

**ATTITUDES OF LIBRARIANS TOWARDS THE USE OF  
INFORMATION AND COMMUNICATION TECHNOLOGIES IN  
ZAMBIA**

**BY**

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**A dissertation submitted to the University of Zambia in partial fulfilment of the  
requirements for the award of the degree of Master of Library and Information Studies.**



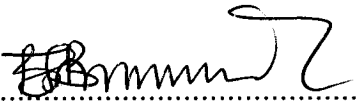
**THE UNIVERSITY OF ZAMBIA**

**LUSAKA**

**June, 2010**

## DECLARATION

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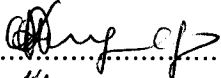
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# APPROVAL

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## DEDICATION

This dissertation is dedicated in memory of my late son Daniel Banda 02-03-09-19-10-09. Daniel died at a tender age of eight months and at that time I was collecting data for this research. May his soul rest in eternal peace.

## ABSTRACT

Information and Communication Technologies (ICTs) are becoming widespread and libraries in developing countries are quickly adopting them. However, this is not matched with the requisite training and attitudes towards their use. Like in other developing countries, libraries in Zambia are also rapidly adopting ICTs. Their application however, largely depends on the attitudes of librarians towards them. The purpose of this study was therefore to survey the attitudes of librarians towards the use of Information and Communication Technologies in Zambia. The study was intended to find out whether librarians were trained in the use of ICTs, their perceptions towards the use of ICTs, and factors contributing to their perceptions. The study also focused on how training of librarians in ICTs could influence their use. A survey method was used to collect data in tertiary and research institutions in Lusaka, Central, and Copperbelt provinces of Zambia through a self-administered questionnaire. Data collected from 90 librarians were analysed using the Statistical Package for Social Sciences (SPSS) and Microsoft Excel; and presented in the form of descriptive statistics.

The findings revealed that librarians had training in ICTs received at university or college during their formal training. The perception of librarians towards use of ICTs was also generally positive as they consented to most of the attitude items. The study revealed that older librarians were uncomfortable to learn new skills compared to younger librarians and also feared that years of routine work could be replaced instantly with the introduction of ICTs. ICTs were also so recent that most librarians over the age of 28 have not had the benefit of computer training in the course of their studies. Younger librarians also rated their computer proficiency highly than older librarians. Non-professional librarians were also not given equal opportunity to use ICTs. Also, the tasks of librarians were very different and consequently the use of ICTs was more important to one group of librarians than the other. Furthermore, ICTs were recent and recently qualified librarians are trained in ICTs. The study also revealed that librarians employed on contract were given less opportunity to use ICTs and they also worked fewer hours than those on permanent. They also had belated or insufficient training hence found ICTs harder to use. Some librarians were afraid of being replaced by librarians with relevant skills, they also feared the effect brought about by ICTs on their health. Other librarians also believed that ICTs brought uncertainty and discomfort in them with regard to their job security.

Information and Communication Technologies also brought more demand on librarians. However, the study revealed that ICTs never create additional tasks to be performed by librarians in a day. It further revealed that training was vital in influencing use of ICTs. Management should therefore, not overlook the perceptions of librarians and their training when new technologies are being introduced as users are key in the success of the adoption and use of technologies.

It is therefore recommended that more emphasis should be placed on changing the attitudes of librarians towards the use of ICTs. Equal opportunity of access to ICTs should also be given to all irrespective of gender, age, and employment status, and attitude of librarians. To ensure successful adoption and implementation of ICTs, users of the new system are involved in the automation of the libraries. A funding policy should be put in place for training and procurement of ICT equipment and ICT should be a core component of formal library education in Zambia.

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## LIST OF ACRONYMS

|             |                                                  |
|-------------|--------------------------------------------------|
| BI          | Behavioural intention                            |
| CD-ROM      | Compact disk read only memory                    |
| E-resources | Electronic resources                             |
| ICT         | Information and communication technology         |
| IT          | Information technology                           |
| MEDLARS     | Medical Literature Analysis and Retrieval System |
| NLM         | National Library of Medicine                     |
| OPAC        | Online Public Access Catalogue                   |
| PC          | Personal Computer                                |
| PEOU        | Perceived ease of use                            |
| PDF         | Portable Document Format                         |
| PU          | Perceived usefulness                             |
| SN          | Subjective Norm                                  |
| SPSS        | Statistical Package for Social Sciences          |
| TAM         | Technology Acceptance Model                      |
| TPB         | Theory of Planned Behaviour                      |
| TRA         | Theory of Reasoned Action                        |

## **CHAPTER ONE**

### **BACKGROUND**

#### **1.1 Introduction**

This chapter is divided into ten sections. The first section introduces the chapter. The second section looks at the concept of information and communication technologies in libraries. The third section deals with the significance of information and communication technologies in libraries. The fourth section focuses on factors affecting the adoption and use of information and communication technologies in libraries. The fifth section looks at the statement of the problem, while the sixth section deals with the objectives of the study. The seventh section looks at the research questions and the eighth section deals with the significance of the study. Section nine looks at operational definition of terms while the tenth section focuses on the limitations of the study.

#### **1.2 Concept of Information and Communication Technologies in libraries: a gradual development.**

Lilley and Trice (1989) state that although there are several libraries in the world yet to use information and communication technologies (ICTs) such as computers to automate their core functions, libraries were among the early institutions to consider using ICTs. For example, in 1958, the Library of Congress considered using ICTs such as computers and in the same year, the National Library of Medicine (NLM) in the United States, began looking into computer use in their library operations. Consequently, during the 1960s the NLM hired General Electric's Defence Systems Department to develop a method of using ICTs for storage, retrieval and printing services for the Index Medicus, which resulted in the development of Medical Literature Analysis and Retrieval System (MEDLARS). Libraries in Africa, including those in Zambia, have not been left out in the adoption and use of ICTs in the provision of library and information services.

### **1.3 Significance of ICTs to libraries**

Shariful and Nazmul (2006) observe that ICTs are significant to libraries because carrying out library functions manually is difficult due to the ever growing size of recorded information. Space available at the disposal of each library is also limited.

Although library collections grow continuously, no library thinks of getting additional space every year, and due to knowledge explosion, libraries are faced with multifaceted and multidimensional information to such an extent that not only has its storage created challenges, but the organisation of information has also become unwieldy making fast and easy access and retrieval of information problematic. In addition, the potential growth of information has made library operations take many hours to perform manually.

According to Owoyemi (2001), before the advent of computer technology at the close of the 20<sup>th</sup> century, computers were rare in libraries. The basic functions of librarians then were carried out manually. The computer is capable of quickly accomplishing a large volume of what can be done manually. Consequently, the computer has also become a basic tool for generating and processing information.

Mundy and Sultan (2001) state that with the emergence of ICTs, the role of librarians has also changed. They have become much more of communicators in the sense of information workers, extension workers and subject specialists who must reach out in order to guide their constituencies. In addition, librarians need to have ICT knowledge, ICT skills, ICT tools, and continuous learning in the context of rapidly changing ICTs. Nwachukwu (2004) states that librarians must acquire relevant skills and competence in the application of ICTs. Hence, human resources development becomes fundamental. In addition, ICTs must not only be available but accessible as well.

Shariful and Nazmul (2006) further observe that ICTs such as computers are significant because they can be used repetitively to process information easily. Using ICTs in libraries also enhances user satisfaction. Libraries also provide various ICT-based services to their users such as web access to Open Public Access Catalogues (OPACs).

It is then easy for library users to learn and use these resources since they only have to learn how to use one universal access client, the web browser.

In addition, libraries are also implementing ICT-based interlibrary lending systems using electronic networks to deliver copies of journal articles and other documents in digital format mainly in Portable Document Format (PDF) to library users' desktops.

This is called electronic document delivery. Mundy and Sultan (2001) observe that with ICTs, it is becoming less and less important to have printed copies on the library shelves.

Chisenga (1995) explains that with ICTs, libraries also provide their users with access to networked information resources. These include: databases, electronic scholarly journals, encyclopaedias, public government information, etc, provided by various publishers or suppliers. Library and information users access electronic information resources from the computer desktops in computer laboratories, Internet cafes, offices and even at home. This results in librarians and other information specialists implementing systems that deliver customised information to users' desktops irrespective of their geographical location.

In addition, libraries also implement online based bibliographic or library use programmes called online instructions. These include online tutorials and virtual tours of library collections. They implement web-based versions of readers' advisory services and reference services as well. These include services such as informing users via the Web about new acquisitions, providing reviews and recommendations, providing facilities (virtual reference desks) for readers to interact with the reference staff.

#### **1.4 Factors affecting the adoption and use of ICTs in libraries**

A study by Rabina and Walczyk (2007) revealed that the adoption of information and communication technologies (ICTs) in libraries is traditionally driven by two complementally objectives: first, that once new technologies are adopted, services to patrons improve and second, that after implementation is complete and the new ICTs begin to be used, the anticipated fiscal benefits and those associated with efficiency and productivity are realized.

However, Chisenga (1995) observes that there are factors that can affect the adoption and use of ICTs in libraries such as problems of acquisition of ICT equipment, maintenance and sustainability of ICT equipment, inadequate financial support to libraries, poor information and communication technologies infrastructure, interruption of power supply, lack of user education in ICTs, lack of relevant ICT policy, hardware/software selection problems, security of ICT equipment and software development. Chisenga (1995) further states that the attitude of librarians towards ICTs transcends the above factors and affects the adoption and use of ICTs in libraries.

### **1.5 Statement of the problem**

Although ICTs have become widespread and libraries in developing countries are quickly adopting them, this is however, not matched with the requisite training and attitudes of librarians towards their use. The curricula in training institutions in developing countries, has also not significantly changed to provide the requisite skills and knowledge in their usage. Librarians are still trained in traditional practices. They therefore, have varying perceptions, beliefs, fears and opinions on the adoption and use of ICTs such as loss of jobs due to extensive use of ICTs. The library profession attracts individuals of varying ages, varying degrees of experience, and a range of technological capabilities, all of which influence the way they perceive new information and communication technologies. Changes that occur due to the application of ICTs are also out of control of the librarians. Like in other developing countries, libraries in Zambia are also rapidly adopting ICTs. However, their application in library operations largely depends on the attitudes of librarians towards them and the extent to which they are trained to use them.

The perception that librarians might have about ICTs could be due to a number of factors and these factors affect the use of ICTs by librarians in tertiary and research institutions. Given this picture and assuming that the situation has not changed, one might be compelled to conclude that libraries in tertiary and research institutions might be wasting their time and resources buying ICT equipment, providing good ICT infrastructure and ensuring that there is uninterrupted power supply.

If the attitudes of librarians are not favourable to the adoption and use of ICTs in the libraries, another worry is that librarians might not be willing to be trained in ICTs and hence may not easily accept and own the new system. This study therefore set out to survey the attitudes of librarians towards the use of ICTs in Zambia and how it affects adoption of ICTs. However, considering that the subject of attitude is dynamic, the study tried to find out if librarians have been trained in the use of ICTs, factors contributing to their attitudes and the influence that training of librarians might have in the use of ICTs.

### **1.6 Objectives of the study**

The general objective of the study was to survey the attitudes of librarians towards the use of ICTs in Zambia. The specific objectives were to:

1. Find out whether librarians were trained in the use of ICTs;
2. Find out the perceptions that librarians have towards the use of ICTs;
3. Find out factors contributing to their perceptions; and
4. Find out how training of librarians in ICTs could influence their use.

### **1.7 Research questions**

The study addressed the following research questions.

1. Were librarians trained in the use of ICTs?
2. What perceptions did the librarians have towards the use of ICTs in libraries?
3. What factors contributed to their perceptions?
4. How could training of librarians in ICTs influence their use?

### **1.8 Significance of the study**

It is hoped that the survey of attitudes of librarians in the use of ICTs in libraries will have great potential for improving library service in Zambia; as at the moment, there is a dearth of literature on attitudes of librarians towards ICTs. It is also hoped that this study will generate first hand data based on local experiences, meanings and practices of librarians that can be used to change or sustain current knowledge, values, interests and practices. It is also hoped that the profiles of attitudes generated will fill in the knowledge gap and add intellectual knowledge to the research fraternity and particularly those who wish to conduct similar or much wider empirical studies.

## 1.9 Operational definition of terms

- **Attitude:** In this study, attitude is used to represent librarians' positive or negative perceptions towards the adoption and use of information and communication technologies. It also represents the conceptual value of these technologies in the minds of the librarians.
- **Information and Communication Technologies:** In this study ICT refers to computer technology, hardware, software, multimedia applications, Internet, web applications, email, digital materials, electronic databases, virtual collections, remote access, art, or other communication technologies.
- **ICT use:** Means availability and use of the above hardware, software, library automation, and online and web resources in the respondents' libraries.
- **Knowledge:** In this study, knowledge has been defined as how much librarians are aware of ICTs and their ability to use them.
- **Librarian:** One responsible for running the affairs of a library as head or one who has the care of a library and its contents, providing information and loan services to meet the needs of its users.
- **Status quo:** Is used to refer to the existing situation at a particular time.
- **Technophobia:** Has been defined as fear or dislike of advanced technology or complex devices, especially computers. This applies to cyber phobia, and computer anxiety.
- **Techno stress:** Is a negative psychological link between people and the introduction of new technology. It has also been used to mean the reaction of librarians to ICTs and how they are changing due to their influence.

## 1.10 Limitations of the study

The study was limited to libraries in tertiary and research institutions in Lusaka, Central, and Copperbelt provinces because that was where a huge concentration of libraries that were mostly using ICTs could be found. This therefore limited the generalisation of the findings to only these areas. The purposive sampling technique used also limited the generalisation of the research findings because the respondents the researcher picked any librarian present provided their qualifications ranged from certificate and above. This was because librarians were very few in most libraries.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter provides an insight into the literature done by various scholars which were reviewed by the researcher in relation to the topic of study. This chapter is very important because it assisted the researcher gain a better understanding of and insights into previous related research work. Furthermore, this chapter helped the researcher not only to limit the research problem, but to define it better and to come up with specific objectives and research questions for his study as well. The literature reviewed further helped the researcher to get exposed to and familiarise himself with a variety of research methodologies used by other researchers. This helped the researcher to refine and choose the most suitable methodologies for his study.

The chapter is divided into eight sections. The first section gives an introduction to the chapter, the second section looks at some of the previous research findings on the attitudes of librarians towards ICTs as well as the attitudes of library staff in general. The third section deals with some models on attitudes and the fourth section focuses on the impact of attitudes on the provision of library and information services. The fifth section looks at factors that affect the attitudes of librarians towards the use of ICTs. The sixth section deals with the influence of training on use of ICTs. The seventh section examines the various methodologies used by different researchers in the literature reviewed. Finally, the eighth section gives a summary of the literature reviewed.

#### **2.2 Attitudes of librarians towards the use of ICTs**

Attitudes of librarians are crucial in the successful adoption and use of ICTs in libraries because they may affect adoption and use of ICTs in libraries if they are not checked properly. Various researchers have put their arguments forward on the attitudes of librarians towards the use of ICTs. For example, Rosen and Weil (2000) carried out a survey on the attitudes of people towards ICTs and found out that, people were frightened of new technology from dishwashers to computers, giving rise to expressions such as technophobia, cyber phobia, computer anxiety, and techno stress.

They further observed that human fear of technology might have emerged because its introduction, or increase in use, appears to threaten the *status quo*. That is, fearing a change in routine work happily undertaken for the past 20 years or, the fear of being replaced by others who have relevant skills in technology. Rosen and Weil (2000) further observed that although there are people who are genuinely excited by new technology and enjoy using it, there are a substantial number who are resistant to technology. These researchers conclude that change in routine work could bring both uncertainty and discomfort in people as years of routine could be replaced instantly with the introduction of ICTs for staff with relevant skills to work with.

Hudson (1999) also conducted a survey on the attitudes of library staff in selected public libraries of Nigeria and discovered that change involves moving to a more modern library management system or acquisition of CD-ROMs and e-journals all of which might prove very intimidating for staff in public libraries with little or no prior experience of such innovations. He further observed that libraries are generally in a period of general uncertainty which is worrying for staff and provokes hostility or resistance to the introduction of new technologies.

Bichteler (1987) in his survey on the attitudes of staff towards technology in the workplace, observed negative reactions to technology displayed by individuals, generally termed as resistance. He explained that in the workplace, which includes the library environment, resistance takes the form of an unwillingness or inability to be trained and to learn the new system. Also, library staff become passive non-users who continue to rely on the manual version of the system. Further signs of resistance to a new system are increases in absenteeism that is seen to be costly to the organisation and possibly to the individual concerned. In addition, staff also become aggressive, negative, and argumentative; denigrate colleagues and withdraw all actions. Thus, contributing to a rather hostile and unfriendly working environment.

A survey by Liquire (1993) on attitudes of public library staff towards automation revealed that having technology imposed on staff obliterates any sense of power and control they might have over their work. He concludes that a key variable in determining acceptance of new technology seems to be whether users have control over the decision to automate or not.

Another study by Bill and Wanyama (2001) revealed that librarians might have to handle the introduction of a new library system and use it to serve the users at the same time as they themselves are learning how to operate the system, which might not only be embarrassing but could also actually hinder use by staff. They further observed that to expect the users to just 'pick it up' without regular training and access to hardware was unrealistic and does not give enough recognition to the way users learn to use technology especially those with no understanding of it.

Morris and Dyer (1998) did a similar survey and the result revealed that fear of the unknown is related to change of technology. This fear is particularly inherent in staff that have been employed in a post for a long period and have developed to their satisfaction an established routine. They further observed that the introduction of a new system upset comfortable working practices and threaten a person's sense of authority. Related to the fear of the unknown is fear of obsolescence and failure. Fear of obsolescence is more common in middle aged workers or those near retirement who feel that their experience is negated and that there is little point in retraining since they would soon retire from work.

Quinn (1995) and Jones et al (1999) in their survey however observed that more information and communication technology results in greater demand from library users, having to learn to use it whilst working or simply the creation of additional tasks to be performed in a day such as switching computers (PCs) on and off or signing them on for the public to use. They further observed that increased workload for the same level of pay creates hostility. The introduction of technology also adds more responsibilities to a job but, ironically, that is not reflected in the pay cheque.

Dakshinamurti (1985) conducted a survey to determine the effects of automation on library personnel and the findings revealed that in the early days of computerisation in libraries, library personnel report eyestrain, backaches and headaches resulting from computer use. He further observed that although barriers and filters have been introduced, people still suffer from a carpal tunnel syndrome resulting from repetitive motions such as using a keyboard which lead to numbness or tingling in the hands.

Winter, Chudoba and Gutek (1998) also carried out a study on the attitudes of library staff towards the use of computers and found out that the attitudes of library staff towards computers are positively associated with computer use and are also predictive of the number of hours of work performed on a computer. The authors therefore suggested that attitudes of staff towards computers are an appropriate focus for organisations attempting to increase the number of hours that their employees spend on their computers.

In another study on the attitudes of staff towards automation, Sandore and Baker (1986) observed that people initially resist changes that challenge and threaten their basic securities. They further found out that if a person has experience of working with a manual system and an automated system is introduced, or a later computerised library management system replaces an earlier version, the individual is reduced to the same level of understanding of the system as those who may be new to the profession, or to the library. The researchers further found out that automation or increased use of ICT may have an effect in that someone with less experience in librarianship, but with superior computer skills may replace a librarian or one has to rely on younger staff with the requisite skills.

Sykes (1991), Nawe (1995), Fallow (1997), Morris and Dyer (1998) also observed in their study that technological change reduces opportunities for interaction with colleagues in a profession that prides itself on its service ethos. They further observed that staff working in an academic library feel that automation has reduced the opportunity for contact with users and other staff, something that they consider to be a main motivating factor in their job. Further, they saw that technological change might result in altered relationships such as having to work with different colleagues and supervisors, which might be unnerving for some. It may also blur the role boundaries as library assistants for example, take on more technological duties previously the preserve of librarians. Also, this could create tensions between professionals and paraprofessionals.

## **2.3 Models on measurement of attitude of librarians**

This section discusses three models on measurement of attitudes of staff so fundamental to the success of new ICT systems. A critical review of the literature pertaining to attitude measurement in the library and information sphere revealed that there are no attitude measurement instruments specifically designed for use in a library context. Rather, studies concluded that attitudes are important from previous literature or qualitative evidence, utilising self-constructed questionnaires or used and/or adapted measurement models from other disciplines such as psychology. Suitable measurement models for analysis of attitudes and ICT use include that of the Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB) and Technology Acceptance Model (TAM) (Ajzen and Fishbein, 1980).

### **2.3.1 Theory of Reasoned Action**

The theory of reasoned action (TRA) was developed by Ajzen and Fishbein (1980). This was derived from previous research that started out as the theory of attitude, which led to the study of attitude and behaviour. The theory was born largely out of frustration with the traditional attitude-behaviour research, much of which found weak correlations between attitude measures and performance of volitional behaviours. The components of TRA are three general constructs: behavioural intention (BI), attitude (A), and subjective norm (SN). The theory of reasoned action suggests that, a person's behavioural intention depends on the person's attitude about the behaviour and subjective norms ( $BI = A + SN$ ).

A person's intentions are themselves guided by two things: the person's attitude towards the behaviour and the subjective norm. Behavioural intention measures a person's relative strength of intention to perform behaviour. Attitude consists of beliefs about the consequences of performing the behaviour multiplied by his or her valuation of these consequences.

Subjective norm is seen as a combination of perceived expectations from relevant individuals or groups along with intentions to comply with these expectations. In other words, the person's perception that most people who are important to him or to her think he should not perform the behaviour in question (Ajzen and Fishbein, 1980).

According to the theory, if people evaluate the suggested behaviour as positive (attitude), and if they think other people want them to perform the behaviour (subjective norm), it results in a higher intention (motivation) and they are more likely to do so. To put the definition into simple terms, a person's volitional (voluntary) behaviour is predicted by his or her attitude towards that behaviour and how he or she thinks other people would view them if they perform the behaviour. A person's attitude, combined with subjective norms, form his or her behavioural intention.

Fishbein and Ajzen (1999) explain that attitudes and norms are not weighted equally in predicting behaviour. Indeed, depending on the individual and the situation, these factors might have very different effects on behavioural intention; thus a weight is associated with each of these factors in the predictive formula of the theory. For example, you might be the kind of person who cares little for what others think. If this is the case, the subjective norms would carry little weight in predicting your behaviour. Miller (2005) defined each of the three components of the theory as follows and used the example of embarking on a new exercise program to illustrate the theory.

**Attitudes:** the sum of beliefs about a particular behaviour weighted by evaluations of these beliefs. You might have the beliefs that exercise is good for your health, that exercise makes you look good, that exercise takes too much time, and that exercise is uncomfortable. Each of these beliefs could be weighted (e.g. health issues might be more important to you than issues of time and comfort).

**Subjective norms:** looks at the influence of people in one's social environment on his or her behavioural intentions; the beliefs of people, weighted by the importance one attributes to each of these opinions, would influence one's behavioural intention. You might have some friends who are avid exercisers and constantly encourage you to join them. However, your spouse might prefer a more sedentary lifestyle and scoff at those who work out. The beliefs of these people, weighted by the importance you attribute to each of these opinions, would influence your behavioural intention to exercise, which would lead to your behaviour to exercise or not exercise.

**Behavioural intention:** a function of both attitudes towards behaviour and subjective norms towards that behaviour, predict actual behaviour. Your attitudes about exercise combined with the subjective norms about exercise, each with their own weight, would lead you to your intention to exercise (or not), which then lead to your actual behaviour.

In terms of utility, the theory of reasoned action receives considerable and for the most part justifiable attention within the field of consumer behaviour. Not only does the theory predict consumer intentions and behaviour quite well, it also provides a relatively simple basis for identifying where and how to target consumer behavioural change attempts (Sheppard, Hartwick, and Warshaw, 1988:325).

### **2.3.2 Limitations and extensions of the Theory of Reasoned Action**

Sheppard et al (1988) agree with the theory but make exceptions for certain situations when they argue that a behavioural intention measure predict the performance of any voluntary act, unless intent change prior to performance or unless the intention measure does not correspond to the behavioural criterion in terms of action, target, context, timeframe and/ or specificity. So in reference to the example, if prior to your exercising you learn you have a medical condition, that may affect your behaviour intention. Sheppard et al (1988) said there are three limiting conditions in 1) the use of attitudes and subjective norms to predict intentions and 2, the use of intentions to predict the performance of behaviour. These are:

1. **Goals versus Behaviours:** distinction between a goal intention (an ultimate accomplishment such as losing 10 pounds) and a behavioural intention (taking a diet pill).
2. **The choice among alternatives:** the presence of choice may dramatically change the nature of the intention formation process and the role of intentions in the performance of behaviour.
3. **Intentions versus Estimates:** there are clearly times when what one intends to do and what one actually expects to do are quite different.

Thus, Sheppard et al (1988) concluded that the model has strong predictive utility, even when utilised to investigate situations and activities that do not fall within the boundary conditions originally specified for the model.

This is not to say, however, that further modifications and refinements are unnecessary, especially when the model was extended to goal and choice demands. Hale, Householder and Greene (2003) also accounted for certain exceptions to the theory when they said; the aim of TRA is to explain volitional behaviours. Its explanatory scope exclude a wide range of behaviours such as those that are spontaneous, impulsive, habitual, the result of cravings, or simply scripted or mindless. Such behaviours are excluded because their performance might not be voluntary or because engaging in the behaviours might not involve a conscious decision on the part of the actor.

The theory has even been revised and extended by Ajzen (1991) himself into the theory of planned behaviour. The extension involves the addition of one major predictor, perceived behavioural control, to the model. The addition was made to account for times when people have the intention of carrying out behaviour, but the actual behaviour is thwarted because they lack confidence or control over behaviour (Miller, 2005).

## **2.4 Theory of Planned Behaviour**

In psychology, the theory of planned behaviour (TPB) is a theory about the link between attitudes and behaviour. The theory of planned behaviour was proposed by Ajzen (1991) as an extension of the theory of reasoned action. In addition to attitudes and subjective norms, (which made the theory of reasoned action), the theory of planned behaviour added the concept of perceived behavioural control. The theory of planned behaviour specifies the nature of relationships between beliefs and attitudes. Ajzen (1991) observed that human behaviour is guided by three kinds of consideration, 'behavioural beliefs', 'normative beliefs', and 'control beliefs'. In their respective aggregates, behavioural beliefs produce a favourable or unfavourable attitude towards the behaviour. Normative beliefs result in subjective norm; and control beliefs give rise to perceived behavioural control.

In combination, attitude towards the behaviour, subjective norms, and perceived behavioural control, lead to the formation of a behavioural intention. In particular, perceived behavioural control was presumed to not only affect behaviour directly, but also affect it indirectly through behavioural intention.

Ajzen (1991) further observed that as a general rule, the more favourable the attitude towards behaviour and subjective norm, and the greater the perceived behavioural control, the stronger the person's intention to perform the behaviour in question should be. Finally, given a sufficient degree of actual control over the behaviour, people are expected to carry out their intentions when the opportunity arises.

#### **2.4.1 Strength of the Theory of Planned Behaviour**

At first, the theory of planned behaviour covered people's behaviour which could not be explained by the theory of reasoned action. An individual's behavioural intention could not be the exclusive determinant of behaviour where an individual's control over the behaviour is incomplete. By adding perceived behavioural control, the theory of planned behaviour could explain the relationship between behavioural intention and actual behaviour. In addition, the theory of planned behaviour as well as the theory of reasoned action could explain the individual social behaviour by considering social norm as an important variable (Ajzen, 1991).

#### **2.4.2 Limitations of the Theory of Planned Behaviour**

The theory of planned behaviour is based on cognitive processing and level of behaviour change. Compared to affective processing models, the theory of planned behaviour overlooks emotion variables such as threat, fear, mood and negative or positive feelings and assesses them in a limited fashion. In particular, in the health related situation, given that most individuals' health behaviours are influenced by their personal emotion and affect-laden nature, this is a decisive drawback for predicting health-related behaviours. Poor predictability for health-related behaviour in previous health research might be attributed to the exclusion of this variable (Armitage and Conner, 2000).

### **2.5 Technology Acceptance Model**

A derivative of the TRA by Ajzen and Fishbein, TAM, is a widely used and respected model in information technology research. It measures the psychological determinants of attitudes and subsequent behaviours.

The TAM was not designed specifically to measure attitudes but rather technology acceptance, which is considered the most important factor in determining the success or failure of an information system at a time when organisations are investing large sums of money on computerised systems for employees. Acceptance is defined as a demonstrable willingness within a user group to employ IT for the tasks it is designed to support (Dillon and Morris, 1996).

Applying the understanding of the TRA, to an individual's acceptance of management information systems, the technology acceptance model (TAM) suggested that attitude influences behavioural intention to use, and subsequent actual use. The technology acceptance model is an information systems theory that models how users come to accept and use a technology. It is developed to explain computer usage behaviour. The models suggested that when users are presented with a new technology, a number of factors influence their decision about how and when they would use it. TAM includes the constructs of perceived usefulness (PU) and perceived ease of use (PEOU). Perceived usefulness is the extent to which a person believes that using a system (or computer programme, for example) would enhance their performance, whilst perceived ease of use is the extent to which a person believes that use of the system would be free from effort (Dillon and Morris, 1996).

The two constructs have an important impact on a person's attitude towards using the system, but unlike the TRA, Dillon and Morris (1996) found that attitude does not completely mediate between beliefs and intentions. This suggests that an individual could hold negative attitudes to a system, but would still use it because it has high perceived usefulness. Although Dillon and Morris questions the influence of attitude in the TAM model because it does not completely mediate between beliefs and intentions, other researches found that attitude does exert some influence on the behavioural intention to use (Taylor and Todd, 1995).

In the field of management information systems, studies utilising the TAM to consider the effect of variables such as training on the use of computers and information systems found that training does exert an influence.

Igbaria, Zinatelli and Cragg (1997) found out that user training influences user's perceptions and image of the system amongst a group of university students using computers, whilst research into technology acceptance at small firms found that external educational and training programmes designed to increase individual's knowledge about computers and their operations might be beneficial in enhancing their computer skills and in reducing their attitudinal barriers to the acceptance of information technology.

Bigozzi, Davis and Warshaw (1992) argue that because new technologies are complex and an element of uncertainty exists in the minds of decision makers with respect to their successful adoption, people form attitudes and intentions towards trying to learn to use the new technology prior to initiating efforts directed at using it. Attitudes towards usage and intentions to use might be ill formed or lacking in conviction or else might occur only after preliminary strivings to learn to use the technology evolved. Thus, actual usage might not be a direct or immediate consequence of such attitudes and intentions. According to Dillon and Morris (1996) and their review of the TRA model for user acceptance of information technologies and related research, the TRA is a better model for investigating the determinants of intentions while TAM better predicts ICT usage.

### **2.5.1 Strength of the Technology Acceptance Model**

The TAM replaced many of TRA's attitude measures with the two technology acceptance measures' ease of use, and usefulness. Coincidental, TRA and TAM, both of which have strong behavioural elements, assume that when someone forms an intention to act, that they would be free to act without limitation. In the real world, there would be many constraints such as limiting the freedom to act (Venkatesh and Davis, 2000).

### **2.5.2 Criticisms of the Technology Acceptance Model**

Criticisms of TAM as a theory include its lack of falsifiability, questionable heuristic value, limited explanatory and predictive power, triviality, and lack of any practical value (Venkatesh and Davis, 2000).

This study is going to adopt the Technology Acceptance Model because it is deemed appropriate in predicting usage of Information and Communication Technologies as opposed to the Theory of Planned Behaviour and the Theory of Reasoned Action that only investigate the determinants of intentions.

## **2.6 The impact of attitudes of librarians on service delivery**

Attitudes could be positive, negative, or indifferent (having marginal resistance). In relation to adopting and using information and communication technology (ICT) in libraries, librarians with positive attitudes towards ICTs are desirable and negative attitudes undesirable. Quite a number of researchers have written on the impact of attitude. For example, Burton (1995) suggested that attitudes are fundamental in determining the impact of ICT. Swanson (1995) also argued that as holders of prominent positions, library staff's attitude towards the new computerised system can ultimately determine how successful it could be.

Rowley (1998) did a research on the implications of attitudes of staff and found out that staff attitudes generally and to ICTs in particular, affect the service received by users, and have far-reaching consequences. He also observed that performance of both professional and non professional staff determine to a large extent the quality of the user experience and have a significant impact on the contribution that libraries make to their communities. The researcher further observed that most of the library staff are positive towards technology in general and find the use of ICTs necessary in their work. He concluded that if librarians have positive attitudes towards the use of ICTs, there would be improved library and information service to the users.

Idowu's (1997) findings on the use of computerised information systems in selected university libraries in Nigeria were that in general terms, librarians were highly positive in their attitudes towards the use of ICTs because they found the ICTs necessary in their workplaces. Owoyemi (2001) states that ICTs have also collapsed barriers and promoted fast communication and interactions across boundaries.

Chifwepa (2006) also did a study on the application of ICTs in distance education at the University of Zambia and found out that people with positive attitudes towards computers and related technologies are more likely to become more involved with ICTs such as computers and even adopt them for their personal, academic and professional use. He further observed that it is therefore vital to consider the attitudes and perceptions of librarians as possible movers of the ICT adoption.

In another study, Sandore and Baker (1996) observed in their study on the attitudes of library staff towards ICTs that, specifically, if staff develop or hold negative attitudes towards ICTs, the service offered may no longer meet the needs of the users who expect to be offered the latest in technological advances. Similarly, Sorensen's (1990) findings revealed that library staff who show negative attitude towards ICTs resist change. That is, they would resist a shift from the traditional library system to the technology based system, due to their self image. According to Sorensen (1990), this situation has of course to do with the library staff's personality. Further, individuals who have negative attitudes are unlikely to make effective and efficient use of information systems. Hence he concluded that the provision of library and information services to the users could be poor.

Literature review by Engstrom (2001) revealed that there is no doubt that ICTs bring about changes in the libraries that use them. Despite the benefits associated with ICTs, Engstrom (2001) also observed that some library staff receive them with mixed feelings or indifference. He further observed that the changes in libraries also include changes in the roles of librarians and these changes are received with mixed feelings. He was indifferent about the use of ICTs. For instance, Engstrom does not see ICTs such as computers as the answer to all the problems libraries have and that ICTs make jobs less interesting even though the same technology makes library activities/services less complex. Despite the pros and cons of automation, he concluded that for every computer user to have job satisfaction, adequate skills and accuracy are required.

## **2.7 Factors that affect librarians in the use of ICTs in libraries**

Librarians may want to adopt and use ICTs in the libraries but, certain factors might affect their successful adoption and use. A survey by Spacey, Goulding and Murry (2003) measured the influence of gender on use of ICTs such as the Internet by public library staff. The results of the study revealed that the influence of an individual's gender, a variable frequently explored in relation to ICT acceptance and usage, is of consequence when the majority of public library staff in the United Kingdom are women. Also, women are frequently portrayed as afraid of such ICTs, alienated by the masculine culture surrounding them. Rosenthal and Spiegelman (1996) conducted a similar study and observed that gender is a factor regarding the usefulness of ICTs such the Internet.

Men rate the Internet more highly than women and that ICTs are a masculine device or that women are simply less enthusiastic about the value of using such ICTs in the library. They further observed that men judge their ICT skills more highly than women and that they use such ICTs (computer skills) at work for longer periods of time. They further observed that women are less confident about their ICT skills in terms of their ability. Men are also more overconfident than the women. For example, Rosenthal and Spiegelman (1996) observed that men apply for jobs they aspire to whilst women apply for jobs they know they can do.

Rosenthal and Spiegelman (1996) also surveyed the effect of the age of people on the use of ICTs in factories and offices and found out that the age of staff has some bearing on their attitudes and subsequent use of ICTs at work. In terms of computer skills, they found a relationship between age and computer proficiency, and the relationship is that younger library employees rate their computer proficiency more highly than their older colleagues.

Waldman (2003) states that the computer proficiency of younger library employees are higher because younger generations have been brought up with computers unlike their older counterparts who may not have had as much exposure to computers. In addition, as individuals are more exposed to technology, the novelty wears off, as does anxiety and fear. People become more comfortable and less anxious and more willing to take new risks as well as learn new skills.

The positive perceptions of one's computer skills are related to the familiarity the workers have with ICTs since they are used extensively at school, college and university. Arthur (1998) also did a study on the effect of age on use of ICTs and observed that older staff are subject to common myths, that is, being unwilling to learn new skills. Swann (2003) also conducted a study on the ICT skills of older library workers and observed that information and communication technology (ICT) is so recent that most people over the age of twenty eight (28) have not had the benefit of computer training in their own schooling. He observed that older library workers lack self confidence with computers and that they perceive ICTs differently as compared to their younger colleagues.

Literature review by Quinn (1995) on the effect of the employment status of staff in the organisation revealed that the organisational situation of staff exert some influence on their attitudes. For example, staff in the same post for a long period of time might resist change. Also the current job title such as library assistant or librarian, contract or permanent employment status exert some form of influence on the attitudes of staff to ICTs.

A study by Goulding and Kerslake (2004) on people on part-time and those on full-time employment in relation to skills in ICTs and length of time that they used them and frequency of use revealed the following: the ICT skills of people on full-time employment in computers are better than those on part-time because while the latter are often more recent users of ICTs at work and obviously, work few hours than their colleagues on permanent employment, use the ICTs less frequently. Also, training is available to a far extent for full-time professional workers. In addition, simply working few hours in the library means less opportunity to use the ICT facilities, to practice and improve their skills and to attend training courses. Because those on full-time employment are presented with more opportunities to use these ICTs, they subsequently value their usefulness more highly than those on part-time, while belated or insufficient training might explain why those on part-time find the ICTs harder to use.

Furthermore, those who worked in main libraries rated their ICT (computer skills) more highly than other staff because a larger proportion of the staff in main libraries use ICTs on a daily basis compared to staff in branch, or mobile and other libraries, possibly because ICTs have

recently been installed in many branches and indeed, some smaller branches are still awaiting the ICTs (Goulding and Kerslake, 2004).

A study by Kahan (1997) on the attitudes of the East Tennessee medical librarians about the evolving computer information technology on the other hand, revealed that practices vary particularly in those libraries where library assistants adopt a paraprofessional role and undertake responsibilities beyond issuing and returns. For example, staff in a very small library without a librarian make more use of ICTs than staff in a large library where the differences between professionals and non-professionals are more demarcated. He also observed that although the East Tennessee medical librarians possess the skills, as library assistants, their use of ICTs is very limited, often restricted to showing the users how to set up e-mail accounts.

Kahan (1997) further observed that library assistants could have inferior computer skills because traditionally, their use of ICTs like computers is limited and restricted to use of a library management system for issuing and returning materials loaned by the users, whilst the librarians often have experience using databases, PCs and CD-ROMs to access information. Also, recently qualified librarians could have undergone computer training during study at university or attended professional development courses to improve their skills. Small (2001) adds that it is important to find time for staff to learn and practice and to ensure that there are sufficient computers for staff to practice with.

Literature review by Usun (2004) on the factors that affect the application of ICTs in distance education in Turkey revealed that factors such as cultural difficulties to accept change from traditional methodologies and attitudes towards technology, that is, what technologies are available and their suitability, political will to integrate the technologies and provide for their availability, and economic environments that affect availability of income for investment affect adoption and application of ICTs in developing countries.

*But, Yang and Cornelious (2005) observed that attitudes and perceptions have greater effect than access, skill and other factors. The two researchers also observed that perceived value of the computer-based information have a strong effect on use and learning habits.*

Some of the perspectives observed are fear to lose jobs; mainly these are those trained using traditional methods.

The relationship between training and computer anxiety or technophobia, is a little more complicated. While Oskamp (1990) found out that women feel more threatened by technological change than men, Spender (1995) a feminist, disputed this, and argued that technophobia is increasingly becoming a myth.

Brosnan (1998) psychological study of technophobia for example, suggested that while computer courses and training promote usage, they do so without actually reducing anxiety such that there are many computer users who are computer anxious. He concluded that whilst their anxiety does not prevent computer usage, it does prevent the full utilisation of the potential capacity of the computer.

## **2.8 Influence of training of librarians on use of ICTs**

The literature on training of library staff is voluminous. Many studies explore the role of training in the success of the adoption and use of ICTs.

For instance, studies by Brosnan (1998), Gilmore (1998), Jones et al (1999), Woodhouse and Baigent (2002), Torkzadeh, Pflugheft and Hall (1999), Williamson (1993), Quinn (1995), Coulson (2000), and Small (2001) looked at the influence that training would have on use of ICTs by librarians. The researchers argued that training is generally acknowledged to be essential in introducing successful change in the workplace and it is a key strategy in overcoming any resistance to change and in providing staff with the requisite skills. Also, good training has beneficial effects on staff and their reactions to new technologies, is a means of building the morale of staff, curing techno stress and reassuring them of their ability to do the job effectively, efficiently and with ease. Similarly, training increases enthusiasm and confidence of staff.

According to Gilmore (1998) training increases the individual's use of information and communication technology (ICTs). This is reiterated in the management information systems literature where Torkzadeh et al (1999) noted that user training influences user involvement, user satisfaction, user confidence, and system usage. Training also assists in reducing the stress brought on by technological change. Conversely, poor training could actually exacerbate technostress as could too little training (Jones et al; 1999). From a psychological perspective, Brosnan (1998) noted that, self-initiated interaction could actually increase anxiety and an individual attempting to try to use a computer on his or her own is more likely to have a negative experience.

Training then must not take place for the sake of training (Williamson, 1993) and must provide the necessary skills, be of the right amount, of good quality and may have to combat fears as well as promote understanding and confidence in using ICTs. Brosnan (1998) recommended that the technophobes (those with an irrational fear of computers) be helped if they attend an anxiety reduction programme before commencing any formal training on a specific application. Good training would always result in improved motivation and more able and more competent staff (Williamson, 1993). Good training might also be seen as being ongoing, making it an essential constituent of the culture of an organisation, rather than a one-off event. Time was still vital for good training.

Regrettably, time was often something that public library staff and their managers had little to spare, but it was important that staff had the opportunity for hands on practice during a training programme, such as taking time away from the desk to practice. Similarly, once the staff have undergone training, they should be able to put their skills to use straight away (Quinn, 1995, and Coulson, 2000).

Early evaluations of training hinted that making sure time for training is honoured, building in time for staff to learn and practice, and ensuring that there are sufficient computers for staff to practice with, and study, are all potential problems for public library authorities (Small, 2001, Woodhouse and Baigent, 2002). Different training methods suit different people.

Small (2001) noted that staff in the library prefer training which include self teaching with support within a specific framework and training programme, whilst Jones et al (1999) found that staff in the focus groups favour a mixed group approach. Hopefully, the use of training needs analysis by public library authorities to identify the skills and needs of staff assist managers in utilising the favoured approaches of staff. Earlier training in ICT was criticized for being organized at the last minute and irrelevant for some as skill levels varied so greatly between staff (Jones et al; 1999).

## **2.9 Methodologies used in the literature reviewed**

Different researchers covered in the literature reviewed employed different methodologies in their studies. But, almost all the researchers used a survey method and the surveys were cross-sectional. That is, the researchers used some questionnaires that were either mailed to the respondents or self administered by the researchers and/or some interviews to collect data on a sample of respondents at a point in time. In most studies, questionnaires were used to collect both qualitative and quantitative data.

For example, studies on the attitudes of library staff by Rosen and Weil (2000), Hudson (1999), Bichteler (1987), Liguire (1995), Morris and Dyer (1998), Fine (1986), Evald (1996), Dakshnamurti (1985), Quinn (1995), Jones et al (1999), Dillon and Morris (1996), Taylor and Todd (1995), Winter et al (1998), Fishbein and Ajzen (1999), Sykes (1995), Nawe (1995), and Fallow (1997) heavily relied on questionnaires to collect data. Sampling methods included simple random sampling, stratified random sampling and purposive sampling, while software used for data analysis included Statistical Package for Social Sciences (SPSS) and excel. Others also analysed their data manually.

The researchers used the questionnaire method for the following reasons: questionnaires were easier for them and guaranteed anonymity for the respondents. That is, the respective respondents were able to complete the questionnaires in the absence of the researcher, thus eliminating interference from the researcher. The questionnaire method was also deemed to be quite effective at measuring attitudes.

The fixed format of the questionnaire also eliminated variation in the questioning process and ensured consistency in the answering process. The manner in which the questionnaires were distributed and responded to allowed them to be completed, within limits, at the leisure of the participants. That, encouraged well thought out, accurate answers.

The questionnaires were also so well constructed that quantitative data were relatively easy to collect and analyse. The use of questionnaires also facilitated the collection of large amounts of data in a relatively short period of time. The questionnaire-based surveys of several thousands of people were not unusual, and responses typically were expected within one to two weeks.

Above all, the researchers might have considered the fact that questionnaires were usually relatively inexpensive to administer. The advantages are also supported by Powell (1997) who observed that, in comparison to the interview survey method, the use of questionnaire enables a researcher to deal with large sample sizes. However, despite the above advantages, the researchers faced problems ranging from low response rate to incomplete and unanswered questions. The researchers also had to take self reporting surveys with a pinch of salt as most people's opinions could not be taken as gospel truths.

This view is also supported by Best (1981) who observes that the questionnaire method is the most criticised data collection device. They might be more difficult for uneducated participants to complete, again possibly resulting in a biased return. This however, was not the case in the above studies.

Another survey method that was used in the literature reviewed was a combination of interviews and questionnaire. This was mainly used in the studies on the impact of attitudes and in the studies on the factors that affected use of ICTs. Recognizing the disadvantages inherent in the questionnaire and interview methods, Chifwepa (2006), Spacey, Goulding and Murry (2003), Burton (1995), Rowley (1998), Sandore and Baker (1996), Engstrom (2001), Rosenthal and Spiegelman (1996), and Brosnan (1998) for instance, combined the questionnaire and the interview survey methods to gather their data. They were able to use the interview method because the samples were relatively small.

The combined method also ensured that the two methods complemented each other by probing further or clarifying the matter with the help of an interview. However, combining both methods was more time consuming; needed more time to analyse the data and was just too complex. In these studies, the authors noted that the interview method also involved small samples as compared to a questionnaire and; the results were not easy to generalise. An interview method also required a level of skill usually beyond that of the researcher just beginning.

**2.10 Summary of the literature reviewed**

This chapter covered literature that has been done in relation to attitudes of librarians towards the use of ICTs. The attitudes of librarians are very important in the successful adoption and eventual use of ICTs in libraries. Meanwhile a number of research findings have revealed that the attitude of librarians were generally positive towards use of ICTs. The positive attitude of staff was viewed as being important in determining the successful adoption and use of ICTs in libraries. With regard to factors perceived to affect use of ICTs, the findings revealed that factors such as attitude, gender, age of staff, the position one held in the organisation, part-time and/or staff on full-time employment affected the library staff in the use of ICTs.

However, most research findings revealed that training of library staff influenced them to use ICTs. The findings also revealed that training in the use of ICTs was vital for a positive attitude among librarians in the adoption and use of ICTs. There was also consensus that in the era of new technologies, it was essential for librarians to keep up with ICT developments.

They saw training as the first step and as an appropriate means of enabling staff to cope effectively with technological change amidst their different perceptions and reactions to ICTs. They also seemed to agree that, to avoid the negative attitudes exhibited by some staff towards use of ICTs, training was an essential component in the adoption and use of ICTs. Obodoeze (2007) states that librarians must acquire relevant skills and competence in the application of ICTs. This means that human resources development becomes fundamental.

However Chisenga's (1995) findings revealed, that libraries in developing countries face problems of acquisition of ICT equipment, maintenance and sustainability of ICT equipment, inadequate financial support to libraries, poor information and communication technologies infrastructure, interrupted of power supply, lack of user education in ICTs, hardware/software selection, security of ICT equipment and software development. These are other factors that affect the adoption and use of ICTs. It is because of some of these problems that most libraries in developing countries and in Zambia in particular, struggle to adopt ICTs. Considering the importance of use of ICTs in libraries in the electronic era, the attitude of library staff towards ICTs still remains a source of concern in as far as successful adoption and use of ICTs is concerned. This literature review therefore, provided background information relevant to the subject of this study.