest an optimistic outlook towards the use of the Internet at work. Internet attitude scores were highly related to perceptions of intention and usefulness of the Internet at work.

Although BookPlus survey comments were equally proportioned between good and bad statements, survey scores for usefulness of the system were exceptionally high across the entire range of statements, whereas for perceived ease of use they were high for positive statements and low for negative statements. Subjective norm scores were higher for the BookPlus system than the Internet, suggesting that BookPlus users felt more inclined to be influenced by their colleagues. Attitudes towards the use of BookPlus at work were highly related to perceptions of usefulness, perceived ease of use and subjective norm.

Chapter 5: DISCUSSION

5.1. Introduction

The results from both the Internet and BookPlus sections in Chapter 4 will be discussed in the context of the literature reviewed in this field, and specifically the aims and objectives of the study as listed in Chapter 1. This chapter will present the discussion on the results of both the Internet and BookPlus alongside each other, so as to facilitate comparisons between the two systems.

A brief overview of staff attitudes towards both systems is presented in Section 5.2. A more detailed discussion on the factors influencing staff attitudes is presented in Section 5.3. The implications of staff attitudes (Section 5.4) are followed by a brief summary (Section 5.5) of this chapter. The conclusion (Section 5.6) presents a condensed version of salient characteristics of each system that emerged throughout this chapter.

5.2. Staff Attitudes to the Internet and BookPlus

One of the aims of this thesis was to measure the attitudes of public library staff towards the Internet and the BookPlus LMS. The results indicate that staff had generally positive attitudes towards the use of both systems at the workplace. Due to the mandatory nature of the BookPlus system, staff generally felt that its use in the workplace was more necessary and strongly required to accomplish one's duties than using the Internet. External social pressure from superiors which was found to be influential in the initial adoption of new technology by Agarwal & Prasad (1997: 575), was supported. Both systems were highly rated for their usefulness (Internet, Fig. 4.10; BookPlus, Fig. 4.15) and ease of use (Internet, Fig. 4.11; BookPlus, Fig. 4.16) with BookPlus having marginally higher scores. This marginal difference could be attributed to familiarity with a system that has been in operation for a very long time. This assumption corresponds with that of Adams et al (1992: 245) who reported that "user perceptions of these constructs [ease of use and usefulness] may vary with time and experience for any given application." Respondents were not

overwhelmingly confident about helping the public use the Internet, with a small margin separating the confident group from the not confident group (Internet, Fig. 4.19). The results indicated high scores in favour of future use of the Internet, and respondents' willingness to recommend the Internet to others.

Section B (You, Computers and the Internet) of the questionnaire attempted to ascertain staff computer proficiency, usage patterns and confidence in helping the public use the Internet. Results from this section will help in understanding staff attitudes to ICTs, as well as current and future usage behaviour. Respondents' self-rating of computer skills revealed an average aptitude with computers, and only a small percentage indicated either poor or excellent computer skills. The majority of staff indicated that they had been using the Internet for less than six months. In comparison, all CTA libraries were using BookPlus by 1994. The majority of staff (64%) used the Internet on a daily basis. The 14% that indicated never to have used the service at work, could be explained by not yet being connected or because they voluntarily decided not to use the service.

Section C, question 15 and Section D, question 19 focused on the attitudes of staff towards using the Internet and BookPlus at work. The results indicated generally positive attitudes towards the use of ICTs in the workplace, with averages of 3.8 and 4.2 for the Internet and BookPlus, respectively (Internet, Fig. 4.14; BookPlus, Fig. 4.18). The marginally higher score of the BookPlus system could be attributed to the longer service history, familiarity and mandatory nature of the system.

The following section will discuss relationships, for both the Internet and BookPlus, uncovered between the following variables: organisational, demographic, staff attitudes and TAM factors.

5.2.1. Factors Influencing Staff Attitudes

The Internet section of the results uncovered relationships between gender and the following variables: computer proficiency (Fig. 4.21.), length of time using the Internet (Fig. 4.22.) and confidence about helping the public use the Internet (Fig. 4.23). The confidence variable was also found to be related to post (Fig. 4.25.), computer proficiency (Fig. 4.26) and attitude (Fig. 4.28). The age demographic was

found to have a significant relationship with computer proficiency (Fig. 4.24). The Bookplus section of the results revealed relationships between attitude and the following demographic variables: gender, age and qualifications.

An analysis of relationships between the Internet TAM factors revealed significant differences in means between subjective norm and the following variables: age (Table 4.4), current post (Table 4.6) and confidence in helping the public use the Internet (Table 4.10). A significant difference in mean attitude score was recorded with computer proficiency (Table 4.8). An analysis of BookPlus TAM factors revealed a significant difference in the mean usefulness score with the age demographic (Table 4.13).

5.2.1.1. The Influence of Gender

The influence of gender on attitude is a significant dynamic considering that of the 114 respondents, 76% were females and 24% were males (Fig. 4.1). This imbalance is not uncommon in a profession that is widely regarded as female-dominated. The results from the Internet section revealed a significant relationship between gender and computer proficiency, namely, men rated their computer proficiency higher than women (Fig. 4.21). This low proficiency self-rating can be attributed to the masculine culture that surrounds computers (Neuman, 2003) and the “perception that IT is a technical subject for men, with many females consequently shying away from it” (Mphidi, 2004: 2). Spacey’s (2003: 235) analysis of available literature revealed, “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.” As with Spacey’s findings (2003: 235), a relationship was found between gender and length of time using the Internet (Fig. 4.22). It was determined that men had been using the Internet at work for a longer period than women. Broos (2005: 27-29), investigating the gender divide in ICT attitudes, determined that males generally had more computer experience, used the computer for longer periods of time, showed more confidence and displayed less computer anxiety. Similarly, this study found that men were generally more confident than women in helping the public use the Internet (Fig. 4.23).

The only significant result obtained in the BookPlus section was a difference in the median scores of gender and the attitude statement assessing the need for the use of BookPlus in the workplace. Women believed more strongly than males that the use of BookPlus at work was extremely necessary (chapter 4.7.1). This result may be explained by women being more susceptible to the influence of superiors and colleagues than men. The sex variable could be influenced by age, which was found to have a strong relationship with subjective norm (Table 4.4). This conjecture is significant, considering that 76% of respondents were female and 78% of respondents were aged 35 years and older.

5.2.1.2. The Influence of Age

Results from the Internet section revealed a negative relationship between age and computer proficiency (Fig. 4.24). Computer proficiency was greatest amongst the 25 to 34 year olds and weakened as the age of respondents increased. This finding conforms to research conducted in this field that cites as reasons for older adults lack of computer skills the decline, with age, of their perceptual skills, problem-solving abilities and retention-based processes (Larkin-Lieffers, 2000: 226-227). It has been suggested that younger workers' (25 to 34 year olds) experience and confidence with computers is a result of their early exposure to computer technology. Older workers are much less likely to have had the opportunity to experience this technology before they entered the workplace (Morris & Venkatesh, 2003: 393). This handicap can be overcome through a targeted training programme that, for younger workers, focuses on their need for productivity and achieving results; and, for older workers, removes skepticism and lessens anxiety by demonstrating "new technology's ease of use" (Morris & Venkatesh, 2000: 393). The issue of computer training is closely tied to the fostering of positive attitudes that "enhance successful implementation and effective application of computers" (Idowu, 1999: 309). Idowu elaborates on the influence that increased experience with computers has on the three components of attitudes — affective, cognitive and behavioural — namely, "further application of the computer for job tasks are discovered and utilization increases" (1999: 308-9).

Morris & Venkatesh (2000: 393) suggest that older adults are more inclined to be influenced by colleagues whom they might seek out for assistance with new

technology. Age accounted for a large 22% of the variance in Internet subjective norm scores (Table 4.4). The 55 to 64 and 45 to 54 year olds indicated significant mean subjective norm differences with the 35 to 44 year olds. This finding, of older workers conceding to social pressures at work, especially within the context of technology usage, has been shown to be prominent in the early stages of technological adoption. It is suggested that as experience with the technology grows, “the direct effect of subjective norm on use is expected to diminish” (Morris & Venkatesh, 2000: 384). The majority of the respondents, 52.6%, indicated having used the Internet for less than six months. It is, therefore, not surprising that no significant association was identified between age and subjective norm in the BookPlus (a 17 year old system) results.

The BookPlus results identified a relationship between age and the TAM factor, usefulness, which suggests respondents aged 55 to 64 years old are more inclined to be influenced into using a technology because of its usefulness, than workers aged 25 to 34 years (Table 4.13). An explanation could be that, over time, as workers identify and recognize the useful function of a product, that they accept it as an essential tool for completing work tasks. Younger workers, having been exposed to more modern windows-based systems, might perceive the command-driven interface of BookPlus as ‘unfriendly’ and embarrassing to the worker’s image at the workplace. Chau (1996: 187) commenting on the TAM model, identified perceived ease of use, “system features, training, documentation, and user support” as factors influencing a user’s perception of the usefulness of a system. Younger workers’ initial induction to the BookPlus system, specific to the features identified by Chau, can be described as being unique to each branch, uncoordinated, and ad hoc in style. As a result, the initial exposure to BookPlus for younger workers might not have been a positive experience, which could have left the worker with a daunting learning curve that would not have been assisted by the fact that the BookPlus system is integral to fulfilling one’s duties at work. Another determining factor of a user’s assessment of the usefulness of the technology is the ease of use associated with the technology (Chau, 1996: 197). The possible experience alluded to for younger workers do not favour the impression that it is easy to use.

As discussed in the TAM section (chapter 2.5.2.3), the constructs of PU and PEOU are influential in determining a user’s attitude to technology, which, in turn, affects

behavioural intention, which then determines current usage behaviour. As discussed above, older workers have a higher regard for the usefulness of the BookPlus system than their younger colleagues, which supports the positive attitude results achieved for this age category. Significant correlations were achieved for age and three of the TAM attitude statements (Fig. 4.29, Fig. 4.30 & Fig. 4.31). Older workers (55 to 64 years) had higher ratings than their younger colleagues (25 to 34 years) for the statements assessing the attitude of staff towards the use of BookPlus at work using the following criteria: *not enjoyable/ enjoyable; unnecessary/ necessary* and *optional/ required*. Besides the BookPlus system being a mandatory usage system, these high attitude ratings suggest that initial experiences of older staff with BookPlus were positive and/ or over time with experience they might begin to appreciate the usefulness of the system, and ultimately accepted it as part of the process of rendering a service. It may also be suggested that at the time of implementation, staff were comparing the functionality of a manual system with a computerised system, which literally revolutionised the way staff performed their duties. The computerisation of the library service impacted on staff at all levels, and the gradual, phased-in approach together with effective training ensured positive feedback throughout the service.

This finding is congruent with Agarwal & Prasad's (1997) research into technology acceptance, which found that "mandating the use of the innovation might be worthwhile to generate the initial momentum for system use" (p. 575), but that "people will continue to use the system (i.e. institutionalize and assimilate the technology) only if they are able to view its benefits unequivocally (i.e. they find it useful)" (p. 572).

Taking into consideration that BookPlus is a 17 year old system, it should be borne in mind that of the 116 responses, 4 members of staff out of 21, aged between 25 and 34 years had 11 years or more service, and of the staff aged 45 and older, 40 staff out of 42 had 11 years or more service with the CTA library service. The older staff hold the greater experience, and also the more favourable attitudes towards BookPlus. Although BookPlus is a mandatory system, the library service achieved its objective with the majority of staff positively accepting the system and using it to fulfil the rendering of services to the libraries' patrons.

5.2.2. Demographic and Organisational Factors

5.2.2.1. Qualifications

Most of the staff (31%) held a graduate or post-graduate qualification, which was also the highest qualification reported (Fig. 4.2). The lowest qualification, standard 9 or lower, was held by the fewest staff (2%). The results from the BookPlus section revealed that respondents with graduate or post-graduate qualifications felt more positive about their experience with BookPlus than those respondents with only a standard 9 or lower qualification (Table 4.32). The standard 9 or lower qualification was held by senior library attendants' (SLAs) whose normal responsibilities, according to their original job descriptions, involved, *inter alia*, routine desk and clerical duties. Later, when the libraries computerized, these duties translated to basic BookPlus operations (returning and issuing material). The negative experience of SLAs can be attributed to increased responsibilities and workload resulting from staff shortages. They had to quickly learn the more advanced functions of BookPlus, sometimes without assistance from colleagues and under pressure from information seeking patrons. Garrod (1998: 253), in commenting on the research project, SKIP (Skills for New Information Professionals), which evaluated the impact of information technology on the skills and roles of staff in the library and information services in the United Kingdom, discovered through interviews with library assistants and paraprofessional staff that the reasons for their dissatisfaction at work were:

- poorly defined responsibilities;
- hierarchical structures inhibiting individualism and disrupting communications;
- complex grading structures;
- an organisational culture that inhibits individual growth;
- a 'hidden' divide between professional and non-professional staff;
- lack of career development;
- no acknowledgement for increased responsibilities;
- dissatisfaction with the lack and type of training.

Although not all of the above grievances surfaced in the findings of this study due to the specific focus of the thesis, survey comments on BookPlus from SLAs suggest a likely division between professional and non-professional staff. Even though SLAs are aware of the boundaries of their duties, they have improved their BookPlus skills to match their additional responsibilities, as may be confirmed by some of the survey comments:

“Internet and BookPlus is mostly used by the so called ‘professional staff’ than by library attendants even though we know how to operate and use it” (Senior library attendant, full time permanent, branch).

“Since the initial training period and using the system all these years has improved my understanding and skill within limits according to what I’m required to do. As I’m not a librarian, there are tasks that I don’t do” (Senior library attendant, full time permanent, branch).

5.2.2.2. Employment

As outlined above, SLAs held the lowest qualification, standard 9 or lower, and were expected to perform basic operations on BookPlus. With regards to the Internet service provided for free at libraries (Chapter 1, Section 1.2), one staff member was asked to volunteer to become a ‘super user’ who would receive training to operate the administrative computer and those made available to the public. This ‘super user’ would then be tasked to train other staff members as and when the need arose (Valentine, 2004: 6-7). The Internet facility was set up as a self-maintained service, which is remotely and centrally maintained from the Civic Centre in Cape Town. Besides the volunteer ‘super user’, other staff have the choice of getting involved in Internet services to the public. The degree and type of involvement is dependent on the individual, or continuing with their normal responsibilities. A significant difference was detected between SLAs and assistant librarians and their confidence in helping the public use the Internet (Fig. 4.25). Assistant librarians had greater confidence than SLAs, and had the fewest staff selecting the *not confident* option. Proportional statistics indicate that more assistant librarians use the Internet daily and rate their computer skills between good and excellent than SLAs. According to Spacey (2004: 239), “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.” Both groups complained, in the survey comments, about the slow speed and the recurrent downtime experienced with the Internet connection. It should also be borne in mind that staff lacking confidence in a system will be less effective when assisting patrons in the use of that system.

Results from the Internet section revealed higher mean subjective norm scores for SLAs than librarians, which suggest that they are more susceptible to the influences of superiors and/ or significant co-workers (Table 4.6). As mentioned above (see chapter 5.2.1.2) subjective norm has a greater influence in an environment where technology adoption is in its early stages, such as the Smart Cape Internet project. Within the CTA library service, SLAs were the first non-professional positions on a staffing hierarchy that has an upward reporting structure. It may be suggested that through the motivation of professional acceptance, SLAs might strive to improve their image and identity by learning the skills and operating within the workspace of professional staff. In other words: “to be as, do as.” Since no official duties and responsibilities were prescribed around the services of the Internet, it provided a new frontier of opportunities and recognition to anyone with initiative. According to Venkatesh & Davis (2000: 189), “an individual may thus perceive that using a system will lead to improvements in his or her job performance...indirectly due to image enhancement, over and above any performance benefits directly attributable to system use.”

It would seem that SLAs have more to gain than librarians by being susceptible to the influence of subjective norm, especially if the rewards obscure the boundary between professional and non-professional positions.

5.2.3. Computer Experience and Attitude

5.2.3.1. Computer Proficiency

The literature confirms the relationship between computer proficiency and attitudes, that is, good computer skills translate into positive attitudes to technology and vice versa (Ramzan, 2004; Spacey, 2003 & Liaw & Huang, 2003). Similar to the results of Spacey (2003: 241-242), relationships were found, in the Internet section, between

computer proficiency and the following variables: confidence about helping the public use the Internet (Fig. 4.26), perceived ease of use (Fig. 4.27) and attitude (Table 4.8). It is logical to deduce that individuals who have good computer skills will find it easier to use and understand the Internet. This triumph can shape a positive attitude, which can manifest itself as confidence, a trait necessary for effective assistance in the use of the Internet. It needs to be noted that computer proficiency accounted for a large forty percent of the variance in staff attitude towards the use of the Internet at work. If a key purpose of the TAM model is to determine the impact of external factors on internal attitudes and intentions, then the positive impact of computer proficiency on attitude should register in the actual usage behaviour. This statement was validated when analysis indicated that those who used the Internet the most (daily) also rated their computer skills and attitude high on the Likert scale.

Since experience and knowledge, especially of the Internet, have such an important influence on attitudes and ultimately on usage, the provision of training (initial and continuous) in the use of the Internet is vital if librarians are to harness the power of this ubiquitous technology. Respondents' comments regarding the training component of the Smart Cape Internet initiative describes a problematic situation that can only be improved upon. Survey comments illustrate this:

"Using the Internet without formal training can be intimidating. There are so many websites and options available. Without the confidence of being sure of what one is doing, it becomes easy to get lost in the Net" (Senior librarian, full time permanent, branch).

"My comments are based on the situation as I experience it at this stage. With one training session and a book with guidelines of how to use the Internet this is not enough for me. As the Internet is extremely slow the staff spends a lot of valuable time waiting for results, neglecting other functions. Our wish is to be able to access knowledge quickly and efficiently and not to feel ashamed in front of borrowers for not being able to help them properly. More training and quicker response time is what is needed to fire our enthusiasm for the use of this necessary tool of knowledge" (Senior librarian, full time permanent, branch).

Garrod (1998: 242-243), commenting on libraries' integration into the digital age, made the following profound statement: "In converged services, i.e. those where computing and library services had been integrated, and in those services with a strong IT focus, distinctions between 'computing' services staff and 'information' services staff were starting to blur, with staff tending to be deployed on the basis of their experience and skills, rather than their professional qualifications." Respondents' lack of computer troubleshooting skills has hampered their effectiveness in delivering an information service to the community, and has affected their confidence when handling queries from patrons. The library service is weakened when staff is equipped with rudimentary computer skills, and computer support is centralized at a remote location. Technical staff at the Smart Cape support centre has complained about library staff forwarding unnecessary problems to the centre, which could have been taken care of by librarians if they had received better technical training (Smart Cape Access Points Pilot Project: Evaluation, 2003: 46).

5.2.3.2. Attitude Towards Helping the Public Use the Internet

In a service sector like the public library, attention to customer's needs and queries is paramount if the objective is to encourage repeat patronage. During the period of this research, the CTA service was reeling under the pressure of serious staff shortages, low morale, and pending organisational restructuring. The introduction of a free Internet service at libraries, although initially met with much skepticism from library staff, turned out to be a success story locally and abroad, winning the Bill & Melinda Gates Foundation Access to Learning Award in 2003. According to Valentine (2004: 6) the reason for staff buy-in had much to do with the project taking "into account the generally low level of computer literacy among librarians, as well as their apprehension about dealing with new technology that might require more time than they could afford." The structure of the Smart Cape network, i.e. centrally managed with telephonic support provided by Council's IT department, benefited librarians who could concentrate on basic administrative tasks and the recruitment of volunteers for the project. The roll-out of the project targeted disadvantaged areas where the need was greatest, even though many community members lacked computer skills. Even though skills were lacking, the communities' curiosity and need for information saw membership numbers increase together with the status of libraries. As a result of the

limited computer skills of patrons from disadvantaged areas, “many users are novices and able to do only the basics” (Valentine, 2004: 10). It could be surmised that the information requests would be limited to administrative and basic information queries, which could easily be handled by the ‘super user’ and volunteers. The learning experience which librarians were going through with the Internet was shared by many patrons using the Internet for the first time.

From the Internet section, it was found that the more positive respondents’ attitude was to using the Internet at work, the more confident they were at helping the public use the Internet (Fig. 4.28). It is logical to conclude that librarians with a positive attitude will find it easier to improve their computer skills, which would equip them with confidence when assisting the public to use the Internet. It was also determined that as respondents’ confidence in helping the public decreased, the more susceptible they became to the influences of their colleagues. Staff that lack confidence may seek out the advice and guidance of significant or respected colleagues, and be persuaded or motivated to behave in a certain way even if they are not convinced of its merits. Since the majority of staff indicated either a *general confidence* or *strong confidence* in helping the public use the Internet, it may be inferred that those with weaker confidence will be influenced or motivated as a result of the subjective norm to assist the public in using the Internet. Although librarians were initially “cautiously enthusiastic” about the Smart Cape project, they eventually heralded the project for increasing membership figures, attracting volunteers and improving the status of libraries in communities (Valentine, 2004: 6-7).

5.2.3.3. Negative Attitudes Towards ICT

As mentioned (see section 2.3), negative attitudes towards ICT can foster unfavourable reactions to the implementation, training and use of new technologies. Results from the Internet section revealed that although respondents were generally positive about their use of the Internet at work, they were marginally confident about helping the public use the Internet (Fig. 4.9).

As established earlier, confidence is linked to proficiency (see section 5.2.3.1), attitude (see section 5.2.3.2), subjective norm (see section 5.2.3.2), post (see section 5.2.2.2) and gender (see section 5.2.1.1). Therefore, when explaining confidence and

its influence on attitudes, multiple variables need to be taken into account. When analysis was conducted on the statement, *Using the Internet is often frustrating*, the majority of respondents agreed with this expression. Contributing factors to staff frustration and lack of confidence, which was not specifically tested for, was staff comments on the slow, unstable Internet connection and the lack of effective training (see section 4.3.1). As an information and communication tool, the Internet was positively received. The negative attitudes staff had towards the Internet originated from specific implementation issues; which, over time, tainted the overall usage experience. In contrast, the BookPlus system received positive feedback on all TAM constructs, showing that staff has very favourable attitudes towards usage of the system. The minor complaints, which did not affect usage of the system, were directed towards, the age of the system, access to only management determined modules and that it was not set up to communicate with PALS (see section 4.3.2.6).

5.2.3.4. Implications of Staff Attitudes: Based on TAM Correlations

Although the relation between attitudes and behaviour is controversial, with various research findings contradicting each other (see section 2.5.1), there exists a reasoned belief that a positive attitude will favour the acceptance and usage of new technology. It would be an oversimplification to postulate that attitude alone will influence behavioural intention and usage. It is more likely that the interactions between the variables — perceived usefulness, perceived ease of use, attitudes, subjective norm and behavioural intention — will result in a combination of these variables (each differently weighted according to significance), dependent on the unique circumstances of the study, influencing acceptance and usage of new technologies.

In this study, the results from the Internet section revealed that attitude accounted for the greatest variance in behavioural intention (28%) and perceived usefulness (23%)(Table 4.12). The strong correlation between attitude and behavioural intention, suggests that the more positive staff felt about their use of the Internet, the greater it favoured continued future usage, a finding corresponding with that of Spacey's (2003: 260). The variable, perceived usefulness, had a strong correlation with both behavioural intention and attitude. Perceived usefulness is a significant determinant of intention, and as Agarwal & Prasad (1997: 561) suggest, "attitude is an affective

response that mediates between beliefs [perceptions] and intentions to use.” It, thus, can be suggested that respondents who valued the usefulness of the Internet developed positive attitudes that had a significant impact on users’ intentions to use the Internet. The findings of Agarwal & Prasad (1997: 569) suggest that one of the most important predictors of continued future usage is relative advantage (similar to TAM’s perceived usefulness).

The BookPlus results revealed that attitude had the greatest effect on usefulness (56%), followed by subjective norm (31%) and then perceived ease of use (20%)(Table 4.15). The mandatory nature of BookPlus may affect the initial usage of the system, but continued and future usage will be determined either directly by usefulness or indirectly through the influence of experience and attitude (Hartwick & Barki, 1999: 459). The advantage of a mandatory system is that it gets individuals to use the system, thereby providing opportunity for the user to gradually become accustomed to the functionality of the system. With regards to subjective norm, individuals who view a system as important and relevant are likely to develop positive attitudes towards that system. If these individuals hold positions of authority or are respected by colleagues, then they are likely to influence the behaviour of others towards the use of that system. Hartwick & Barki (1994: 458) confirmed the importance of subjective norm in a mandatory system when their findings concluded that, “the most important antecedent of mandatory users’ intentions was subjective norm.” The second highest correlation identified was between subjective norm and perceived usefulness (41%). The mandated usage of BookPlus in CTA libraries worked because of the superior/subordinate structure within the organization and an effective training programme. As a result of top management endorsement of the system from the beginning, the implementation phase, involving staff participation, was positively received. The success of the system’s long-term use can be attributed to staff appreciating the ease of use and usefulness of the system, as reflected in the survey results and respondents’ comments. Agarwal & Prasad (1997: 570), investigating user acceptance behaviour of new technology, concluded “that sustained use in the future is driven primarily by rational considerations; that is, the benefits offered by an innovation to potential adopters as well as their ability to consciously recognize and articulate these benefits.” Additional reasons for the initial usage of BookPlus, other than its mandated status, may be that users realized the new system

was critical to their job performance, and that the benefits of this new digital system surpassed the utility of the old manual system.

5.3. Section Summary

This section illustrated that numerous variables had a relationship (directly or indirectly) with attitude, either affecting it positively or negatively. In the case of the Internet, these relationships influenced behavioural intention, which is a litmus for actual usage. The nature of BookPlus guaranteed that staff would be using the system, but it did not explain staff feelings about using the system and the factors influencing their attitude. Although the BookPlus system had a marginally higher staff attitude rating, both systems were favourably adopted, and their usage has added value to a service sector needing to identify itself in these modern times.

5.4. Conclusion

The results of both the Internet and BookPlus confirm that it is the unique characteristics of a system together with the constitution of an organization, which determines the appropriate implementation strategy. The Internet, a voluntary usage system, was implemented as an auxiliary service, operating alongside traditional library functions. As such, it has not become entrenched into regular organisational work, and serves as an additional source of information and communication. The inadequate training, slow and unstable network connection, and the various problems afflicting the service as a whole have prohibited full exploitation of a valuable resource. From a management perspective, credit has to be given for sensing the vital role libraries could play in accommodating the service, albeit in a limited capacity, due in part to the fact that Smart Cape is essentially an IT-driven project. Therein lies the critical flaw of this Internet implementation, the absence of ownership that would encourage the institutionalization of the service into regular library operations. At present, librarians are merely acting as guardians, instead of proactive information agents competently skilled and motivated in various aspects of the Internet. For this role change to occur, a cultural change within the organization needs to take place. In the report by Sommerlad et al (2004: v) on the competencies and capabilities of

libraries in England, Wales and Northern Ireland in the 21st century, the authors suggest that changes in the public library service will place heavy demands on “leadership and management and staff capabilities and calls into being a process of profound organisational culture change for many library services.” Apart from the shortcomings, as noted in this thesis, the Smart Cape project is a positive initiative that can bridge the ‘digital divide’ in Cape Town, and at the same time libraries can benefit by improving their community status and identity. With the enskilling of staff, libraries can provide new and enhanced services through the Internet, and later by linking the Internet to a modern library management system, the library service can offer communities a 21st century, information experience that connects the traditional public library service with the digital, global village.

The BookPlus system is different to the Internet in the following significant ways: a menu-driven system, mandatory usage, 17 years old, restricted access and a limited database. The analysis of this system has revealed marginally higher attitude ratings from staff as compared to the Internet, which can be attributed to: the system’s mandatory nature, management support and laudation, co-operative implementation and training, staff acknowledgement of the usefulness and ease of use of the system, efficient technical support, and general stability of the system. The BookPlus system has achieved the long-term goal of continued, sustained usage due, in part, to the characteristics outlined above, and that staff recognized and appreciated what could be accomplished with the system they viewed as being extremely useful. Although staff might have their reservations about whether BookPlus meets the demands of a modern information age, their positive perception of its usefulness in accomplishing current work tasks serves as a bridge between service delivery and patron satisfaction.

Chapter 6: CONCLUSIONS & RECOMMENDATIONS

6.1. Introduction

This concluding chapter will present a summary of the main findings about both the Internet and the BookPlus LMS, followed by suggestions for library management when considering introducing new ICTs, and concludes with limitations of the study and suggestions for future research.

This chapter will consist of the following sections: Section 6.2, an overview of the research process followed by the main findings of both the Internet and the Book LMS; section 6.3, recommendations to library management with regards to the successful implementation of ICTs; section 6.4, limitations of the present study; section 6.5, suggestions for future work; and section 6.6, concluding remarks.

6.2. Overview and Main Findings

6.2.1. *Overview of Chapters*

This research undertook to investigate public library staff attitudes to the use of the Internet and the BookPlus LMS at the workplace. The motivation behind this thesis was the implementation of a free Internet service at public libraries, and the author's awareness of initiatives to introduce a single library management system in the CoCT. The successful implementation and usage of ICTs depends on, among other considerations, its acceptance and adoption by the end-user, namely, public library staff. As explained in Chapter 2, scientific theorization has established that a relationship exists between attitudes and behaviour by way of the user's intention to perform that behaviour, which is influenced by the individual's attitude. The attitude of the user is, in turn, influenced by many other factors, such as age, gender and occupation. The author was guided by a literature review of pertinent research in this field, with specific focus on the reaction of individuals to the implementation of ICTs and the resultant effect of change on library staff behaviour. An overview was

provided of the evolution of library management systems, the integration of LMSs and the Internet, and the unique demands public libraries place on modern LMSs.

In order to quantify the attitudes of library staff, techniques used from other disciplines were often adapted for use in the library setting. The theoretical framework of these techniques is informed by various behavioural theories. For the purposes of this thesis, a synopsis of three models was provided: the theory of reasoned action (TRA); the theory of planned behaviour (TPB) and the technology acceptance model (TAM). Since attitude alone does not determine behavioural intention and usage, of the various influences identified by the aforementioned models, only those of significance to this thesis were discussed. The author decided on the research model used by Spacey (2003), which used an amended version of the TAM, incorporated in a paper-based questionnaire. The survey instrument was further amended to include questions about the BookPlus system, and also made provision for the uniqueness of the South African context.

6.2.2. Main Findings

The main aim of this research was to measure the attitudes of public library staff towards the Internet and the BookPlus LMS. Guided by this focus, six specific objectives were identified (chapter 1.3.2), and have subsequently been fulfilled. The survey instrument, with an amended version of the TAM, was used to determine the attitudes of public library staff towards the Internet and BookPlus. When determining the influences on public library staff attitudes, the choice of selecting specific demographic and organisational variables was guided by research in corresponding fields of study, and specifically the thesis of Spacey (2003). The questionnaire, together with its 'comments' section elicited information (quantitative and qualitative) such as gender, age, qualifications, post, place of work and computer skills from staff.

The potential effects of negative or positive attitudes of public library staff to the Internet and BookPlus were investigated by determining the behavioural intentions of staff to using the respective systems, as well as the actual usage (initial and future) of both systems.

A brief summary of the findings of both the Internet and BookPlus will follow together with a succinct statement outlining key interpretations.

6.2.2.1. Internet: Summary

Relationships were found between gender and computer proficiency, length of time using the Internet and confidence about helping the public use the Internet. Male members of staff rated their proficiency higher than their female counterparts, had been using the Internet for a longer period, and indicated a generally higher confidence than women when assisting the public with the Internet (see chapter 5.2.2.1 for discussion).

The age variable had a significant relationship with both proficiency and subjective norm. Younger members of staff indicated higher, self-rated computer proficiency than their older counterparts, and were less inclined to be influenced by colleagues than older members of staff (see chapter 5.2.1.2 for discussion).

A relationship was found between post and both confidence in helping the public and subjective norm. Assistant librarians rated their confidence significantly higher than SLAs, which can be attributed to their higher self-rated computer proficiency and that more assistant librarians used the Internet on a daily basis. It was determined that SLAs are more susceptible to the influence of superiors and/or colleagues than librarians, a characteristic which could be motivated by wishing to improve their image and identity (see chapter 5.2.2.2 for discussion).

The findings indicated a significant connection between computer proficiency and the following variables: confidence about helping the public use the Internet, perceived ease of use and attitude. Staff who rated their computer proficiency high, reported a greater confidence in helping the public use the Internet, they found it easy to use the Internet and were more positive towards the use of the Internet at work. Statistical extrapolation determined that those who used the Internet daily (current usage) also gave a higher self-rating for computer skills and attitude (see chapter 5.2.3.1 for discussion).

Staff with positive attitudes towards the use of the Internet at work was found to be more confident when helping the public use the Internet. But as staff confidence weakened, the more susceptible they became to the influence of colleagues at work. This was not necessarily a bad outcome, since the majority of staff indicated either a *general confidence* or *strong confidence* in helping the public use the Internet. This majority may, therefore, positively influence those with weak confidence into performing tasks that they otherwise would not even consider doing (see chapter 5.2.3.2 for discussion). The causes of negative staff attitudes towards the Internet and BookPlus were dealt with in chapter 5.3.5 where, although, a small number of staff expressed negative attitudes towards either one system or both, the effect of the mandatory nature of BookPlus and the experience that staff have built up over the many years with the system has manifested a tolerance or even acceptance in staff with regards to the shortcomings of BookPlus.

6.2.2.2. BookPlus: Summary

A relationship between gender and attitude was found where women believed more strongly than men that the use of BookPlus was extremely necessary. It may be suggested that women are more susceptible to the influence of superiors and their mandatory instruction with regards to the use of BookPlus. Since the majority of staff are women and are aged 35 years and older, the influence of age, which has been found to have a relationship with subjective norm, has to be considered when interpreting this finding (see chapter 5.2.1.1 for discussion).

Respondents with graduate or post-graduate qualifications felt more positive about their use of BookPlus at work. A clear division exists between professional and non-professional staff and their attitudes towards BookPlus, which may be attributed to additional duties and increased workloads resulting from severe staff shortages (see chapter 5.2.2.1 for discussion).

Staff aged 55 to 64 years old was more inclined to use BookPlus if they perceived it to be useful in fulfilling their duties at work. Although the mandated use of BookPlus was responsible for the initial use of the system, it was the usefulness of the system

that sustained the interest of users in the system over a prolonged period of time (see chapter 5.2.1.2 for discussion).

Older staff also had higher self-ratings for their feelings about using BookPlus at work and the importance of the system in helping them with their duties at work. It is suggested that the initial exposure staff had with the system was positive, and that both the usefulness and the reliability of BookPlus is responsible for staff current, favourable attitude towards the system even as it was superseded by 'new generation' LMSs (see chapter 5.3.2 for discussion).

6.3. Recommendations for the Successful Implementation of ICTs

Library managers need to be aware of and sensitive to library staff attitudes towards ICTs, especially staff that hold negative attitudes. Identifying the type of attitude is the broad concern, but by identifying the influences underlying staff attitudes, library managers are in a better position to formulate a holistic approach to their ICT undertaking. It is therefore imperative that open communication and transparency exists throughout the ICT endeavour. Management needs to fully endorse and positively market the operation so that staff can witness the commitment shown by their leaders and reciprocate by embracing change and new opportunities. The influence of subjective norm on user behaviour has been illustrated in both the Internet and BookPlus. Management should empower staff and make them part of the process from the very beginning so that they can perceive themselves as stakeholders whose unique concerns will be addressed.

The training of staff should be divided between formal and informal methods. On-the-job training with direct feedback from the system, as well as the provision of flexible practice opportunities are essential considerations if staff is to develop positive attitudes about a system and acquire the necessary competencies to operate in a changed environment. Formal training courses can either be presented in-house or externally through an agency. With regards to training, the main concern to management should be the provision of diverse training opportunities, so that staff can identify a method which best suits their individual learning styles. The training programme should accommodate the option — if not immediately, then in the future —

– to acquire training for troubleshooting problems with the system. An important aspect responsible, in part, to the success of the BookPlus system was that staff could train and practice on a training module, which was identical to the actual production system, without fear and risk of corrupting important system files. This experimental environment builds staff confidence and competence prior to staff going ‘live’ with the system.

If possible, management should consider a demonstration comparing the functionality of the current system with the offerings of the new system so that staff may visually confirm the benefits and usefulness the new system brings to the workplace. It would be advisable for management to pilot the system with a few, small libraries so that the stability and speed of the network infrastructure can be tested under realistic conditions.

Through the application of the above suggestions, library management can moderate the impact of negative attitudes on the implementation ICTs in the workplace. If these measures are thoughtfully applied, then much progress would be made towards the ultimate goal of staff acceptance and usage of new ICTs.

6.4. Limitations

This research suffers from a few limitations that should be noted. First, although the sample size was considered large enough for this particular thesis, from a statistical point of view a larger sample would have given more reliable results. Second, the survey instruments’ use of self-reported scales instead of direct, objective measures suggests that possible method bias could have corrupted some of the results. Third, although the ‘snap-shot’ approach of the thesis was adequate for this level of academic research, it lacked the depth offered by a longitudinal approach which provides measurement and interpretation of prolonged usage behaviour. It should be noted that whereas the Internet’s implementation in CTA libraries is in its early stages, the BookPlus system has been in operation for longer than a decade. Finally, the survey instrument was adapted from one designed for evaluation of the Internet alone. The inclusion of the BookPlus system into the instrument, which mirrored to a degree the layout of the Internet section, resulted in a lengthy, repetitive questionnaire

which could have affected both the response rate and the validity of staff responses to the questions.

6.5. Future Work

Further investigation could consider additional variables such as image, training and support, and their influence on attitude and usage behaviour. A longitudinal approach, covering usage behaviour of staff over a prolonged period of time, would provide more reliable data to compare with the 'aged' BookPlus system. Since staff are currently merely administering the Internet service at branches and not assimilating it into their regular information retrieval services, it would be interesting to ascertain from staff their feelings about adapting to changed roles and duties which have resulted from the omnipresent nature of ICTs and the changed information seeking behaviour of patrons.

6.6. Conclusion

The analysis and interpretation of the qualitative and quantitative data resulting from this research project, determined that public library staff of the CTA library service had positive attitudes towards the use of both the Internet and the BookPlus LMS. For the BookPlus system, the subjective norm, attitude and usefulness variables exerted a significant influence on staff decisions to use the BookPlus system. For the Internet, attitude and the usefulness variables significantly influenced staff decisions to use the Internet.

Although the BookPlus system was a mandatory usage system, its speed, stability, ease of use and usefulness are factors that have contributed to staff present positive attitudes towards a system that has been in operation for longer than a decade. Although staff acknowledged the usefulness of the Internet and generally had positive attitudes towards the system, some staff did express concern over its stability and speed, which has caused them much frustration. This concern needs serious attention from library management if they hope to sustain positive staff attitudes and usage of the system into the foreseeable future.

A library service considering making a significant investment in new ICTs should be aware of the factors influencing staff adoption of new technologies so that they can minimize the risk of resistance or rejection by users.

University of Cape Town

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Appendix A: Covering Letter

UNIVERSITY OF
CAPE TOWN



Department of Information and Library Studies

Public Library Staff: Attitudes to ICT

- A Survey

This survey is part of an investigation to better understand the attitudes of public library staff to ICT (Information Communications Technologies), Book Plus, and the Internet.

All information provided will remain **confidential**. You cannot be identified from the information you provide. Please answer each question as honestly as possible.

If you have any enquiries or comments relating to the survey please contact me on (021)467-1559

Please insert your completed questionnaire in the envelope provided, seal it and hand to your librarian-in-charge, who will forward all collected questionnaires to:

Rian Thornton
Old Drill Hall: Head Office
Acquisitions Section

Many thanks for your time and co-operation.

Appendix B: Questionnaire

Section A – All about You

Please answer the following questions with one tick (✓) only for each question.
You may provide any additional information where requested if you wish.

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?

- Standard 9 and lower 1
Standard 10 or equivalent 2
Undergraduate diploma 3
Bachelor's degree 4
Postgraduate degree 5
Undergraduate qualification in
library & information studies 6
Graduate/ Post-graduate qualification
in library & information studies 7
Other, please specify

4) What is your current post?

- Principal Librarian 1

-
- | | |
|--------------------------|-------|
| Senior Librarian | [] 2 |
| Librarian | [] 3 |
| Assistant Librarian | [] 4 |
| Senior Library Attendant | [] 5 |

5) What is the nature of this post?

Full Time

- | | |
|--------------------|-------|
| Permanent | [] 1 |
| Temporary/Contract | [] 2 |

Part Time

- | | |
|--------------------|-------|
| Permanent | [] 3 |
| Temporary/Contract | [] 4 |

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?

- | | |
|-----------------------|-------|
| Head Office | [] 1 |
| District | [] 2 |
| Branch | [] 3 |
| Mobile | [] 4 |
| Other, please specify | |

Section B – You, Computers and the Internet

8) How would you rate your ability to use computers, generally?

- | | |
|------|-------|
| Poor | [] 1 |
| Fair | [] 2 |
| Good | [] 3 |

-
- | | |
|-----------|-------|
| Very Good | [] 4 |
| Excellent | [] 5 |

9) How long have you been using the Internet at work?

- | | |
|-------------------------------------|-------|
| Never | [] 1 |
| Less than 6 months | [] 2 |
| Between 6 months and 1 year | [] 3 |
| Longer than 1 year but less than 2 | [] 4 |
| Longer than 2 years but less than 3 | [] 5 |
| Longer than 3 years but less than 4 | [] 6 |
| Longer than 4 years | [] 7 |

10) How often do you use the Internet at work?

- | | |
|-------------|-------|
| Never | [] 1 |
| Daily | [] 2 |
| Weekly | [] 3 |
| Fortnightly | [] 4 |
| Monthly | [] 5 |
| Rarely | [] 6 |

11) How confident do you feel about helping the public use the Internet?

- | | |
|----------------------|-------|
| Not at all confident | [] 1 |
| Not very confident | [] 2 |
| Neutral | [] 3 |
| Generally confident | [] 4 |
| Very confident | [] 5 |
-

Section C – Attitudes towards the Internet

(ONLY complete this section if using the Internet at work)

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 skilful 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 experience of using the Internet at work is...

	Extremely	Quite	Neither	Quite	Extremely	
Negative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Positive

b) My experience of using the Internet at work is...

	Extremely	Quite	Neither	Quite	Extremely	
Unpleasant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pleasant

c) My experience of using the Internet at work is...

Extremely	Quite	Neither	Quite	Extremely
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19) Attitude toward using Book Plus

Please place a tick (✓) in the box that best matches your opinion.

a) My experience of using Book Plus at work is...

	Extremely	Quite	Neither	Quite	Extremely	
Negative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Positive

b) My experience of using Book Plus at work is...

	Extremely	Quite	Neither	Quite	Extremely	
Unpleasant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pleasant

c) My experience of using Book Plus at work is...

	Extremely	Quite	Neither	Quite	Extremely	
Not Enjoyable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enjoyable

d) My experience of using Book Plus at work is...

	Extremely	Quite	Neither	Quite	Extremely	
Unnecessary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Necessary

e) My experience of using Book Plus at work is...

	Extremely	Quite	Neither	Quite	Extremely	
Optional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Required

Please feel free to add any comments you wish to make regarding the survey or its content:

Place your completed questionnaire in the envelope provided, seal it and hand to your librarian-in-charge.

Thank you for your participation