

ICT Proficiency of LIS Professionals: A Case Study of Tangaza University
College Librarians in Kenya.

Mini-dissertation

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DECLARATION

I, Agava Stanislaus Litsalia, declare that this mini-dissertation, submitted by me, is my own work, that I have referenced all the sources that I have used and that no part was previously submitted at any tertiary institution.

ABSTRACT

Information and Communication Technologies have greatly impacted the general operations of a library. Technological revolution in the library has also had a pronounced impact on librarianship as a profession. This transformation calls for ICT competent librarians who can handle ICT related duties in the library today. This study sought to find out the ICT proficiency of LIS professionals working in Tangaza University College Library, Kenya. The qualitative research design was adopted in the study. The case study method was used to carry out the research. A census sampling technique was done. Data was collected using a structured interview. The study found out that TUC librarians have very high ICT competence in basic ICT and some web technologies. However, they lack ICT competence in the use of technical ICT skills. Furthermore, ICT courses are offered during LIS science training, however, TUC librarians lack advanced ICT practical opportunities. There is also a gap between the ICT courses covered during the time of study and LIS job requirements in the job market. Lack of funding, time, practical lessons, personal interest, training opportunities and ICT obsolescence were mentioned as challenges librarians encounter in their pursuit to acquire ICT skills. Based on the findings, the researcher recommended that regular ICT related training programmes be conducted for librarians and be offered in form of workshops, seminars and conferences. There is need for academic curriculum in LIS schools to have more practical ICT related programmes. Library staff should be encouraged to develop a personal interest in pursuing ICT skills. And librarians should also make use of ICT trainings that are freely available online in order to develop themselves and remain relevant.

DEDICATION

To my lovely wife Nuria and my handsome son Giovanni

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I give thanks to the Almighty God for the gift of life and good health throughout the entire period of my MIT course.

Many sincere thanks go to those who have journeyed with me in one way or another up to this particular stage of my academic endeavour. My lecturers and all the teaching and non-teaching staff of the University of Pretoria. Many thanks to the Carnegie Foundation of New York for offering me a scholarship that enabled me study and travel the world.

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LIST OF ABBREVIATIONS AND ACRONYMS

BYOD	Bring-Your-Own-Device
CPD	Continuous Professional Development
CUE	Commission of University Education
ICT	Information and Communication Technology
IFLA	International Federation of Library Associations and Institutions
IP	Internet Protocol
KLA	Kenya Library Association
LIS	Library and Information Science
MARC	Machine-Readable Catalogue
MS-Office	Microsoft Office
OPAC	Online Public Access Catalogue
TUC	Tangaza University College

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

In the last few years, the library has been significantly transformed in terms of collection, organisation and services. Apart from automation meant to use technology to organise library collection and enhance rendering of some library services remotely, most libraries are now supplementing print collection with electronic resources (Liu, 2006:590). These changes are attributed to the development and adoption of Information and Communication Technologies (ICTs).

Other than just impacting information organisation and library service provision, technological revolution in the library has had a pronounced impact on librarianship as a profession. Ahmed and Rehman (2016:1) point out that with the rapid development of ICT tools, it is becoming clear that libraries cannot adequately satisfy user demands in the current digital environment without being equipped with both ICT resources and professionals with expertise in ICT. Shiholo and Ocholla (2003:8) add that to meet the current library clients' requirements, Library and Information Science (LIS) professionals must be able to perform various tasks consistent with changes in the technological environment. The new library set-up, therefore, demands that LIS professionals must possess suitable ICT skills. Satpathy and Maharana (2011:12) stress this fact by indicating that contemporary librarians need to acquire continuous ICT knowledge and skills to be able to provide better library services.

Due to ICT uptake, there is no doubt that, ICT competence commands a share in the library job market. For instance, in Kuwait, Buarki, Hepworth and Murray (2011:500) observe that "developments in electronic information resources have led to the demand for employees with ICT skills especially in information handling institutions." Academic libraries, especially libraries in tertiary institutions are among the largest employers of LIS professionals. With many libraries having undergone automation or are in the process, majority of new recruits need to be ICT competent. Presently, for libraries to fully function effectively, adopting ICT and ICT competent personnel would be the only way of standing out among many in providing adequate services and quality resources for the user today.

New LIS graduates need to be prepared appropriately to fit into the new job market. In order to meet the market demands, Buarki, Hepworth and Murray (2011:500) are of the view that “education institutions have a responsibility to contribute to improving students’ ICT skills that reflect the needs of the job market.” In this regard, LIS students should be prepared adequately for this workplace. The basic foundation for acquiring this knowledge is during the study of Library and Information Science (LIS) course as well as Continuous Professional Development (CPD) programs which allow library professionals to be equipped with basic ICT knowledge. The assumption is that LIS course content should also consist ICT-based units.

1.2 Statement of the problem

The main question for this study is whether the current LIS professionals in Kenya, specifically at Tangaza University College, are adequately trained to handle library ICT related duties. This is in consideration of the fact that the majority of librarians in Kenya receive their library training at a tertiary level of education which is a core component in their professional development. In a study on required skills of information technologies for library and information professionals in Kenyan universities, Nyamboga, Asundi, Kemparaju & Pawinun (2004:760-762) found out that librarians in Kenyan universities needed to acquire knowledge and skills in ICT as library services were now focusing on information technology, especially in educational institutions. In an assessment of the training of LIS professionals in Kenya, Kavulya (2007:220) found out that LIS academic programmes in the country failed to address the current job market requirements. One of the findings of this study indicated that there was lack of adequate ICT content in LIS courses offered in Kenya. Considering Kavulya’s findings and a paucity of research on this area, this study, imperatively, endeavoured to find out ICT competence skills of librarians at Tangaza University College in Kenya.

1.3 Research questions

The study sought to find answers the following research questions:

1. What is the ICT competency level of Tangaza University College librarians?
2. Which ICT skills do Tangaza University College librarians need to acquire in order to sufficiently meet the library users’ information needs?
3. Which ICT related units did Tangaza University College librarians cover during their LIS training?

4. What are the core ICT competencies required by LIS employer according to the LIS job adverts in Kenya?
5. What are the challenges encountered by Tangaza University College librarians in acquiring ICT skills?

1.4 Rationale for the study

The researcher hopes that this study **provides a definitive picture of ICT competence of Tangaza University College librarians**. This is informed by the context of the institution's operations and implementation of the 2015-2020 strategic plan which outlines the use of ICT as one of its main goals.

The findings of the study are **beneficial to those concerned with developing of training programmes for librarians in order to strengthen areas deemed to have shortcomings**.

The researcher hopes that the **findings of the study could also be used as guidelines to universities and other concerned stakeholders**. This is because the findings are vital in **designing comprehensive training programs** for LIS professionals in order to improve on ICT competency of LIS professionals.

It is also in the interest of the researcher that the **existing LIS schools can use the findings of the study to revise their course content and include practical ICT knowledge and training**.

1.5 Demarcation of the field of study

Tangaza University College endeavours to incorporate the use of technology in its academic environs. The library is automated and provides both face to face and virtual services. This study focused on the ICT skills of librarians working in Tangaza University College Library. Tangaza University College has only one campus and one library which was the focus of the study.

Despite having paraprofessionals in the library, the focus of the study was limited only to trained and licensed librarians working in TUC library.

1.6 Clarification of key terms

Library and Information Science (LIS) Professional

This refers to library staff members who have studied library and information studies. The study considered the use of the term as used today interchangeably with the term “librarian” meaning one who gathers, organises, stores, preserves, retrieves, and disseminates information.

Information and Communication Technology

In the context of this study, ICT was restricted to the technology, specifically, applicable to and used in the library. Furthermore, the study narrowed on the LIS professionals’ ICT competence in the use of software or applications designed and used in the library other than their competence in handling advanced technical hardware.

ICT Proficiency

According to the study, ICT proficiency meant one’s capability to use digital and communication technology and networks in order to find, access, manage and disseminate information. Other related words used in the study are skills and competency.

1.7 Division of chapters

Chapter 1 provides an introduction to the study. It includes a general background of the study, statement of the problem, research questions, the rationale of the study, the scope of the study and definition of key terms.

Chapter 2 is the literature review on ICT proficiency of LIS professionals. The chapter starts by reviewing the literature on the ICT proficiency of LIS professionals then narrows down to the ICT training of LIS professionals. The chapter concludes by reviewing the literature on the effects of ICT on LIS job market with a special focus on the Kenyan job market.

Chapter 3 outlines the research methodology that was used to carry out the study. It covers the research approach and design that was used during the study, the target population and sample size of respondents who participated in the study, research instruments and data analysis procedure.

Chapter 4 presents the analysis of data and interpretation of the findings of the study from the interviews conducted by the researcher.

Chapter 5 is the last chapter of the study. The chapter presents the conclusions drawn from the analysis. The chapter also provides the researcher's recommendations drawn from the findings and proposes some areas for further study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter is a review of related literature on ICT proficiency of LIS professionals. This was conducted in order to enable the researcher to have a clear knowledge of the specific area of study. The review helped the researcher to have an understanding of the topic from other studies similar to the present study. The researcher, therefore, attempted to present an analysis of the literature available from both global and local perspectives under different subheadings as guided by the research questions.

Following the adoption of ICT in the library and its impact on the LIS profession, scholarly studies such as Beile & Adams, 2000; Kwasik, 2002; Shiholo & Ocholla, 2003; Gerolimos & Konsta, 2008; Mishra, 2009, have been carried out on its diverse aspects. The studies cover areas such as the impact of ICT on the employability of LIS graduates, ICT requirements necessary for the library jobs and so many others. According to Ahmed and Rehman (2016:1-2), previous studies that have been conducted aiming at exploring ICT competencies of LIS professionals can be categorised into two. In the first category, we have studies that have explored the demand for ICT competencies in the LIS job market. A content analysis of different LIS job advertisements was largely used in some of these studies.

The second category according to Ahmed and Rehman (2016:1-2) consists of studies that have analysed the status of ICT competencies among library professionals in different institutions and in different locations. Some of these studies include Hoskins, 2005; Adeyoyin, 2005, 2006; Ugboma, 2008; Ademodi & Adepoju, 2009; Safahieh & Asemi, 2010; Thanuskodi, 2011. A quick review through the two categories reveal that they were conducted in the developing countries. The findings of most of these studies indicate low levels of ICT competencies among LIS professionals. However, there is a scarcity of researches regarding ICT competencies among library professionals in Kenya. In this regard, this knowledge gap is very informative to the current research as it justifies the need to be undertaken.

In the light of this study, the review will give consideration to latest literature on ICT competencies of LIS professionals, ICT training of LIS professionals and the effect of ICT on LIS job market.

The literature review will be organised under the above mentioned three themes. However, the researcher will try to have a look at it from both global and local perspectives.

2.2 ICT in libraries

It is important to underscore the fact that for long, libraries were considered to be “bookstores” and librarians as just the custodians of the books. However, this conception has gradually changed with time. The change is largely attributed to the advent of technology which is becoming a major influence in the field of library and information services. This is because technology has changed the traditional way of operating the library significantly. For instance, it has led to the introduction of electronic information resources which are provided through online databases hence supplementing the print resources. The change brought by computer technologies in the library is evident in the way information is now processed, stored, retrieved and even disseminated.

Today, libraries are less judged by the number of resources rather than the quality of resources and services provided. ICT is, therefore, not only influencing resource management and service provision in the library, but it has also eased communication among librarians, between collaborating libraries and between libraries and vendors through the available communication networks. According to Parvez (2011:3)

The present boon of ICT based products & services have a great impact on libraries and the impact is quite perceptible right from the beginning as the libraries started adopting ICT in the form of automation, stage of digital archives, 2.0, and now we are talking about library services on mobile phones.

There is no doubt that the introduction of ICT has, explicitly or implicitly, impacted professions including librarianship. It has changed societal information needs hence influencing the working styles of library and information professionals in their line of duty. Today, due to ICT, there is a proliferation of information and high expectations of users which LIS professionals have to take note of in the wake of offering their service. Consequently, as professionals, librarians need to upgrade with the new technological advancement as it is the only way they can adequately provide best possible services to the users.

For more than two decades, Tangaza University College (TUC) library has adopted the use of ICT tools in information service and resource provision to its patrons. The following section will analyse the use of technology in TUC library in order to lay a background of answering to the

question whether librarians have sufficient expertise in the use of ICT to work with the available technologies.

2.2.1 Application and use of ICT in TUC Library

With the introduction of ICT in the library, different ICT facilities and services are now available. Being the information centre of the college, TUC Library has remained key in support of academics by providing information resources and services to students, faculty, researcher and other external users. ICT was introduced in TUC Library through automation in 1998 (TUC, 2010:3). Though this was not full automation of the library, gradually, ICT uptake has been applied to most of the services. Some of the ICT-enabled services in TUC library are presented below.

i. Acquisition

Acquisition service is the “the process of selecting, ordering and receiving materials for library collections by purchase, exchange or gift which may include budgeting...” (Reitz, 2004:9, Acquisition). Due to ICT, the process of acquisition in TUC library has been simplified hence doing away with much of the paperwork. The library is now able to place orders and check effectively using technology. Due to ICT, the acquisition librarian has access to online bookshops from which he makes selection and purchases of resources. It has also become easy due to access to publisher’s websites. This is important as it provides all the information needed during acquisition and from which documents such as the invoices can be downloaded hence making the service faster as it avoids postal delays. During the procurement of journals, the person in charge places the order through the internet. The use of e-mail as a means of communication between the acquisition librarian and publishers as well as vendors has quickened the process. Generally, the use of technology in acquisition helps in shortening the process compared to when it is done manually hence saving so much time.

ii. Cataloguing

Library cataloguing is the technical process which entails “creating entries for a catalogue” (Reitz, 2004:122, Cataloguing). As a process, it is seen as a vital phase in the library. This is because it gives order and meaning to what could be a messy site of books and other resources in the library, especially in big libraries. According to Arinola, Adigun, Oladeji, & Adekunjo (2012:126), the introduction of ICT into cataloguing has marked a turning point in the processing of library resources before they reach the shelves. In TUC Library, the process of cataloguing has been made

easy due to ICT. With the availability of services such as copy cataloguing through union catalogues, the two staff members in the library are able to process large volumes of books and other items in a short time. As Eze (2012a:2) points out, ICT has made cataloguing work easier, time-saving and more efficient if compared to manual cataloguing.

iii. Circulation

Circulation service entails the “checking of books and other materials in and out of a library” (Reitz, 2004:141, Circulation). The use of technology facilitates circulation services in TUC library. The use of computers and barcode scanners quickens the processes of checking in and out of library items. The library does not have a self-check in and out machines. Therefore, users have to go through a circulation desk and be served by a librarian. The use of these devices quickens operations at the circulation desk making work easy for the librarians and faster to the users. It has made circulation process of the library collection become faster than before. Furthermore, currently, the circulation librarians at TUC Library use technological tools or platforms in checking if a resource requested by a user is available. They also use it to reserve or renew the requested items.

iv. OPAC

OPAC means “Online Public Access Catalogue” which is only made available when a library is automated and its catalogue is web-based. Library automation provides an opportunity for the library’s catalogue to be visible online. Automation of TUC library has provided easy access to the catalogue. This is different and much better compared to previously used catalogues such as the card catalogue. With OPAC, various options of access have been made possible, such as access to items by their subject, title, author and even series title. Since the catalogue is web-based, users are able to access it while using any internet connected portable device. Cataloguers are able to access it from any point and edit or add an item. Compared to the card catalogue that was previously used, the cost of maintaining the current catalogue has reduced. Every user has, therefore, to be taken through some form of training in order to use the OPAC. TUC library uses KOHA whose interface is user-friendly hence not complicated to train a user.

v. Reference services

Reference service entails library services meant to assist a library user “in the selection and use of appropriate tools and techniques for finding information” (Reitz, 2004:602, Reference services).

It is a service that has for long played an essential role in helping library users to locate the most relevant information resources, especially in academic libraries. According to Ifijeh (2013:31), today, ICT has significantly transformed reference services especially with the availability of communication channels and electronic information resources. TUC library has only one reference librarian. However, with the use of technology, the librarian is able to respond to the users' queries promptly. The librarian uses the telephone and email to respond to their information queries. With the availability of e-resources, the librarian is also able to send links as well email articles to the users.

vi. E-resources

The use of electronic resources is gradually being adopted in academic spheres especially in institutions of higher learning (Quadri, 2012:4). TUC library has Internet Protocol (IP) enabled access to electronic databases that provide access to e-journals and e-books. Users can access the resources both on and off-campus. The research librarian is in charge of e-resources. Navigation through each database is unique as each has a distinctive user interface. Users are therefore taken through training on how to browse through each database which includes, how to do a search, how to limit the search in order to access the most relevant information, how to download and even save.

vii. Internet services

The use of internet in libraries is becoming a necessity considering that it is now considered to be a source of information (Ayoku & Okafor, 2015:502; Asogwa, Ugwu & Idoko, 2016:757). It is providing access to information through the World Wide Web (WWW) in real-time. It is, therefore, emerging as a necessity in libraries. Today, patrons would wish to use the library as a one-stop-shop. Other than just accessing academic information or using the library to study, users want to use the opportunity to carry out their private online activities. TUC Library, therefore, provides access to the internet to all library users. This service enables them to check their emails and access social sites other than just academic information. The library encourages Bring-Your-Own-Device (BYOD) where users carry their own electronic devices to the library. This helps users to personalise information seeking while in the library.

viii. Other ICT related services

Other than the main technical services and resources, there are other ICT related services offered by TUC library. The library offers photocopy services which can be accessed by all library patrons by use of a smart card. Users who are in need of hard copies can print and photocopy. Library users are also able to connect to Wi-Fi with the help of librarians.

In summary, TUC library is well automated and the use of technology in the provision of various resources and services indicates the need to have professionals who have technological skills to effectively deliver on this noble endeavour. In this regard, each section of the library needs a librarian who is well versed in basic technological skills.

2.2.2 Impact of use of ICT in TUC Library

The need to save the time of the reader which is captured in Ranganathan's fourth law (1931:337), could be said to be archaic considering the time the laws were formulated. However, the use of ICT in the library could be the ultimate aid in the implementation and fulfilment of the law. The significance of ICTs in the library cannot be underestimated as libraries are gradually embracing its use. This comes in the wake of improved internet connection and increased speed due to the laying of fibre optics, reduced cost of computers and mobile devices which facilitate easy communication and passing of information. Therefore, there is no doubt that the use of technology in TUC Library has significantly impacted information creation, gathering, storage as well as distribution (Agava, 2016:4). ICT tools and platforms have become convenient, mostly in this age where users want quick access to specific and relevant information. There is no doubt that it is helping in saving the time of the user.

With the use of ICT, sharing databases through the use of Z39.50 on KOHA has simplified cataloguing. Because of this module, a cataloguer is able to send a catalogue search request and receive responses from any compliant system (Eze, 2012a:3). The process significantly reduces the manual work of data entry hence shortening cataloguing process. As indicated before, circulation process has also been made easy as the two librarians are able to serve users in a short time.

The automation of reference services has made it easy for the librarian in charge to serve more users virtually than physically. With the availability of mobile technologies, users seek information services from whichever location they are. Since they do not need to physically visit

the library, it reduces human traffic in the library. Furthermore, the use of ICT in TUC Library has helped in reducing manual work hence saving a lot of time for the staff and its users. Due to automation, networking has helped link various departments within the library hence providing cost-effective services. For instance, technology has encouraged resource sharing among the staff members. E-mail services have enabled remote access to information and encouraged communication with people far and wide in a short time. All of these approaches have the intention to provide better quality services to users of a library (Hussain, Khan & Zaidi, 2013:2).

In summary, the use of ICT in information management and delivery in TUC Library is a great revolution that has steadily increased library use and user satisfaction levels. In the words of Brown-Syed (2011:15), it has tremendously changed and transformed the interaction between the library and its patrons. In order to appreciate the application and use of ICT in the library, there is a need to have a workforce that is skilled in using and operating various technologies. Having an automated library is one side of technological adoption and application. The effectiveness of an automated library can only be felt when its staff are competent enough to use the available technologies in offering resources and services. Librarians should, therefore be well equipped to be able to handle the various technologies and ICT related services that modern automated libraries ought to offer to their patrons.

2.3 ICT competency of LIS professionals

Competency entails skills or abilities that one possesses and are required for one to be able to “plan and execute an action geared at accomplishing some tasks or achieving some goals” (Astunkar, 2016:52). In the case of LIS professionals, the need for one to be competent is based on the ultimate goal of the profession which is to satisfy the information needs of the library user through the provision of various forms of information resources and services. In a fast-changing environment, due to ICT and the complex information needs of users, LIS professionals need to revitalise their skills. Astunkar (2016:52) emphasises that,

In addition to general traditional library educational qualification and requirements, a commitment to excellent user-centred services, effective oral and written communications, as well as team collaborator, librarians in the electronic information environment must also possess additional capabilities, experience, knowledge and skills.

An emphasis is therefore placed on the fact that librarians today should transcend from just being custodians of books. Their competence in other areas especially those related to ICT is necessary

in order to promote the ultimate goal of the profession which is to provide access to quality and relevant information resources and services.

To be able to run a computerised library like TUC Library in providing the above-mentioned services, there is need for ICT competent staff (Batool & Ameen, 2010:6) in order to meet the demands of the current clients in today's digital realm. The need for library professionals to be well informed and updated regarding developments in ICT is no longer a choice in such a changing environment where most of the library services are ICT based. It becomes challenging to have an automated library without the provision of skilled personnel, that is, librarians who are ICT competent. That in itself defeats the very purpose of automation of a library. Ayoku and Okafor (2015:505) reported in their study on the implications for the digital and electronic environment in Nigerian university libraries that ICT proficiencies are becoming the most preferred in the LIS job market today as many libraries are continuing to adopt ICT use.

Previously, various studies have highlighted the need for ICT competence of librarians from various angles. In a study, globalization and ICT in academic libraries in Nigeria: the way forward, Okiy (2010:8), found out that ICT competency and literacy among librarians were low hence slowing the gains brought about by globalisation. As a way forward Okiy's study suggested that there is a need to train and retrain practicing librarians in ICT. Even though Safahieh and Asemi (2010) in their study found out that librarians at Ispahan University in Iran appreciated the use of ICT in the library as tools that increase efficiency in operations, they discovered that the majority of them did not have good computer skills. A similar study by Hajar and Asefeh (2010:97) on the level of computer literacy skills of librarians in the University of Isfahan, Iran, indicated that the majority of the librarians did not have a good level of computer skills. According to the study lack of adequate computer skills was limiting librarians from taking full advantage of computerised library facilities hence hampering their effectiveness.

Farahi and Gandhi (2011:168) carried out a comparative study to determine IT skills among LIS professionals of medical libraries in India and Iran. They found out that LIS professionals from both India and Iran appreciated the importance of ICT in their job. However, there were low to moderate levels of ICT literacy among the professionals. In a study on ICT skills, proficiency of LIS professionals in universities in Karachi, Pakistan, Ansari (2013:83) found out that they were not equally proficient in all areas of ICT skills. In Nigeria, according to Ayoku, and Okafor's

(2015:521) study, library and information professionals working in university libraries lacked adequate ICT competencies.

However, some studies have indicated a certain degree of ICT competence among library and information professionals. In their study on the status of ICT competencies of librarians at Punjab University, Batool and Ameen's (2010:4) findings revealed that even though to some extent all librarians under study lacked skills in computer hardware, they at least had word processing skills. Furthermore, the study indicates that librarians possessed some basic knowledge on how to use the internet functions but to a limited extent. They also had some higher level of expertise in using web Dewey, OPAC, and MARC records.

Adeleke and Olorunsola (2010:457) indicate that many libraries are now aware of the importance of incorporating ICT in their services. However, they are of the opinion that libraries in developing countries should invest more in efforts to stimulate the use of ICT in order to narrow the gap between them and those in the developed countries in terms of ICT literacy. In a study on the ICT competency of LIS professionals in the engineering institutions of Andhra Pradesh State, in India, Kumar (2013:486), found out that there were some satisfactory levels of ICT literacy among the librarians. Ansari's (2013:83) findings in a study on the ICT competence of the LIS professionals in the universities of Karachi in Pakistan indicated that the majority of them were moderately competent.

Librarians' ICT proficiency could either be competence in basic or advanced ICTs. In their study, Pawar and Kaur (2015:9) indicate what they considered should be the basic ICT skills of LIS professionals in the changing knowledge era. According to the study, librarians should have basic knowledge of library operating systems. They should be able to download and install simple programs of supporting devices such as printer and scanner. Secondly, they should have some simple knowledge about troubleshooting. This should include the ability to solve simple technological problems by navigating and finding solutions on the web. Thirdly, they should be competent in using MS-Office. Fourthly, they should be knowledgeable of the various electronic resources. That is, they should be able to tell different setups of various electronic resources. Lastly, the study indicates that they should have some web knowledge. That is, they should be able to use some of the research tools that are available on the web. They should be knowledgeable of

the difference between HTML and MS-Word documents. They should have some knowledge on how to use social media such as Facebook, Twitter and WhatsApp. Due to the wide use of mobile technologies, the study concluded by indicating that they should have some general knowledge about mobile devices technologies and their application in the library. Narasappa and Kumar (2016:57) confirm Pawar and Kaur findings by indicating that LIS professionals require essential ICT skills such as website design, word processing, spreadsheet, video conferencing, computer security, e-mail management, scanner knowledge, electronic presentation and database skills.

One way of acquiring ICT competence is through higher education, meaning that LIS curricular should incorporate ICT course content.

2.4 ICT training of LIS professionals

The purpose of LIS education is to train and produce knowledgeable librarians to manage information from the point of its collection to dissemination. It is a process related to the growth of libraries in the society because the personnel developed endeavour to fulfill the mandate of libraries and information centres. This places a heavy responsibility on LIS schools to continuously strive towards producing information professionals who can handle diverse needs of an information user especially those that are ICT-related. Mostly, professional LIS education is offered at a tertiary or higher education level where one is introduced to various courses that shape a career in librarianship. Various LIS schools have the responsibility of reading the changing times and incorporate relevant courses in the curricula. For instance, the top three LIS study programmes in the USA are offered by the University of Illinois at Urbana-Champaign, the University of North Carolina at Chapel Hill, and Syracuse University (World Ranking Guide, 2011). Buarki, Hepworth and Murray (2011:501) point out that the three mentioned LIS schools have managed to stay ahead of the rest because they have continuously integrated ICT training and that is the reason why they have managed to stay abreast with the advancement of new technologies. Some of their ICT courses include online information searching, websites designing and several others.

In their analysis of LIS education in Kenya, Rukwaro and Bii (2016:13) assert that higher education ought to significantly transform a library and information professional who has the aim of providing effective information services. One of the goals of educational programmes for LIS professionals, as they point out, should be to make librarians achieve personal development. This

cannot be over-emphasised in the present-day which is significantly characterised by an exponential increase in the amounts of digital information.

According to Daniel, Lazinger and Harbo (2001:269) in a document titled *Guidelines for Professional Library/Information Educational Programmes*, which was later adopted by the International Federation of Library Associations and Institutions (IFLA), “The library/information educational programmes... the mission should address the purpose of the educational programme in the larger political, economic and technical context ...” Scholars have, therefore, suggested the need for LIS professions to acquire diverse expertise in order to adequately respond to today’s library user information needs. Gorman and Corbitt (2002:438) for instance, recommend that LIS professionals need ICT skill since it enables one to employ the use of technologies in the library. They add that, with ICT skills, one will be in a position to comprehend emerging trends in technology and appreciate how these might impact on the information profession.

The effect of ICT in the lifecycle of information (from production to delivery) implies that LIS professionals, should, therefore, attain new skills that can help them respond to the needs of users (Missingham, 2006:265). The acquiring of the new skill which is mostly through higher education should consider the ever-changing and new technological innovations. Such training would, therefore, equip LIS professionals so as to effectively and efficiently support library services and activities in today’s digital milieu. It is through training in ICT that one learns to appreciate such new technological innovations and acknowledge the impact it has on the library and its profession (Ramaiah & Moorthy, 2002:30).

Considering the influence of ICT in the library and information sector, the incorporation of ICT training in LIS education becomes necessary. It helps to produce graduates who can implement the new technological tools in the library. Therefore, Ashcroft and Watts (2004:219) recommended extensive ICT training for LIS professionals to develop their ICT literacy. It is in the view of Minishi-Majanja (2007:7) that LIS schools should include ICT units into LIS course content.

According to Haneefa and Shukkoor’s (2010:62) study, the majority of LIS professionals in tertiary libraries of Kerala in India acquired their ICT competencies not just through LIS studies but also through staff continuing education, workshops and by attending conferences. This is an indication of alternative ways through which LIS professionals can acquire ICT skills. Another

option of acquiring ICT could be through web-based tutorials. LIS professionals can join Code4Lib which is an online technical group where members share ideas on ICT skills.

However, scholars have highlighted the lack of ICT skills among LIS professionals due to lack of good training and other related factors. According to Batool and Ameen (2010:6) lack of sufficient ICT units in LIS curriculum, lack of ICT training programmes for LIS professionals as well as the brief duration of internship stand out as some of the hindrances in acquiring ICT skills. Okiy (2010:5-6) in this study reported that librarians were experienced organisational challenges such as lack of support from authority, hence contributing towards lack of ICT skill. Furthermore, according to Okiy, the high cost of ICT infrastructure and lack of adequate ICT training programmes were also a contributor. Kumar's (2013:480-487) study on ICT competencies for LIS professionals in the engineering institutions of Andhra Pradesh State in India echoes Okiy (2010) findings. The findings of this study indicate that lack of support from the management and poor infrastructural facilities were the main problems leading to low levels of ICT competencies. Financial challenges and negative attitude towards ICT by the managers were pointed out in Arokyamary and Ramasesh (2013:216) study on ICT competencies of LIS professionals in the engineering college libraries in Karnataka, India.

2.4.1 Overview of LIS education in Kenya

How does ICT training of LIS professionals fit in the larger picture of LIS education in Kenya? This question can be answered by having a brief overview of LIS education in Kenya. LIS education in Kenya has been on a path of steady growth. This can be seen from the increase in the number of students enrolling for the course in tertiary institutions. The same could be said of the increase in LIS courses in different institutions and the diversification of the curriculum since when the first LIS School was started in 1984. The steady growth is seen to be in line with the new developments that are taking place globally and locally and have a close affinity to LIS.

Several factors could be pointed out as having influenced the steady development of LIS education in Kenya. First, there is the awareness of the importance of a library and the need for information which has led to the need for professionals to run libraries and information centres in the country. Secondly, the formation of Kenya Library Association as a professional body in 1973 championed the need to have certified schools of LIS in order to train librarians (Otike, 2004:6). Thirdly, there is the role played by the Commission of University Education (CUE) in two ways. Firstly, CUE

ensures the establishment of quality education programmes in universities including LIS. Secondly, CUE has developed library standards and guidelines which clearly stipulate the need for university libraries to employ only qualified librarians (CUE, 2014:103). This means that only librarians who meet a certain threshold of education (depending on the employer) can be employed. These factors have significantly contributed towards the development of LIS education in Kenya.

2.4.2 LIS schools in Kenya

Lately, there has been an increase in the number of LIS programmes initiated by different institutions of higher learning in Kenya. Other than public and private universities, there are colleges and technical institutions offering LIS programmes hence catering for those students who are interested in getting a certificate or diploma in LIS. With many students showing interest in the profession, many institutions of higher learning have come on board to offer the course. Furthermore, with the need for lecturers to join faculties that offer LIS study, both at undergraduate and graduate level, there is a steady rise of graduate programmes that are currently running. Graduate programmes in LIS are also on the rise due to a requirement by the Commission of University Education that clearly stipulates that directors of university libraries should be holders of a PhD or a minimum of a Master in Library and Information Science (MLIS) with a certain number of years of experience (CUE, 2014:111).

The following tables present the institutions of higher learning offering LIS programs in Kenya. The institutions are categorised into three; universities that offer a diploma in LIS, colleges that offer a diploma in LIS and universities that offer bachelors and postgraduate degrees in LIS (Rukwaro & Bii, 2016:18; CUE, 2017).

Table 2. 1: Universities offering a diploma in LIS

Technical University of Kenya
Kisii University
Kenyatta University
Kenya Methodist University
University of Kabianga
Egerton University
Laikipia University
Moi University

Table 2. 2: Colleges offering diploma in LIS in Kenya

Siaya Institute of Technology, Siaya
Regions group international college, Sotik Branch, Sotik
Eldoret Aviation College
Bumbe Technical Training Institute
Eldoret Professional Accountancy and Computer College
Kisumu Polytechnic
Kenya Institute of Applied Science
Eldoret College of Professional Studies
Rift Valley Institute
Sigalagala Technical Institute

Table 2. 3: Universities that offer LIS education in Kenya (Bachelors and Post-Graduate)

University	Level of study
Egerton University	Bachelors and Masters
Catholic University of Eastern Africa	Bachelors
Kisii University	Bachelors, Masters and PhD
Technical University of Kenya	Bachelors
University of Nairobi	Masters
Inoorero	Bachelors
Mt. Kenya University	Bachelors
Kenya Methodist University	Bachelors
University of Kabianga	Bachelors
Laikipia University	Bachelors
Moi University	Bachelors, Masters and PhD
Kenyatta University	Bachelors, Masters and PhD

2.4.3 ICT training of LIS professionals in Kenya

According to Kavulya (2007:212), LIS education in Kenya “spans a broad range of subjects and disciplines” where the training of LIS professionals involves a study of courses that are traditionally for library science such as cataloguing and classification, collection development, reference services, information retrieval and so many others. However, with the introduction of ICT, some ICT courses have been incorporated. Therefore, librarians in Kenya undergo the formal LIS programme with a diverse collection of courses. A run through the websites of some of the institutions that offer LIS education, reveals that it is noticeable that there has been an inclusion of some ICT units in the curricula such as:

- Electronic Information Sources and Services
- Introduction to Information Technology
- Multimedia Systems
- Software Development and Application
- Electronic Information Sources & Services
- Web Design Basics

- Electronic Records Management
- Information Systems Development
- Electronic Publishing
- Database Management Systems
- Information Sources and Systems

However, despite the above-mentioned ICT related units, studies have been done in Kenya indicating the need for further training in ICT in order to equip LIS professionals. Findings from a study by Ondari-Okemwa (2000:267), to examine the exact training needs of practising trained librarians in public university libraries in Kenya indicate that in the wake of rapid changes in ICT, there is a need for continuous training of library staff in Kenya. He affirms that this is an area that should be given utmost attention by concerned stakeholders. Librarians should be well-equipped with new skills of handling and managing information using new technologies. The study highlights some ICT-related areas that librarians should be encouraged to train in. They include a general introduction to information and telecommunication technologies as well as how to evaluate, handle and use computer hardware and software. They should also have a basic understanding of computer and information concepts and systems analysis.

In a study on the changing trends in training needs for information professionals in Kenya, Shiholo and Ocholla (2003:1-12), trace a historical development of LIS education in Kenya since the 1970s. Though the paper acknowledges that there has been some improvement in the development of LIS curricular in the past, it points out that there is more to be done in order to make LIS studies relevant in the modern times. The study, therefore, calls for the joint efforts of all stakeholders, including national library associations and other related experts, to participate in the regular review of the LIS education programme that will enhance requisite skills for the modern librarian.

While carrying out a needs assessment study on the training of LIS professionals in Kenya, Kavulya (2007:208) found out that the then existing LIS training programmes did not consider the job market requirements for LIS professions sufficiently. He pointed out that this is due to “inadequate teaching resources in LIS training institutions; lack of adequate ICT content in the courses; courses that are irrelevant to the job market and inadequate length of industrial attachment.” In his dissertation on the assessment of ICT adoption in Kenyan academic libraries, Odongo (2011:39) found out that even though there is an increase in the adoption of

computerisation in libraries, there is a need for LIS professionals to be engaged in continuous professional development.

From the available literature, as analysed in this section, there is a general appreciation of ICT training being part of the general training of LIS professionals in Kenya. However, most of the studies recommend that more efforts need to be channelled towards ensuring librarians are constantly being trained in order to keep up with the ever-changing technology.

The impact of the training, therefore, has an impression on the job market. LIS employers have particular requirements they are looking for from a new graduate. The following section will analyse the effects ICT is having on LIS job market.

2.5 Effect of ICT on LIS job market

Due to the influence ICT has had on library and information business in general, employability of a LIS professionals today is to some extent determined by one's ICT competencies or ability to work with computer-related technologies. This is proved by the type and number of ICT courses covered by a graduate during one's LIS training. Today, as Buarki, Hepworth and Murray (2011:500) point out, developments in electronic information resources have led to a "demand for employees with ICT skills", especially in information handling institutions. Employers are going after graduates that have added ICT skills other than just general library science skills. Previous experience in using these technologies is also looked into.

However, Aina and Moahi (1999:422) indicate that the need for LIS professionals with ICT skills differ among employers while employing LIS graduates. The difference is based on various factors such as the services offered by the institution as well as whether the institution is an academic library or a public library. Among the academic libraries, the difference is further determined by whether it is a school library, a public university library or a private university library. For instance, information needs of users in an academic library and a public library would differ hence dictating the level of ICT competence of a librarian to be employed. Furthermore, some private institutions may require one to have gained intense ICT skills such as specialisation in some specific in-house database systems. Due to employers' diverse and unique needs of expertise, LIS education programmes should be tailor-made to meet their job requirements. As employers, they are the "consumers of graduates." According to Aina and Moahi (1999:424), their expectations must be

met by the curricular. They add that that it is through the analysis of the employers' requirements that LIS schools would be able to develop a curricular that responds to the job market demands.

In South Africa, Ocholla (2013:46) undertook a study with the aim of reviewing the curricular of the LIS programme at the University of Zululand. The study examined the views of employers on graduates. Both graduates and employers were interviewed to find out whether the knowledge and skills achieved through LIS education were adequate for their job requirements and whether the training of LIS professionals had some impeding gaps. From the findings, the study recommended that more courses that are ICT related should be increased; that the schools should increase training graduates on online information searching and retrieval; and that LIS schools should intensify and deepen training on software programs. Practically, as the study found out, there is need to revise the curriculum so that to incorporate courses that are computer related hence responding to the needs of the job market.

Riley-Huff and Rholes (2011:139) concur with the need to revise LIS curriculum because the digital age has revolutionised LIS job market. Due to ICT adoption, some employers are asking for advanced ICT knowledge and skills. Furthermore, some LIS job requirements are demanding for skills in computer hardware, integrated library systems, web development, as well as networking. To some extent, the revolution has even introduced new job titles in the market.

The exploration of how ICT has influenced LIS job market has seen a rise in related scholarly studies in the recent times. Most of the studies were carried out in the form of content analysis of job advertisements. Some of the studies include (Mathews & Pardue, 2009; Mustafa & Ansari, 2012; Shahbazi, Fahimnia & Khoshemehr, 2016). There is a common theme from the findings of the studies that ICT has not just had an impact on the LIS job market but revolutionised it. Furthermore, the studies recommend the need for LIS professionals to equip themselves with new ICT skills in order to easily land a job opportunity.

Findings from a study by Mansourian (2011) as quoted by Shahbazi, Fahimnia and Khoshemehr (2016:62) on the impact of ICT on LIS job market and the creation of new job opportunities revealed that ICT was leading to the development of new opportunities and roles for LIS professionals in the job market. However, both the traditional jobs and the new ones had an ICT requirement. This is emphasised by Ocholla and Shongwe (2013:39) in a study on LIS job market in South Africa. According to the findings, they concluded that having ICT skills seems to be one

of a set of essential elements for one to be considered suitable for the advertised job. As in Mansourian's study, they did notice the creation of new jobs in LIS sector due to ICT. Their recommendation then was that there is a need for a review of LIS educational programmes in order to release in the job market graduates who are well equipped and prepared for the market demands.

It suffices, therefore, to say ICT has penetrated all levels of a library's operations and services. Therefore, the training of a LIS professional should anticipate the changing expectations of users which are dictating the job market. The curriculum should be flexible and their review should be keen on monitoring and capturing the changing environment. Generally, employers of LIS graduates are looking for the following ICT skills that the training must take note of:

- i. Competency in basic computer software and hardware as well as simple networking.
- ii. Ability to use communication platforms and channels such as email and ability browse and navigate websites.
- iii. Some knowledge about operating systems and ability to carry out automation.
- iv. Web tools skills, such as how to use blogs and social media.
- v. Being able to set up and manage a repository.
- vi. Ability to carry out metadata harvesting.

2.6 ICT skills as a requirement in LIS jobs in Kenya

Very little has been written with regard to the demands of the job market for librarians in Kenya. The same could be said of studies on LIS employers' requirements from LIS graduates in terms of ICT competence. Other than Kavulya (2007:208-223) study which found out that there is a LIS curricular mismatch with work requirements in Kenya, there are no other studies done in relation to the topic in question. However, the need for ICT skills and competencies as dictated by the LIS job market in Kenya can only be found from the analysis of various job adverts related to library and information science.

According to a search on Google Advanced Search using the phrase, "university library jobs in Kenya" and limiting the search to a period ranging from January 2016 to December 2016, various library job vacancies were retrieved. The results were a mixture of job vacancies in both public and private universities in Kenya, different positions and different requirements on the level of education. All the jobs listed had ICT skill as a requirement. However, as some required basic ICT skills while system librarian vacancies demanded high-level of ICT skills such as computer

programming, software installation and networking. In summary, most of the job adverts indicate that employers are looking for graduates who have both basic and technical skills and can carry out the following tasks:

- Use MS Office
- Communicate using ICT platforms and channels
- Manage and maintain simple software and applications
- Troubleshooting
- Hardware maintenance
- Manage library system
- Web development
- Graphics interface
- Social media interactions

It is quite evident that with the adoption and use of ICT in the library becoming more common, employers are becoming keen on specifying who to employ. Library or information users are becoming complex in terms of needs just as information is increasingly becoming exponential in quantity. Employers are, therefore, obliged to hire competent personnel who will adequately respond to the needs of the users in order to achieve user satisfaction.

Conclusion

As reviewed in this section of the study, a substantial amount of literature touching on the application of ICT in libraries and the need for ICT skills for LIS professionals is available. However, few studies exist regarding the employability of LIS professionals today and the perception of employers. But, practically, as drawn from the literature review, ICT dictates the employability of LIS graduates today.

From the analysis, it is clear that ICT is in the library to stay and that libraries today cannot function fully without the use of ICT in one way or the other. However, adopting ICT means employing professional librarians who are competent enough to work with ICT. The competence which is required by the employer demands that librarians should have been trained on how to use various ICT tools. The ball is then thrown to LIS schools which need to realise the market needs in the sector and initiate a review of their programmes in order to adequately prepare graduates for the job market. According to the reviewed literature, employers also stated their needs in terms of

what they require as ICT competence from the graduates. It is apparent that there is a gap that LIS graduates need to fill with the help of LIS schools. They have no option but to take note of what the job market is demanding.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discussed the research design the study adopted, the target population that was studied, the sample and sampling procedure used, and the instruments that were used to collect data. It also highlighted the procedures that were followed in data collection, data analysis and ethical considerations that the researcher adhered to, before, during and after the study.

3.2 Research approach and design

The researcher employed a qualitative approach in carrying out the study. A qualitative approach is one of the two established approaches to research, the other one being quantitative. According to Connaway and Radford (2017:7), the choice of which research approach to use in a study depends on “the goal and preference of the researcher”.

Quantitative research approach, according to Tracy (2013:36), “use measurements and statistics to transform empirical data into numbers and to develop mathematical models that quantify behaviour.” The approach is meant to quantify defined variables such as attitudes, opinions, and behaviours of or from the respondents. Qualitative research approach, however, is much more explorative. It concerns itself with the assessment of attitudes, opinions, and behaviours prevalent or demonstrated by the study population (Creswell & Clark, 2007:6).

This study was aimed at investigating the ICT proficiencies of library staff at TUC library. The objective of the study was to find out how competent the librarians are in using ICT in carrying out their daily library duties as information professionals. It is in view of this that the study used a qualitative approach which allowed the researcher to collect data that assisted in developing an understanding of behaviours within a particular context and its impact on the phenomena being studied (Connaway & Radford, 2017:214). In the case of this study, the researcher investigated ICT competence of LIS professionals. Considering the choice of data collection tool for the study, the researcher was able to reach respondents to the study easily.

The researcher used a case study method to carry out the research. Case studies “are intensive analysis and descriptions of a single unit or system bounded by space and time” (Algozzine & Hancock, 2017:10-11). The choice of a case study method for this study was based on the fact that

it would enable the researcher to examine the data within a specific context which is Tangaza University College Library in Kenya. By use of case studies, “researchers hope to gain an in-depth understanding of situations and meaning for those involved” (Algozzine & Hancock, 2017:10-11). By use of this method, the researcher selected a very limited number of respondents (librarians who work at Tangaza University College Library) as the subjects of the study. In addition, this being a mini-dissertation, the researcher adopted a single-case design.

3.3 Research setting

The study was conducted at Tangaza University College Library found in Nairobi County, Kenya. Tangaza University College is a Catholic institution with approximately 2000 students according to the latest figures from the admission office. However, the Library offers services to approximately 3000 users (including the faculty, support staff, researchers and external users). TUC has no satellite campuses as it is one of the youngest university colleges seeking a charter. This means that there are no satellite libraries either. The Library has eleven staff members, ten of them being qualified and licensed librarians.

3.4 Population and sampling

The population of a study and the sampling technique that were used in the study are discussed below.

3.4.1 Population

Population in research, according to Babbie (2015:193) is the aggregation of study elements. Generally, it is the group of people or elements from whom the researcher wishes to draw conclusions at the end of the study (Mugenda & Mugenda, 2003:9). According to Chandra and Sharma (2007:388), the population in research means the total number of elements that stand a chance of being picked as research subjects or respondents because of having common characteristics. Jha (2014:182) refers to it as any given group of individuals or elements that have one or more characteristics in common that are of interest to the researcher for the purpose of the study. In this study, population under study comprised of all qualified librarians working in TUC Library.

3.4.2 Sampling

Sampling in research means drawing part of the population that could be used as a representation of the larger group. It is the selection of a suitable sample or a representative part of a population for the purpose of determining parameters or characteristics of the whole population (Connaway & Radford, 2017:33).

For the purpose of this study, the researcher used a census technique. The use of census in research occurs when the entire population is very small or it is reasonable to include the entire population since it is manageable (Farooq, 2013). It is called a census technique because data is gathered on every member of the population. It is, therefore, an attempt by the researcher to gather information from every member of some group. As indicated in section 3.3, TUC library has eleven staff members and only ten are qualified librarians. The researcher, therefore, included all the ten librarians in the study as the sample for the study.

The researcher was very much aware of the challenges associated with the use of census such as time and economically challenging. However, conducting a study using the ten librarians was economically manageable. Also, the researcher had adequate time to collect data from all the librarians. Since all the librarians are from the same institution, the researcher had an easy access to all the respondents.

3.5 Data collection

Data collection in research entails gathering of information pertaining to the study (Cohen, Manion & Morrison, 2011:375). It entails the use of specified tools and procedures. This study employed the use of semi-structured interviews to collect data.

3.5.1 Semi-structured interview

Considering that the researcher had proposed a case study method, a semi-structured interview was used as an instrument of data collection (see appendix A). According to Robson (2011:290), there are three types of interviews; structured, semi-structured and unstructured interviews. As a data collection instrument, a semi-structured interview is used when the researcher wants to delve deeply into a topic and to understand thoroughly the answers provided (Galletta, 2013:49). This was the case for this study. Since the number of respondents was very small, the use of semi-structured interviews was very helpful in collecting detailed information from the interviewees.

In developing a semi-structured interview, the researcher starts with a pre-determined set of structured questions. Depending on the responses received, the researcher may decide to probe the respondents further by asking other related, questions. The pre-determined set of questions provide a structure to the interview and ensures that significant factors are not omitted. For this study, the researcher used a guide with questions. Though the questions were standardised, there was room for probing further to ensure that the researcher covers all the necessary areas and gathers detailed information (Petty, Thomson & Stew, 2012:3; Galletta, 2013:82; Connaway & Radford, 2017:240).

3.5.2 Data collection procedure

Upon being granted clearance by the University of Pretoria and Tangaza University College, the researcher scheduled interview sessions with the respective respondents. Only two interviews were scheduled per day. Having two interviews in a day was meant to provide ample time for interaction between the researcher and the respondents. The respondents were asked to nominate a time that they found convenient for the interview.

3.6 Data analysis

Data analysis entails examining raw information that has been gathered and making deductions and inferences out of it (Kombo & Tromp, 2006:117). Since the collected data was mostly in the form of text, the researcher used qualitative data analysis. The use of qualitative data analysis was informed by the use of semi-structured interview as the data collection tool. According to Connaway and Radford (2017:288), qualitative data analysis helps in identifying “patterns and themes in the data to discover relationships and insights into the key issue or problem that is being investigated”. However, some aspects of the data were analysed quantitatively.

Since the collected data was mostly in form of text, the researcher created themes by establishing relationships among categories using codes (Mugenda & Mugenda, 2003:116). Themes were established prior to the analysis based on the research questions and reviewed literature.

3.7 Ethical concerns

Ethical considerations are the guiding rules and principles that govern the practice or conduct of a profession. According to Babbie (2015:84), there are ethical guidelines that one needs to consider and adhere to before, during and after conducting a research. Edwards and Mauthner (2008:14)

assert that in relation to social research, ethics refers to the “moral deliberation, choice and accountability on the part of researchers throughout the research process.” Some of the ethical considerations in research include seeking permission to carry out a study, informed consent of participation in a study, confidentiality of information and protecting the anonymity and privacy of a respondent (Babbie, 2015:84; Bless, Higson-Smith & Kagee, 2006:142-144; David & Sutton, 2004:136; Neuman, 2014:145-14).

In the case of this study, the researcher sought ethical clearance from the Department of Information Science Ethics Committee at the University of Pretoria as well as from the Research Office of Tangaza University College before carrying out the study. The two clearance permissions were granted by the respective institutions and departments (see appendices C and B respectively).

Participation in the study was voluntary. The respondents were informed in advance and were given a preview of what they were to be asked during the interview. This was meant to allow them make an informed choice either to or not to participate in the study. The respondents were also informed that they had the right to withdraw their participation during the conduct of the study.

The interviewees were treated anonymously. For those who accepted to participate in the study, the researcher ensured that they remain anonymous. Before carrying out data analysis, the researcher ensured that any data that tended to reveal the identity of a respondent was cleaned by hiding their identity. No names were disclosed. There were no video or audiotapes recordings to store the voices, images or paralinguistic features of any respondent.

The researcher ensured that information gathered remained confidential. The level of confidentiality will even beyond the submission of this work. The researcher has, all through the study, kept all the information obtained in strict confidence and only for the purposes of this study. The researcher will retain the collected data for a period of two years after the submission.

The researcher has acknowledged all primary and secondary sources that were used in the study. All the authors, academicians and researchers whose work and ideas were used in this study have been cited and referenced in line with the Harvard style citation and referencing.

Conclusion

Chapter three discussed the proposed research methodology that the researcher used to carry out the study. The chapter highlighted the research approach and design that was applied as well as the population and sampling style used to carry out the study. The chapter clarified the data collection tool used, the procedure of data collection, data analysis method and the ethical considerations that the researcher adhered to while carrying out the study.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

The purpose of this chapter was to present and describe data that was collected using semi-structured interviews from the field. It provides a detailed description of the results as obtained after data collection and the subsequent analysis. The findings are presented in tables and figures.

As indicated in Chapter three, ten librarians from Tangaza University College Library (TUC) participated in the study. There was a 100% participation as the researcher was able to interview all the ten librarians. The interview with the librarians was conducted by the researcher himself as there were no field research assistants involved. Data was recorded by filling each interview schedule allocated to each librarian with pseudo identifiers as follows L1, L2, L3, L4, L5, L6, L7, L8, L9 and L10. The researcher conducted two interviews per day. It, therefore, took a maximum of five days to conclude the interviews. Each interview took approximately one hour.

4.2 Demographic information of librarians

The demographic information of librarians presented includes the highest LIS academic qualifications attained by the respondents, years of experience as professional librarians and the institution where they studied LIS (whether public or private).

4.2.1 Academic qualification

During the interview, respondents were asked about the highest level of academic qualifications they had achieved in their LIS studies. The results are presented in Table 4.1 below:

Table 4. 1: Academic Qualifications

Highest Qualification	Frequency	Percentage
Certificate	1	10
Diploma	4	40
Bachelors	5	50
Total	10	100

According to the findings, half of the respondents, 50% (5), had a bachelor degree in LIS. 40% (4) of the respondents had a diploma in LIS while only 10% (1) respondent had a certificate in LIS.

4.2.2 Years of experience as a professional librarian

Respondents were asked about the number of years they had experience as professional librarians. The findings are presented in Figure 4.1.

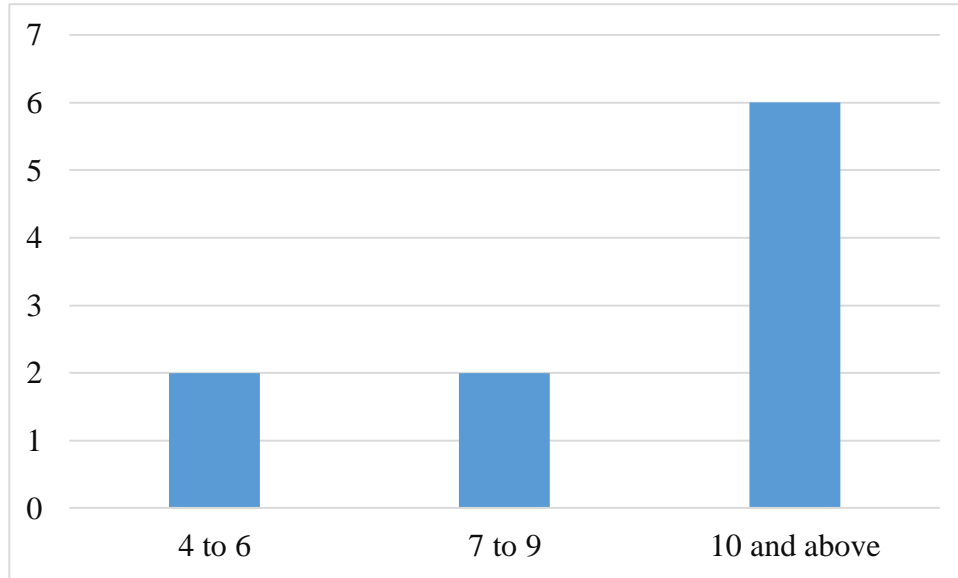


Figure 4. 1: Years of experience as professional librarian

According to Figure 4.1, 60% (6) of the respondents said that they had professional experience of 10 years and above. Two librarians (20%) had an experience of 7-9 years, while the remaining 2 (20%) had an experience of 4-6 years.

4.2.3 Institution where respondents studied LIS

The researcher also wanted to find out whether the librarians studied LIS in a public or private institution. The findings are presented in Table 4.2.

Table 4. 2: Institutions where respondents studied LIS

Institution of study	Frequency	Percentage
Public	8	80
Private	2	20
Total	10	100

According to Table 4.2, the majority of the librarians, 80% (8), had studied LIS in public institutions. Only two (20%) had their LIS studies in private institutions.

4.3 Level of ICT competencies by librarians

The researcher probed respondents on their level of ICT competencies. The level of competencies was divided into three that is, basic ICT skills, web technology competency, and ICT technical competency. The findings are presented in Tables 4.3, 4.4 and 4.5 in the sections that follow below.

4.3.1 Level of competence in basic ICT skills

Respondents were asked to provide information regarding their level of competency in the following areas of basic ICT skills. The findings are presented in Table 4.3.

According to the responses as presented in Table 4.3 above, all the ten respondents indicated that they had very high competencies in basic computing, storing and copying data into the primary and secondary storage device as well as in retrieving documents from storage devices.

Eight librarians said that they had very high competence in presentation skills using PowerPoint while two indicated that they had high competence in the same. Seven librarians said that they had very high competence in the digitisation of documents (scanning and uploading) while three said that their competence in the same is high.

Regarding the use of statistical packages such as SPSS and Excel, half of the respondents (5) said that they had high competence. Only three said that they had very high competence while two rated their competence as low.

Table 4. 3: Level of competence in basic ICT skills

Basic ICT Skills	V. High	High	Low	V. Low	Response Count
Basic computing e.g. Word processing	10				10
Storing and copying data into primary and secondary storage device (e.g. hard disk, flash drive, etc.)	10				10
Retrieving documents from storage devices	10				10
Presentation skills e.g. use of PowerPoint	8	2			10
Statistical skills e.g. SPSS, Excel	3	5	2		10
Digitization e.g. scanning and uploading	7	3			10

4.3.2 Level of competence in web technology

This section was intended for respondents to provide information regarding their level of competence in the following areas of web technology skills. The findings are presented in Table 4.4.

All the ten librarians said that they had very high competence in internet surfing/browsing, use of search engines such as Google, use of e-mail and use of OPAC. Eight librarians rated their use of social media platforms and networks such as Facebook, Twitter as very high while two rated their competence as high.

Four librarians rated their competence in using subject gateway/portals as very high, while five rated their competence as high and one as low. Two librarians rated their Web 2.0 skills such as blogging and instant messaging as very high while the rest (8) rated their competence as high. Lastly, only one librarian rated his/her competence in Web content creation as very high. Majority of the respondents, (6), rated their competence as high while three rated their competence as low.

Table 4. 4: Level of competence in web technologies

Web technology Skills	V. High	High	Low	V. Low	Response Count
Internet surfing/browsing	10				10
Web content creation	1	6	3		10
Use of search engines (e.g. Google, etc.)	10				10
Use of e-mail	10				10
Web 2.0 skills e.g. blogging and instant messaging etc.	2	8			10
Use of social media platforms and networks (e.g. your level of using Facebook, Twitter, etc.)	8	2			10
Use of OPAC	10				10
Subject gateway/portals (e.g. your level of using library gateways such as academic information, digital librarian etc.)	4	5	1		10

4.3.3 Level of technical ICT competency

Respondents were asked to provide information regarding their level of technical ICT competency in the following areas. The findings are presented in Table 4.5.

Out of the 10 respondents, none rated their competence in software design and integration as very high. However, two rated their competence as high, seven as low and only one as very low. Two librarians rated their online cataloguing and metadata skills as very high while eight rated their competence as high.

None of the respondents rated their competence in system installation as very high. However, one rated his/her competence as high, five as low and four as very low. Only one librarian rated his/her competence in operating systems configuration and use as very high, four as low and five as very low. No respondent rated their competence as high. None of the respondents indicated their

competence in information systems development as very high. However, one responded indicated high competence, three indicated low while six indicated very low in the same ICT field.

In the use of interface design, two respondents indicated very high competence, one as high competence, two as low competence and five as very low competence. No respondent indicated they had very high competence in minor repairs. However, three indicated they had high competence, four indicated low competence and three indicated very low competence.

Regarding competence in computer networking, no respondent indicated whether they had very high or high competence. However, two indicated low competence and eight indicated very low competence.

Table 4. 5: Level of technical ICT competence

Technical ICT Skills	V. High	High	Low	V. Low	Response Count
Software design and integration		2	7	1	10
Online cataloguing and metadata	2	8			10
System installation		1	5	4	10
Operating systems configuration and use	1		4	5	10
Information systems development		1	3	6	10
Use of interface design	2	1	2	5	10
Minor repairs		3	4	3	10
Networking			2	8	10

4.4 Library duties which need the use of ICT frequently

This question was meant to find out from the librarians some of the duties they carried out that frequently needed the use of ICT. The following duties were pointed out by the respondents.

i. Word processing

All the respondents indicated that they had to use a computer in one way or another to create, edit, display or print documents in their line of duty.

ii. Searching the catalogue and circulation of library information materials

Respondents indicated that they had to use a computer to search the OPAC for various reasons. L7's observed that, "since I offer reference services, I have to use ICT most of the time. I have to search the catalogue, and help users retrieve relevant information and even send to those that I am serving virtually."

iii. Cataloguing and data entry

More than half of the respondents said that they are engaged in cataloguing and data entry of library items which are activities that need the use of ICT.

iv. Online search

Most of the respondents indicated that they take part in doing an online search. They indicated that this might be in the line of trying to retrieve information for a user or for the purpose of looking for information that would help them at work. For instance, L8 said that "My work as a research librarian as a well as in charge of e-resources means that I have to work using my computer throughout. Other than searching for information online, I have to communicate with researchers and faculty members via email."

v. User training

Some of the respondents pointed out that they had to use ICTs such as computers and projectors in training users who come to the library.

vi. Communication (through email and social media)

All the respondents pointed out that they frequently used ICT in communication. All of them said that they have to communicate by sending emails and that they frequently use social media as a means of communication.

vii. Digitisation (scanning and uploading)

Some of the respondents pointed out that they have to perform some minor tasks of digitisation and uploading of documents in their line of duty.

4.5 Level of LIS training at which ICT courses were covered

Respondents were asked to indicate at what level of their LIS training they had covered some of the ICT courses. The results are shown in Figure 4.2.

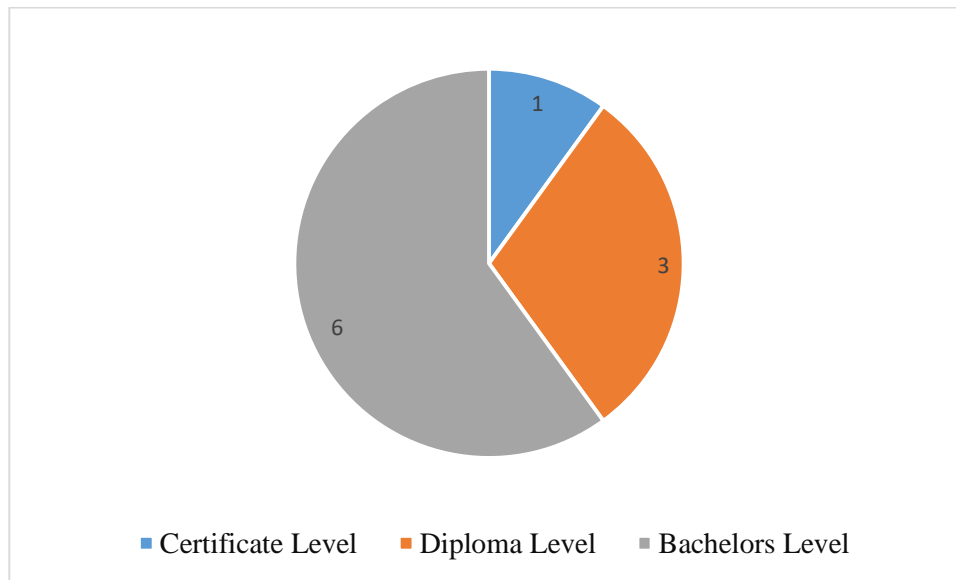


Figure 4. 2: Level of study where ICT courses were covered

According to the results as presented in Figure 4.2, the majority of the respondents (6) indicated that they had covered some ICT courses while doing their bachelor degree. Three of the respondents said that they covered the courses at a diploma level while only one indicated that he/she covered them at a certificate level.

4.6 ICT related courses covered during LIS training

Respondents were asked to give some of the ICT related courses that were covered during their time of LIS study. Figure 4.3 summarises some of the ICT themes according to the ICT courses that the respondents mentioned as having been part of the LIS training syllabus.

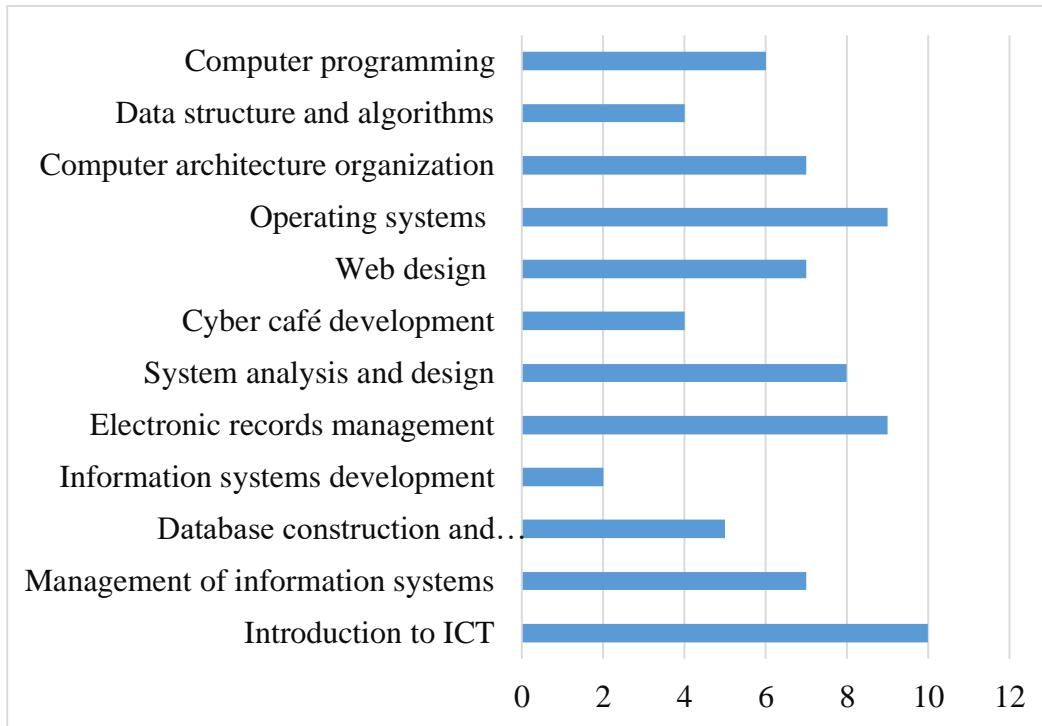


Figure 4. 3: ICT related courses covered during LIS training

According to Figure 4.3, all the ten librarians interviewed had covered a course on introduction to ICT. Nine responded had covered a course on operating systems and electronic records management. Eight respondents said that they covered a course on system analysis and design. According to seven respondents, they covered computer architecture organisation, web design and management of information systems. Six respondents said that they had covered a course on computer programming. Five of the respondents said they had covered database construction and management. Four said they had covered data structure and algorithms as well as cyber café development. And lastly, only two respondents indicated they had covered a course on information systems development.

4.7 Preferred methods of ICT training

The researcher posed this question in order to find out the respondents' preferred method of acquiring ICT competencies. Respondents were free to suggest more than one preferred method. The recurring themes from their responses are presented in Table 4.6 below.

According to the findings, all the ten respondents (100%), indicated that they would prefer refresher courses through seminars, workshops and conferences. Most of them indicated that this

method was favourable since they do not have much time to attend full classes. According to respondent L10 “it is easy to attend workshops since the employer would factor that as a staff development program since individual members are given permission to attend.”

80% (8) of the respondents said that they would prefer acquiring ICT competence through further studies in LIS training. L2 pointed out that “I am currently doing my Master in Library and Information Science and already I can see there are some ICT related courses that I will cover during my study.” 70% (7) of the total respondents said that they would prefer free online courses. Some of them said that having free access to the internet at workplace meant that they can access some of the ICT courses. “I have time that I can use to do online courses. Therefore, this would be the best time for me to enroll for some basic ICT courses offered under MOOCs,” said L6.

On job training was also suggested by 70% (7) of all the respondents who indicated that acquiring ICT skills through this method would be more practical and relevant. One of the respondents, L4, was very specific and said that “it is easy learning while practicing at the same time.”

Table 4. 6: Preferred methods of ICT training

Preferred methods of ICT training	Response Count	Percentage
Refresher courses through seminars, workshops and conferences	10	100
Further study in LIS training	8	80
Free online courses	7	70
On job training	7	70

4.8 ICT related requirements for the current job position

Respondents were asked to provide information about some of the ICT job requirements that were needed for the current job they were holding. From the responses given, the researcher summarised them in the following themes as requirements.

a. Basic computer skills

From the response of the librarians, this requirement cut across. All the respondents said that this requirement was insisted even during their interview for the job and a practical test was given. They mentioned some of the basic skills required included MS Word, MS Excel and PowerPoint.

b. Ability to use KOHA library system and specialist computer applications

Ability to use KOHA as a library system was another requirement that all the respondents mentioned as a necessary ICT requirement that was needed. According to the respondents, the requirement was specific about KOHA because it is the LIS that is used at TUC.

c. Familiarity with the use of information databases and the internet

Majority of the respondents indicated that one of the ICT requirement was that they should be able to search information databases and the internet, retrieve information and deliver it to a user.

d. Digitisation skills

Some of the respondents indicated that they were asked to have digitisation skills that is, being able to scan and upload documents.

4.9 Challenges encountered in pursuit of acquiring ICT skills

i. Lack of funding

Lack of funding was mentioned by all the respondents as the biggest challenge. According to them, ICT courses are very expensive and this limits them. L1 said that “It is expensive to pay for some of the advanced courses in ICT considering you cannot just pick what you want as they are offered as a package.”

ii. Lack of time

The respondents indicated that considering that they are working seven days in a week, they lack time for them to enroll and attend such courses.

iii. ICT obsolete

Majority of the respondents said that ICTs seem to become obsolete very fast. They said that there seems to be a quick rush to upgrade technologies and adopt new ones hence obsolescence was making it hard for them to keep up with the ever-changing ICT environment that they work in.

iv. Lack of practical lessons

Respondents raised lack of practical lessons as a challenge. Majority of them indicated that, though they had done quite a number of ICT related courses during their LIS training, they had no chance to practice what they learned as most of it was a theory.

v. Lack of personal interest

Some respondents raised the fact that lack of interest in ICT was one of the challenges. “Changes in the library today demand that as a librarian I must have advanced ICT skills. However, I have no interest in ICT. I only do it because that is the only way of securing my job as a librarian today,” L9 said.

vi. Lack of training opportunities

Some respondents said that considering their nature of work, they lacked ICT training opportunities especially those that could empower them with new emerging ICT skills.

Conclusion

In this chapter, the researcher presented an analysis of the data that was gathered through the use of semi-structured interviews. The research used tables, graphs, pie charts and narratives, to make the presentation clear and easy to understand. The findings were based on the collected data from the qualified librarians at TUC Library. The next chapter, which is chapter five discussed the findings that emerged in relation to the research questions of the study.

CHAPTER FIVE

DISCUSSION OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS OF THE STUDY

5.1 Introduction

The previous chapter presented the findings from the data collected from the interviews conducted by the researcher. Ten librarians from Tangaza University College Library participated in the study by responding to the interview questions. This chapter presents discussions, conclusions and recommendations drawn from the findings of the study. In the main, the present chapter discusses the core findings and conclusions in relation to the purpose of the study. It also provides relevant recommendations as a way forward. The chapter concludes by proposing areas for further research. The aim of the study was to establish ICT competence of librarians working at Tangaza University College Library.

5.2 Discussion of findings

The following discussion was offered based on the study questions and the study findings as reported in Chapter four.

5.2.1 Level of ICT competencies by librarians

The findings as presented in Tables 4.3, 4.4 and 4.5 reveal the basic ICT skills, web technology competency, and ICT technical competency of the respondents respectively.

5.2.1.1 Basic ICT skills

A comparison of the three categories of ICT competence shows that Tangaza University College librarians have greater competence in basic ICT skills than in the other two categories. They are able to perform duties such as word processing, storing and copying data into primary and secondary storage device, retrieve documents from storage devices, do presentations using PowerPoint as well as scan and upload documents with much ease. During the interview, the researcher noticed that at some point, a number of the respondents had pursued a certificate in computer packages. They were also using computers on a daily basis in their line of duty hence the two could be the reason why they were very competent.

The general view of librarians having basic ICT competence, as found out by the researcher, concurs with other studies as highlighted in the literature review. Ansari's (2013:83) findings in a study on the ICT competence of the LIS professionals in the universities of Karachi in Pakistan indicated that the majority of librarians were moderately ICT competent. This is the case in this study too. In their study, Shahbazi, Fahimnia and Khoshemehr (2016:72) found out some of the basic ICT skills that any librarian should have today. They include troubleshooting, installing, file converting, Microsoft Office (Word, PowerPoint, and Excel). They should be able to download and install simple computer programs too.

However, although all the respondents indicated that they had very high competence in the above mentioned areas of basic ICT skills, the use of statistical tools such as SPSS and Excel was a challenge to some. During the interview, the researcher found out that three respondents who indicated that they had very high level of competence in statistical skills were pursuing a Masters degree in Library and Information Science. At this level of study, they had studied statistical data analysis which includes the use of statistical tools such as SPSS and Excel. The two respondents who had low competence in statistical tools included one who had a certificate and one who had a diploma as their highest level of academic qualifications in LIS studies. In addition, the two had done their studies in private institutions as captured in Table 4.2. Similarly, they had the longest experience in the profession which is an indicator that they studied Library and information science a long time ago, possibly before the introduction of ICT related courses.

5.2.1.2 Web technologies

The score from respondents about their level of competence in web technologies varied as per the findings as presented in Table 4.4. All the ten respondents indicated that they have very high competence level in using the internet (surfing/browsing), using search engines such as Google, using e-mails to communicate as well as using OPAC. These four scored highly because, according to the respondent, they used them on a daily basis. For instance, all the ten respondents indicated that they had to use the OPAC. They use it to search for information resources, edit catalogued items, check circulation history of a client as well as general maintenance of the catalogue.

However, an indication of low competence in web content creation is worrying especially for a library that is focusing on maximising the use of electronic resources. Web design and web content skills enable librarians to promote the use of electronic resource and update the subject information

pages of their electronic databases. As libraries embrace virtual services, this skill is highly valued today. Therefore, according to Narasappa and Kumar (2016:57), LIS professionals require essential ICT skills such as website and web content design. Similarly, librarians need to be well equipped with skills in other web related technologies such as Web 2.0 and skills such as blogging and instant messaging, use of social media platforms and networks and subject gateway/portals.

5.2.1.3 Technical ICT competency

The respondents scored poorly when they were asked to provide information regarding their level of technical ICT competency as presented in Table 4.5. The majority of them indicated as either having low or very low competence in software design and integration, system installation, operating systems configuration and use, information systems development, use of interface design, doing of minor computer repairs and networking.

It is only in online cataloguing and metadata that two librarians rated their skills as very high while eight rated their competence as high. The two librarians, as the researcher found out, worked in the Department of Cataloguing and Classification. Since they were using the system frequently, it means that they had mastered the art of using it and that is why they were very competent. The remaining eight rated their competence in cataloguing and metadata as high because at one point each librarian was in one way or another involved in the processing of new library items. For instance, when library items, such as books are many and need to be processed, other librarians are called in to assist the two in the cataloguing and classification department. As the two cataloguing and classification librarians carry out the most complex activities of the task, the other eight librarians assist with minor duties in the processing of the books. Hence, they have some competence in cataloguing and metadata.

Lack of competence in computer minor repairs and even systems development is a worrying trend considering the uptake of ICTs in the library. Librarians should be able to quickly respond to the needs of the user other than waiting for an ICT personnel response. Shahbazi, Fahimnia and Khoshemehr (2016:72) point out computer minor repairs as a basic skill that each librarian should have in order to serve library users adequately.

In summary, the findings from this section of the study reveal that majority of the library staff already have elementary or basic ICT knowledge such as word processing, digitisation and some basic web technology skills such as internet browsing, e-mail, use of OPAC and social media

platforms. However, they need to advance in ICT competencies and gain expertise in technical ICT packages which would enable them to understand and work well with upcoming information management systems or technologies. According to Anunobi's (2004:39) study on Computer literacy status of librarians, he noted from the study's findings that librarians were not completely devoid of ICT skills. They possess some basic ICT skills. However, they lack some technical ICT competence. A similar conclusion is made by Ansari (2013:83) when he found out that librarians were not equally proficient in all areas of ICT skills. And in a study by Ayoku and Okafor (2015:519), library and information professionals working in university libraries only have basic ICT skills but lack adequate ICT competencies.

5.2.2 Library duties which need the use of ICT frequently

As it is indicated in Chapter four, respondents were asked to point out library duties that frequently required the use of ICT in their line of duty. The responses, given by the respondents and recorded in chapter four, corroborate findings from the first question as recorded in Tables 4.3, 4.4 and 4.5.

The respondents mentioned the following duties:

- i. Word processing
- ii. Searching the catalogue and circulation of library information materials
- iii. Cataloguing and data entry
- iv. Online search
- v. User training
- vi. Communication (through email and social media)
- vii. Digitisation (scanning and uploading)

The duties are closely related to the librarians' ICT competence, specifically their competence in basic ICT skills and some web technologies as presented in Tables 4.3 and 4.4 respectively. The indication is that librarians perform duties mostly related to Word processing, typing, and printing of documents. Their competence in Word processing cannot be wished away as it is a skill that is necessary for libraries. On a daily basis, they use Word processing in making of useful library management reports. In making the reports by use of Word processing, the respondents are skilled in navigating various Word tools. Therefore, in the context of their work which not only entails helping users but also preparing management reports for the library, librarians should be adequately competent in using Word processing.

Searching the catalogue and circulation of library information materials stood out as the second most performed duty because all the librarians in TUC Library in one way or another are in contact with library users. From those working at the circulation desk, to reference desk, to research desk and even those doing cataloguing, they have to search the catalogue for various reasons. The same applies to doing cataloguing and data entry as well as carrying out an online search. TUC Library, being a small library means that all the librarians collaborate in performing certain duties hence some duties such as data entry and online searching cuts across the board rather than being a domain of selected librarians.

5.2.3 Level of study where ICT courses were covered

From the findings presented in Figure 4.2, the majority of the respondents (6) indicated that they had covered some ICT courses while doing their bachelor degree studies in LIS. Considering these findings, since half of the librarians have a bachelor's degree (as presented in Table 4.1) it means that majority of them are trained in the use of ICT.

5.2.4 ICT related courses covered during LIS training

It is the view of Minishi-Majanja (2007:4) that LIS schools should include ICT units into LIS course content, and the findings indicate that there is a variety of ICT courses studied by the respondents during their LIS training, according to the findings in Figure 4.3. These courses cover the three categories as indicated in Tables 4.3, 4.4 and 4.5, that is basic ICT skills, web technology competency, and ICT technical competency respectively. In relation to the findings in Figure 4.3, all the ten librarians interviewed had studied introduction to ICT. This is an introductory course on computers. The course covers basics of computer technology including computer packages. This informs the reason why all the respondents indicated very high competence in basic ICT skills according to the findings in Table 4.3.

However, there are some interesting patterns between ICT courses studied and ICT competencies of the respondents. According to Figure 4.3, two respondents indicated that they had studied information systems development. However, according to Table 4.5, no respondent indicated very high competence in information systems development. Only one respondent indicated that he/she is highly competent. The rest of the respondents had indicated low and very low competence. This finding concurs with Minishi-Majanja's (2007:5) assertion that "what is taught in the above

modules does not always translate into comparable knowledge and competencies” in the work place.

A correlation between the ICT courses covered at the time of LIS study and library duties that need the use of ICTs frequently (as presented in section 4.4) reveals another interesting pattern. The revelation is that librarians are only able to utilise a very small fraction of their ICT competence in relation to the ICT courses covered. In as much as they covered courses such as introduction to ICT, management of information systems, database construction and management, information systems development, electronic records management, system analysis and design, cyber café development, web design, operating systems, computer architecture organization, data structure and algorithms and computer programming, their daily duties only make use of the basics in ICT, hence leaving them with so much potential that is unutilised. Therefore, considering the number of ICT courses offered during LIS training as revealed by the findings, the researcher slightly disagrees with Batool and Ameen (2010:6) study which concluded that ICT incompetence of librarians was as a result of lack of sufficient ICT units in LIS curriculum. According to the findings, the number of ICT courses offered are many and diverse.

5.2.5 Preferred method of ICT training

Considering that the respondents had full-time jobs, the researcher was interested to find out which suitable and flexible methods they preferred for ICT training. According to the findings as presented in Table 4.6, the respondents preferred refresher courses through seminars, workshops and conferences, further study in LIS training, free online courses and on the job training. These methods, therefore, form part of their continuous professional development which, according to Odongo (2011:39), is needed for the working LIS professional.

The use of seminars, workshops and conferences as a preferred method scored highly because they run for a very short time, hence do not interfere with one’s work schedule. Many seminars, workshops and conferences are also sponsored, hence being apposite for their financial situation. Their choice of seminars, workshops and conferences seem to be preferred by other librarians in other regions. According to Bhatti’s (2014:60) study, the majority of LIS professionals in University Libraries of Pakistan preferred acquiring ICT skill not just through LIS studies but also through informal training programs such as staff continuing education, workshops and by attending conferences. They consider such methods as being more effective.

Other than seminars, workshops and conferences, the respondents mentioned other informal trainings such as enrolling for free online courses and on-the-job training as their preferred methods. According to the researcher, on-the-job training could have a significant impact on the librarians' ICT competence considering the discrepancy that exists between what the respondents have studied and their declared level of competence. One of the reasons why the discrepancy exists is that they were not able to practically apply what they studied which, in their case, is only possible while on the job.

Their choice of enrolling for free online courses as another preferred method concurs with Tzoc and Millard (2011:14) study. In the study, they recommended various ICT training for librarians including web-based tutorials or joining Code4Lib which is an online technical group where members share ideas on ICT skills. Enrolling for further study in LIS training was also mentioned as the second most preferred method of training. This could be because the respondents were aware that LIS schools had a wide coverage of ICT courses as presented in Figure 4.3. However, the worry is that though most of the LIS schools have developed relevant ICT modules, the schools teach these modules theoretically, hence lacking the practical component that would allow them be competent and hands on approach to the work.

5.2.6 ICT related requirements for the current job position

As stated in section 4.8 in chapter four, the purpose of this interview question was to get from respondents some of the ICT job requirements that were needed by their current employer for the current job they were holding.

From the response, it is clear that they were required to have basic computer skills, ability to use the KOHA library system and some specialist computer applications, ability to navigate and use information databases and the internet as well as being able to perform some digitisation tasks. This is in line with Janakiraman, Ormsby and Subramanian (2016:251) and Sinha and Pandey (2014:80) study which found out that ICT proficiency or competence was becoming a requirement in the LIS job market today.

However, a correlation between ICT requirements for the current job and related ICT courses covered during LIS training reveals some interesting patterns. There is a big difference between what was covered during the time of study and what the employer is looking for. According to Figure 4.3, the ICT courses covered are so many and cover a wide spectrum of technical ICT skills.

However, the employer, according to what the respondents reveal as ICT requirements for the current job, was only looking for those with basic ICT skills.

5.2.7 Challenges encountered in pursuit of acquiring ICT skills

According to Ayoku and Okafor (2015:519), “it is important to know the level of ICT competencies and knowledge of librarians, as well as constraints which hinder librarians from having those skills.” The respondents pointed out some challenges faced in their pursuit of acquiring ICT skills. These challenges include lack of funding, lack of time, ICT obsolescence, lack of practical lessons, lack of personal interest and lack of training opportunities. The finding of lack of funds concurs with Eze’s (2012b:7) study on staff training programmes in Nigerian public libraries where lack of finances was pointed out as a challenge that hinders training of librarians.

There is an interesting pattern between what the respondents pointed out as preferred methods of acquiring ICT training as presented in Table 4.6 and challenges encountered. All the respondents (ten) pointed out lack of funding as the first challenge they encounter in their pursuit to acquire ICT skills. This is the reason why they prefer refresher courses through seminars, workshops and conferences, as presented in Table 4.6. According to Adeleke and Olorunsola (2010:461), the use of seminars, workshops and conferences is one of the most effective ways of carrying out continuous professional training in order to equip librarians with ICT skills.

Lack of practical lessons was also pointed out as one of the challenges. Respondents explained that though they had covered ICT related courses during their study, the mode of learning was purely theoretical rather than practical. This fact corroborates the findings presented in Figure 4.3 which shows that respondents indicated that they had covered many ICT related courses. However, their competence was either low or very low in almost all the technical ICT skills as shown in Table 4.5. This could be attributed to lack of practical lessons. Since they were able to practice some basic ICT skills through their work, they indicated that they had very high or high competence in most of the basic skills as presented in Table 4.3.

According to librarians, the ICT world is changing so fast that ICT tools and technologies are becoming obsolete very fast. This is a challenge to them as they have to be updated frequently by undergoing various trainings. Unfortunately, this is compounded by lack of funds as well as lack of time, considering they are working. The mention of lack of practical lessons as a challenge is

clearly evident in the findings. Lack of practical lessons as a challenge is supported by responses on their level of competence in ICT (Tables 4.3, 4.4, and 4.5), the ICT courses covered (Figure 4.3), requirements by employers (section 4.8) and what they do that requires the use of ICT frequently.

Though they cover so many ICT courses, due to lack of practical lessons they lack the technical ICT skills. Considering the employer's requirements and what they do on the ground, they lack the opportunity to practice what they theoretically learned in class. This in itself is contrary to what Khan and Rafiq (2013:5) suggest in his study. According to him, there is a need to advocate more on "skills-oriented trainings" for librarians and the best way to do so is by emphasising on "practical working sessions rather than traditional methods i.e. lecture and presentation".

5.3 Conclusions

The findings of the study suggest that TUC librarians have very high ICT competence in the use of basic ICT and some web technologies. However, they lack ICT competence in the use or application of technical ICT skills. Generally, they have a rudimentary knowledge of ICT but lack practical expertise in the use of technical ICT tools.

From the findings, though there is an indication that ICT courses are offered during LIS science training, TUC librarians lack an opportunity to practice what they learned in class. This indicates that, at the time of training, what they go through is more theoretical with no opportunity to practice. This makes them unable to practically apply what they learned especially in the real experience of work. This means that there is a gap between what is taught in class and practical application of knowledge attained.

There is a gap between the ICT courses covered during the time of study and LIS job requirements in the job market. As the findings of the study indicate, although librarians had studied most of the ICT courses, including technical ICT course, the employer's requirements included only basic ICT skills. This means that, in as much as there are ICT courses being offered, the employers requirements and what is being taught in LIS schools have not been synchronised. In this context, the employers' demands for the basics only make it hard for the employees to practice what they learned during their training as most of their daily duties would focus on using basic ICT skills.

The finding on lack of funding, lack of time, ICT obsolescence, lack of practical lessons, lack of personal interest and lack of training opportunities were accepted as challenges librarians encounter in their pursuit to acquire ICT skills. What this implies is that librarians would perform better if they underwent some continuous professional development training in ICT related courses.

Considering the existing gap between what the respondent covered at the time of their training, their confirmation for need to be competent in and what the employer requires, I observe that there is need for more practical opportunities such as internship for the new graduates. This will enable them to acquire the relevant skills that will make the job market accessible.

It is evident that ICT competence levels of LIS professionals is also influenced by levels of ICT use in a library. TUC Library is not a big library with complex ICT services. This situation does not provide an opportunity for the librarians to put into practice what they learned. This makes some of their ICT skills remain irrelevant and with time they become incompetent.

5.4 Recommendations

In order to keep up with the ever-changing ICT environment and to make librarians always ICT relevant, library schools and library professional associations, for instance, the Kenya Library Association (KLA), should regularly conduct ICT related training programmes for librarians in order to meet their ICT related needs in the changing world of librarianship.

Since the respondents have pointed out that attending conferences, workshops and seminars would be ideal for them to acquire ICT skills, they should be encouraged and motivated to participate. There is a need to have more seminars, conference and workshops that provide an opportunity for professional development in ICT. The administration of TUC Library and the institution, in general, should also facilitate library staff to attend. According to Adeleke and Olorunsola (2010:461), this is one of the ways libraries in developing countries could narrow the gap between them and those in the developed countries, in terms of ICT literacy.

The librarians who are willing to further their studies should also be sponsored and given time by the administration to study. They should be granted some study leave to pursue ICT studies.

There is a need for academic curriculum in LIS schools to have more practical ICT related programmes. The review of LIS education that is suggested by Ocholla (2013:2) should not just

mean adding more courses but also a review of the programme in terms of whether the graduates are able to apply what they learn in class practically. In the words of Minishi-Majanja (2007:6) “LIS schools need to ensure that there is a hands-on practice when teaching ICT modules and/or to increase the amount of this practical component.”

TUC Library staff should be encouraged to develop a personal interest in pursuing ICT skills in order to remain relevant in the ever-changing ICT environment. TUC librarians should be proactive in order to meet the ICT needs in the library today. They should take advantage of any relevant ICT training available. They can make use of ICT training that is freely available online in order to develop themselves and remain relevant. They should start by developing a personal interest in ICT.

5.5 Suggestions for further research

- i. Considering lack of some ICT competence especially in relation to the technical skills, a study should be done to find out whether the lack of such skills has any impact on service delivery or affects library user’s satisfaction
- ii. A better generalisation of the study would be made if a further study would be carried out covering library staff in other academic institutions. This is because the scope of this study was limited only to library staff in Tangaza University College.
- iii. A further study would be necessary to measure the attitude of library staff towards ICT in Kenyan university libraries.
- iv. Considering the use of ICTs in academic libraries, a further study would be necessary in order to find out ICT competencies of Library and Information Science Students in Kenyan Universities.

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APPENDICES

Appendix A: Semi-structured interview guide

Good day. My name is Agava Stanislaus Litsalia. I am an M.IT student at the University of Pretoria. One of the requirements for the conclusion of the program is to produce a mini-dissertation in partial fulfilment of the degree. The focus of my mini-dissertation is to find out ICT Proficiency of LIS Professionals at Tangaza University College Library. As a librarian working in the mentioned library, you have been identified as one of the interviewees during the study.

My study aims to answer the following questions:

- What is the ICT competency level of Tangaza University College librarians?
- Which ICT skills do they need to sufficiently meet the users' needs?
- Which ICT related units did they cover during their LIS training?
- What are some of the core ICT competencies required by LIS employer?
- What are the challenges encountered in acquiring ICT skills?

Through this interview, I will be able to collect data to answers these questions and make relevant recommendations. The interview should take approximately one hour. Would you be available to participate in this interview? If so, could you please identify a suitable timeslot on any of the days between 7th and 11th August 2017 when we can do the interview?

Section 1

Background Information of the respondents

1. What is your highest LIS academic qualification?

Academic qualification	
Certificate	
Diploma	
Bachelors	
Master	
PhD	

2. How many years of experience do you have as a professional librarian?

Years in range	
1-3	
4-6	
7-9	
10 and above	

3. Where did you study LIS (private or public institution?).

Institution	
Private	
Public	

Section 2

1. Level of ICT Competence

- a) How would you rate your basic ICT skills in the following areas? (The interviewer will tick very high, high, low, or very low, depending on the interviewee's own rating)

ICT Skills	V. High	High	Low	V. Low
Basic computing such as Word processing				
Storing and copying data into primary and secondary storage device (e.g. hard disk, flash drive, etc.)				
Retrieving documents from storage devices				
Presentation skills such as use of PowerPoint				
Statistical skills such as SPSS, Excel				
Digitization such as scanning and uploading				

- b) How would you rate your level of web technology competency? (The interviewer will tick very high, high, low, or very low, that is depending on the interviewee's own rating)

ICT Skills	V. High	High	Low	V. Low
Internet surfing/browsing				
Web content creation				
Use of search engines (such as Google)				
Use of e-mail				
Web 2.0 skills such as blogging and instant messaging etc.				
Use of social media platforms and networks (your level of using Facebook, and Twitter.)				
Use of OPAC				

Subject gateway/portals (your level of using library gateways such as academic information, and digital librarian)				
--	--	--	--	--

c) How would you rate your level of ICT technical competence? (The interviewer will tick very high, high, low, or very low. Depending on the interviewee's own rating)

ICT Skills	V. High	High	Low	V. Low
Software design and integration				
Cataloguing and metadata				
System installation				
Operating systems configuration and use				
Information systems development				
Use of interface design				
Minor repairs				
Networking				

2. Are there some ICT related duties you cannot perform?

3. At what level of LIS training did you cover some ICT courses?

4. Which ICT related courses did you cover?

5. What are your preferred methods of ICT training?

6. What were some of the ICT requirements for the current LIS job position you hold?

7. What are some of the challenges you encounter in acquiring ICT skills?

Conclusion

Thank you very much for sparing some of your time to participate in this interview. All the information that you have shared will be treated with utmost confidentiality and used for the purposes of this study only.

Appendix B: Tangaza University College Ethical Clearance



TANGAZA UNIVERSITY COLLEGE

The Catholic University of Eastern Africa

3rd July 2017

Mr. Stanilaus Agava
Chief Librarian, Tangaza University College
Nairobi, Kenya

Dear Mr. Agava,

I am writing to you on behalf of the TUC Research Committee. We have reviewed your request to carry out research on campus among the staff of the library on the topic: "ICT Competence of Library and Information Science Professionals".

The Committee is happy to grant you permission to do this work and encourage you in your efforts to become more competent to serve the TUC students and faculty. Know that we sincerely appreciate your commitment and work.

Sincerely,

Joan F. Burke, SNDdeN (D.Phil., Oxon.)
Chairperson,
TUC Research Committee

Appendix C: The University of Pretoria Ethical Clearance



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

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Faculty of Engineering, Built
Environment and Information
Technology
School of Information Technology

2017-08-02

ETHICAL CLEARANCE FOR MR S.L. AGAVA

**Dissertation Title: ICT Proficiency of LIS Professionals: A Case Study of Tangaza
University College Librarians in Kenya**

This is to confirm that the Research Committee of the Department of Information Science approved the application by Mr S.L. Agava for ethical clearance. Mr Agava complied with the standard requirements for ethical clearance as set out by the University of Pretoria's Faculty of Engineering, Built Environment and Information Technology (EBIT), as follows:

- He signed and submitted all the application forms required for ethical clearance;
- He submitted her data collection instruments for vetting by both the Research and Ethics Committees; and
- He implemented all corrections recommended by the above-mentioned committees.

The Research Committee of the Department of Information Science therefore requests permission for Mr Agava to collect the data he needs in order to complete and submit his mini-dissertation for examination. The Committee further appreciates any effort by appropriate authorities to expedite this process, and expresses its gratitude in anticipation.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Marlene Holmner', written over a dotted line.

Dr Marlene Holmner

Dr Marlene Holmner
Academic Coordinator: Carnegie MIT
Department of Information Science
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