A COMPARATIVE STUDY ON THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN CATALOGUING AND CLASSIFICATION OF LIBRARY MATERIALS AT UNIVERSITY OF NAMIBIA (UNAM) AND NAMIBIA UNIVERSITY OF SCIENCE AND TECHNOLOGY (NUST)

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ABSTRACT

This study presents a comparison between the use of Information and Communication Technology (ICT) facilities in cataloguing and classifying bibliographic materials in academic libraries in Namibia. A multiple case study design was applied to analyse of the two academic libraries at the Namibia University of Science and Technology (NUST) and the University of Namibia (UNAM). Face-to-face semi-structured interviews as well as observation was used to collect data. The population of this study comprised of 18 cataloguing and classification section staff members, which were made of 12 staff members of the University of Namibia and 6 staff members of Namibia University Science and Technology. A purposive sampling technique was used to select eight respondents to participate in the study. Content analysis was applied to examine the data. The study found that ICT facilities brought a great change in cataloguing and classification section for both institutions under study and these changes made work easier, time saving and more accurate when cataloguing and classification of library materials were done electronically. Thus, both institutions widely use and accept ICT facilities in their day-to-day activities. This was influenced by Perceived Ease of Use model which allowed individuals to accept the use technologies that would be effortless and hassle free. The reasons why librarians used and accepted ICT facilities in their day-to-day work was that they assisted in detecting duplications of work and errors when cataloguing and classifying of their library materials, made their work easy, saved time for their users and also to keep abreast with the new technology trends. It was also found that ICT facilities helped to improve and uplift librarians' job performances of the librarians. As far as the two determinants of Technology Acceptance Model (Perceived Ease of Use and Perceived Usefulness) were concerned, technologies used in libraries improved productivity. The participants cited the following challenges when using ICT facilities: ICT facilities could not function without electricity

connection, it is difficult to locate library materials with lengthy classification numbers, the system trial do not keep track of usernames and password, and communicate challenges faced between the system vendor and the library. The study concluded that librarians preferred to use ICT facilities as opposed to manual cataloguing and classification because they made their work easy, saved time, and provided more accurate results. The study recommends that institutions should develop ICT policies to help facilitate service delivery and effective storage systems.

Keywords: cataloguing and classification, information retrieval, information and communication technology, academic libraries.

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LIST OF ABBREVIATIONS AND ACRONYMS

AACR2	Anglo American Cataloguing Rules Second Edition
APA	American Psychological Association
CDP	Collection Development Policy
CIP	Cataloguing-In-Publication
DDC	Dewey Decimal Classification
ETSIP	Education and Training Sector Improvement Programme
ICT	Information and Communication Technology
INASP	International Network for the Availability of Scientific Publication
IT	Information Technology
ITS	Integrated Tertiary Software
IUM	International University of Management
LCSH	Library of Congress Subject Heading
MARC	Machine-Readable Cataloguing
NUST	Namibia University of Science and Technology
OCLC	Online Computer Library Center
OPAC	Online Public Access Catalogue
PEU	Perceived Ease of Use

PU	Perceived Usefulness
RDA	Resource Description and Access
SABINET	Southern African Bibliographic Network
SLMS	Sierra Library Management System
SMS	Short Messages Service
TAM	Technology Acceptance Model
UDC	Universal Decimal Classification
UNAM	University of Namibia
UNESCO	United Nations Educational, Scientific and Cultural Organization
UPS	Uninterrupted Power Source
UREC	UNAM Research Ethical Committee

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DEDICATION

This thesis is dedicated to my late father, Mr. Leevi Shitaula Iyambo. I wish you were here to witness my success. May your soul continue to rest in eternal peace.

DECLARATION

I, Aune Ndapewa Naambo Iyambo, hereby declare that this study is my own work and is a true reflection of my research, and that this work, or any part thereof has not been submitted for a degree at any other institution.

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Name of Student Signature Date

CHAPTER 1: INTRODUCTION

1.1 Introduction

This study presents a comparison of the use of Information and Communication Technology (ICT) facilities in cataloguing and classification of library materials at two Namibian academic libraries. This chapter describes the orientation of the study (1.2), problem statement (1.3), objectives of the study (1.4), significance of the study (1.5), limitations of the study (1.6), delimitation of the study (1.7), literature and theoretical framework (1.8), and methodology (1.9).

1.2 Orientation of the study

Academic libraries are institutions that are established to serve the information needs of students, lecturers, researchers and other community scholars. Libraries aim to provide quality information services and knowledge to their users. In order for libraries to provide quality library and information services, they need to have access to relevant information, computers, information networks and software applications (Haliso, 2011). Therefore, the application of Information and Communication Technology (ICT) to library operations has made electronic cataloguing as well as other library operations possible.

According to Adedibu, Akinboro and Abdussalam (2012) cataloguing and classification is the cornerstone of organising library materials for easier retrieval by library users and it is for that reason that there is a need to organise library collections because if the collection is not organised, it would be difficult for users to locate and find library materials. Mutula and Mashingaidze (2002), on the history aspects of cataloguing and classification of library materials, indicated that in Africa cataloguing and classification started with alphabetical list of titles recorded in the school exercise

books. The authors further asserted that as libraries expanded, the recording of the library materials' titles in the school exercise book was replaced by the book catalogue. This form of catalogue was preferred because it was easy and cheap to produce and reproduce (Sangam, 2016). The book catalogue was later found to be not flexible when inserting new materials, thus the book catalogues were later replaced by card catalogues which were hand-written or printed (Mutula & Mashingaidze, 2002). The authors further asserted that card catalogues provided for easy insertion of new entries and withdrawal of library materials and is still much used today in Africa where many libraries are not computerised. Even for libraries with computerised systems and connected to the internet, the book catalogue is still a common feature as a backup because of the instability of computer technology in the African environment, which is characterised by erratic power supply, poor technology support, and lack of computer skills.

Adedibu, Akinboro and Abdussalam (2012) also indicated that in the past, cataloguing and classification of library materials was done manually (card catalogue) which made the cataloguing process very difficult and time-consuming. As a result, the card catalogue system is replaced by Online Public Access Catalogue (OPAC) in modern libraries.

In the past few years, most academic libraries in Namibia have adopted new technologies for the processing of library materials. The adoption and use of ICT in African libraries began in the early 1980s (International Network for the Availability of Scientific Publication [INASP], 2014). Thus, the use of computerised cataloguing and classification has made the processing of library collections more accurate, interesting and faster, which is impossible through the use of traditional card catalogue system (Adedibu, Akinboro & Abdussalam, 2012). This study therefore is a comparative study on the use of ICT in the cataloguing and classification of library materials at

the University of Namibia (UNAM) and Namibia University of Science and Technology (NUST) libraries.

1.3 Statement of the problem

Information and communication technology brought many changes to the cataloguing and classification of library materials by making the library operations less complicated, more advanced and more accurate as compared to traditional ways of cataloguing and classification of library materials which demanded a lot of time, personnel, and energy to carry out tasks such as bibliographic description of materials, crosschecking of catalogue cards, updating of the shelf list and filing and interfiling of cards (Ilo, 2008) . Madu (2004) declared that manual cataloguing is tedious because hand, paper, pencil, ruler and eraser are used in descriptive cataloguing. The history of library cataloguing shows that it has dramatically changed over centuries, having first appeared in form of clay tablets, later on cards and, in modern times, to the online version used today. With regard to the existing literature, the researcher found out that related studies were conducted in five state libraries in the South-East geographical zone of Nigeria and Karnataka India by Eze (2012) and Perera and Chandra (2010). Both studies found that traditional libraries were using new technologies that allowed users to access library materials. Islam and Islam (2006), as cited in Inyang and Agwunobi (2016), outlined the problems faced by traditional libraries system which necessitated the Information and Communication Technology (ICT) in libraries. The researcher, through the literature review established that there was no related study that was done in the Namibian context. This gap in knowledge encouraged this researcher to explore the work of cataloguers and classifiers in two Namibian academic libraries, at the University of Namibia (UNAM) and the Namibia University of Science and Technology (NUST) that shifted from a

manual bibliographic description system to cataloguing and classifying the library materials using ICT facilities.

1.4 Research objectives

The main objective of this study was to compare the use of ICT facilities in cataloguing and classification processes at UNAM and NUST. This objective was supported by the following specific sub-objectives:

a) to assess areas of cataloguing and classification affected by ICT;
b) to assess the use of ICT by cataloguers and classifiers;
c) to evaluate how knowledgeable, the cataloguers and classifiers are in the use of ICT;
d) to find out the rate of adoption of ICT in cataloguing and classification;
e) to determine if there are any problems hindering the use of ICT for cataloguing and classification.

1.5 Significance of the study

The findings of this study on the use of ICT facilities in cataloguing and classification processes at UNAM and NUST could inform cataloguers, classifiers and policy makers by provide a better understanding on how ICT has impacted on academic library activities especially in library collection development strategies in Namibian institutions of higher learning. The outcomes could also add to the existing body of knowledge which might be useful to researchers who are interested in this topic.

1.6 Limitations of the study

According to Enslin (2014), limitations of the study are constraints or limits in a research study that are out of one's control, such as time, financial resources or access to information.

Limitations occur due to changes in conditions during the study, and the researcher might be required to redefine the scope of the study (Enslin, 2014). The researcher needed detailed information from specific individuals that deal with cataloguing and classification of library materials. Therefore, the findings cannot be generalised, but the validity remains for the two libraries (NUST and UNAM) referred in this study.

1.7 Delimitation

The delimitations are characteristics that limit the scope and define the boundaries of the study (Simon, 2011). This study only focused on UNAM and NUST main campuses' libraries, where cataloguing and classification is centralised, which means the academic libraries outside the main campuses did not form part of this study.

1.8 Literature review and theoretical framework

This section provides a brief literature and theoretical framework. A detailed discussion is provided in Chapter two.

The introduction of computers into cataloguing and classification affected the way cataloguing was done and by whom (Yusuf, 2009). Resource sharing of cataloguing and classification activities is one of the great changes made in libraries and it assisted library staff to save costs and eliminate repetitive work (Yusuf, 2009). Online cataloguing and classification are also one of the main changes since it involves locating and copying cataloguing data online through computer networks.

Thus, ICTs are of great use in libraries as they assist librarians to perform their different tasks at speeds much faster than human capabilities. They also facilitate the accessibility of information dissemination and processing in the libraries (Ebunuwele, Ola & Uduebor, 2014). In order to make use of ICT, staff are required to have relevant skills (Krubu & Osawaru, 2011; Ani, Esin & Edem, 2005). They assert that staff of the university acquires ICT skills via in-house training and computer training. Inyang and Agwunobi (2016) also highlighted that training for cataloguers and classifiers is required as their work setting incorporates resources and tools that are continuously changing and, thus, they need to possess adequate knowledge and skills to perform efficiently.

INASP (2004) indicated that the adoption and use of ICT in Africa commenced in the early 1980s. Perera and Chandra (2010) confirm that the use of the new technologies has been accepted for use in many libraries worldwide. These new forms of technology are used for storage, retrieval and dissemination of information. Librarians face a variety of ICT challenges. Okiy (2005) and Eze (2012) point out that the common challenges which hinder the use of ICT are existing poor and inadequate communication facilities, a poor level of computer literacy and awareness level of Internet facilities among policy makers.

This study was guided by Ranganathan's Law of Library Science. Only two laws are applicable to this study, namely, to "save time of the reader" and "the library is a growing organism". In order to access great information sources in the library, ICT ensures the satisfaction of the users with the right information at the right time. This study was also guided by the Technology Acceptance Model (TAM), which helped with understanding the relationship between human and technology through Perceived Usefulness (PU) and Perceived Ease of Use (PEU), which determined the user's attitude toward the intention to use new technology to access information in their libraries (Durodolu, 2016).

1.9 Methodology

The study was underpinned by interpretivism paradigm which is mainly used in qualitative methods to gain insight or in-depth knowledge and contextualised information in the field of Social Science research. This study, therefore, employed a multiple case study design, involving the two Namibian academic libraries UNAM and NUST. Multiple case study design helps the researchers to establish the similarities and differences between cases. The study population was made up of UNAM and NUST cataloguing and classification section staff members, which is 18 in total. Purposive or judgmental sampling technique was used to select eight participants in total, four from each institution. These participants were chosen based on their expertise and knowledge in cataloguing and classifying library materials. They were more experienced than other staff members. In order to gather data, face-to-face interviews and observation were used. This enabled the researcher to collect in-depth information on the subject under study. The researcher observed the cataloguers and classifiers processing the library materials and resources before availing them on the shelves. The aim of applying the observation method was to ascertain if the collection development policies (CDPs) for both institutions indeed support the selection, ordering and purchasing of library materials at both libraries. Document analysis was also used to gather data from the Collection Development Policies for both institutions. Qualitative data was analysed and interpreted by means of content analysis. The data was transcribed, coded and categorised.

This section provided a brief outline of the research methodology of this study. A detailed discussion of the research methodology is presented in Chapter three.

1.10 Definition of key terms

The purpose of this section is to provide clarification on the key terms used in this study.

i. Cataloguing and classification of a book means to organise the bibliographic information of a readable and non-readable materials such as monographs, printed journals, CDs and DVDs, arranging them in a particular order and grouping them into classes (Eze, 2012).

ii. According to Adeyimi (2010) information and communication technology (ICT), is used somewhat interchangeably with information technology (IT) and encompasses methods and techniques for automated information handling and retrieval including desktop computers, laptops, telecommunications, printers, photocopiers, scanners and office systems.

iii. Library is a collections of books, periodicals, and sometimes films and recorded music for use or borrowing by the public or the members of an institution. Libraries promote the free flow of information to individuals regardless of age, citizenship, gender, education, race and language.

iv. Academic libraries, as Haliso (2011) describes them, are institutions that are established to take care of the information needs of students, lecturers, researchers and other community of scholars. Their mission is to provide quality information service and knowledge products (print and electronic) to resident community of scholars. Examples of Namibian academic libraries are the UNAM, NUST, IUM libraries.

v. Technical services in libraries have been identified as "service involving the operations and techniques for acquiring, recording and preserving materials (Ayo & Oyegunle, 2012). The Technical service section in libraries is responsible for ordering library materials, classifying and cataloguing as well as preparing materials for shelves.

1.11 Division of the thesis

This section presents the structure of this thesis.

Chapter 1 - The Introduction provides the background, objectives, the problem under investigation, and the research methods used for this study.

Chapter 2 – The Literature Review and Theoretical Framework discuss the literature relevant to the study and the theoretical framework used to steer the study.

Chapter 3 – The chapter on Research Methods presents the research designs, paradigms, data collection methods, research instruments and methods for data analysis. This chapter also outlines the population, the sampling technique, the data collection procedure as well as ethical issues.

Chapter 4 - Data Analysis and presentation provides the analysis of the data.

Chapter 5 - Discussion of findings discusses and interprets the research findings. The chapter also discusses the results as presented in chapter four and provides literature related to the study.

Chapter 6 – This chapter summarises the findings, concludes and offer recommendations as per the findings.

The References section provides an alphabetical list of the sources cited in the study. The American Psychological Association (APA) referencing style was applied.

The Appendices section provides the research protocols, which entails permission letters, informed consent letter, the interview guide and observation checklist.

1.12 Summary

The chapter introduces the use of the ICT in cataloguing and classification of library materials at two academic libraries in Namibia. The main aim of the study was to compare the use ICT by cataloguers and classifiers. This included the cataloguing and classification online tools they made use of when processing their library materials. The study was guided by the main objective which

was to compare the use of ICT facilities in cataloguing and classification processes at UNAM and NUST libraries respectively. These academic libraries were chosen to be part of the study where cataloguing and classification are centralised, which means other academic libraries outside the main campuses did not form part of this study.

The study also reviewed a wide variety of literature, presenting theories and studies on the use of ICT in cataloguing and classification of library materials at the above mentioned academic libraries. A qualitative approach was adopted where interviews, observations and document analysis were used to collect data from the participants. The sample size of this study was eight participants from both NUST and UNAM. The next chapter presents the literature review and the theoretical framework.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

According to Cooper and Schindler (2000) literature review is an evaluative report of information found in the literature related to a selected area of study. Literature review is an important aspect of the study as it gives a background of related studies. Hart (1998) notes that without a review of literature one would not be able to gain an understanding of his or her topic. Therefore, review of literature helps a researcher to get familiar with his or her selected research problem and receive some guidelines in selecting a proper research methodology. It is also helpful in finding out the research gaps which help the researcher in fine-tuning his or her research problem and methodology. This chapter aims at reviewing literature written by different scholars in relation to the topic of study.

Literatures reviewed for this study are sourced from authoritative sources such as monographs, journal articles and workshops/conferences/seminars reports. Most of the sources have been retrieved from the internet. Related literature in the Namibian context is limited. Buchholz (2011) notes that the use of ICT in academic and other libraries in Namibia is not well developed as yet. However, He further states that the study on the provision of access to information in academic libraries in Southern Africa provided little information on how the academic libraries (UNAM and NUST) conduct their ICT training to capacitate their staff and students. Despite the fact that the focus of this study is on the use of ICT to catalogue and classify library materials in academic libraries, most of the literature reviewed are from Africa (Nigeria and South Africa, Namibia and Tanzania) and Asia (Bangladesh and Pakistan) where similar studies were carried out.

This chapter is structured around themes derived from the research objectives which are: assess areas of cataloguing and classification affected by ICT (2.1.1), assess the use of ICT by cataloguers and classifiers (2.1.2), evaluate how knowledgeable the cataloguers and classifiers are in the use of ICT facilities (2.1.3), find out the rate of adoption of ICT in cataloguing and classification (2.1.4), and determine if there are any problems hindering the use of ICT in cataloguing and classification (2.1.5). The theoretical framework, Ranganathan's Laws of Library Science (2.2.1) and Technology Acceptance Model (2.2.2) formed the basis of subtopics of the literature review as discussion focus on the research objectives of this study.

2.1.1 Areas of cataloguing and classification affected by ICT

The emergence of information and communication technology (ICT) has brought a great change in technical services section where acquisition of library resources, cataloguing, classification, indexing, preservation of materials, authority control and bibliographic control takes place (Barkett, Ritchie & Standley, 1978), although this study focuses particularly on the cataloguing and classification of library materials.

The roles of cataloguers and classifiers in libraries are responsible for the provision and organisation of efficient and effective retrieval system (Bello & Mansor, 2012). Ilo (2015) highlights the roles of the cataloguers and classifiers prior to the emergence of ICT. The author asserted that before the introduction of computerised cataloguing, the manual system has been in existence. At inception, cataloguing and classification were not tedious tasks as books were organised using length, colour, size and shape. This activity was not difficult because there was no explosion in information.

In the age of information explosion, which resulted in the multiplication of information resources, manual cataloguing and classification became cumbersome and labour intensive (Formson, 1999 & Ola, 2001). According to Ilo (2008) indicates that cataloguers and classifiers engage in activities such as bibliographic search, assigning subject heading and classification number to library materials. Furthermore, Ilo (2015) points out that the work of cataloguers and classifiers has shifted from manual bibliographic description to cataloguing and classifying of library materials using ICT facilities. The following are the areas changed by the roles of cataloguers and classifiers in the ICT era, such as para-professionals, online cataloguing and classification, resource sharing.

Calhoun (2006) observed that one area where change is essential is in the area of library catalogues and cataloguing. The author asserts that cataloguing rules used today represent an unbroken continuum that began in the early 19th century. The 0* rules were developed for linear presentation, either in both printed books and card catalogue. However, there is a struggle to accommodate technology changes. This is based on the ICT skills and knowledge of librarians, which then hinders the ability of libraries to create innovative services.

The emergence of ICT in cataloguing and classification section changed the way cataloguing and classification are being performed and by whom (Arinola, Adigun, Oladeji & Adekunjo, 2012). The introduction of non-professionals to cataloguing is one of the changes. Yusuf (2009) and Nwalo (2006) discovered that para-professionals in the libraries usually perform tasks meant for cataloguers. This view is supported by California Occupation Guide (1996), which explained how automation changed cataloguing and classification of library materials from being primarily a responsibility of the librarian to a para-professional. On the other hand, Ilo (2008) opined that assistant librarians who have been exposed to the fundamentals of cataloguing could now be

engaged in the cataloguers' original work, which includes copying of bibliographic description of books, conducting bibliographic searches, classifying through the Internet.

According to Ilo (2008), the application of ICT in libraries has also brought changes in the role of the cataloguers and classifiers. The cataloguer and classifier has more advanced role to play in the sense that the library assistants who have been exposed to the basics of cataloguing and classification can now be engaged in the cataloguers' and classifiers' original work, which includes copying of bibliographic description of books, doing bibliographic search, classifying through the internet. This view is further affirmed by Akidi and Okezie (2018), who stated that the emergence of information and communication technology to cataloguing and classification enhanced effective bibliographic control of information resources, which can equally be seen in the areas of online cataloguing, copy cataloguing, use of Online Public Access Catalogue (OPAC), production and use of machine-readable catalogue, among others. Nwalo (2006) also opined that the major phases of computerisation of subject cataloguing involve cataloguing-In-Publication (CIP) data copying; online cataloguing; cataloguing on the web; and searching thesaurus online, which is another system of computerized subject cataloguing.

In addition, Nwalo (2006) mentioned that computerisation of subject cataloguing involves different schemes and tools. Broughton (2004) argued that there are classification schemes and tools that are used in the classification process and they are Dewey Decimal Classification (DDC), Library of Congress Classification (LCC) and Universal Decimal Classification and Library of Congress List of Subject Headings (LCSH). However, Sibiya and Shongwe (2018) enumerated several tools used for cataloguing. They include Anglo-American Cataloguing Rules (AACR), Machine Readable Cataloguing (MARC) standards and Resource Description and Access (RDA). All these tools are essential for cataloguers and classifiers.

Another change noted is in resource sharing of cataloguing activities that is currently experienced in cataloguing (Arinola, Adigun, Oladeji & Adekunjo, 2012). Resource sharing is defined as a term used to describe an organised attempt by libraries to share materials and services cooperatively so as to provide one another with resources that might otherwise not be available to an individual institution (Walden, 1999). Resource sharing helps to save costs and reduce duplication of efforts in cataloguing (Yusuf, 2009 & Arinola et al., 2012). Similarly, Nwalo (2006) noted that the resources sharing is of immerse benefits to the libraries and their uses as it makes information more readily available, saves costs and prevents duplication of effort especially in cataloguing and classification of library materials.

Online cataloguing and classification is another change that brought by ICT in libraries especially in cataloguing and classification section (Eze, 2012). According to Yusuf (2009) online cataloguing and classification involves locating and subsequently copying data online through international computer networks. Rao and Babu (2001) reports that most libraries now offer Online Public Access Catalogue (OPAC) to assist users to locate library materials in the library.

2.1.2 The use of ICT by cataloguers and classifiers

Information and Communication Technology (ICT) are forms of technologies that are used to create, store, share, and exchange information (Alegbeleye, 2006). This ICTs includes such as computers, internet access, constant power supply, telecommunication appliances for example, telephone, E-mail facilities. This means, ICT facilities cannot function if there is no internet and electricity. Likewise, Ilo (2008) also noted that the facilities can be used effectively if there is sufficient supply of electricity. On the other hand, Alegbeleye (2006) remarked that internet

connectivity is very crucial as technologies depends on it for different library activities to keep running.

Information and Communication Technology used in libraries has a special role in the upgrading of library practices (Siddike, Munshi & Sayeed, 2011). Hence, with the use of ICT in libraries, a higher degree of library staff and users' satisfaction is granted especially in electronic cataloguing, OPAC, acquisition, serials control, circulation functions, and distribution of commercial publications, raw data and multimedia information delivery system (Ajayi, 2002; Abels, Kantor & Saracevic, 1996).

Archana, Krishna and Shikha (2014) assert that the use of ICT has become increasingly important in academic and special libraries as libraries are switching over to ICT based resources and services at accelerated pace. In spite of the above observation, the level of usage and awareness of ICT appeared to be minimal (Haliso, 2011). Three strong reasons against the effective use of ICT in an academic library as observed by Omolayole (2002) are the low level of computer culture, poor telecommunications infrastructure and general lack of awareness.

A low level of computer culture is when a librarian is not computer literate therefore the utilisation of the ICT facilities would be a problem (Omolayole, 2002). In other words, having a good background in computer skills would increase the use of computers at workplaces. Haliso (2011) emphasises that in order to increase the level of ICT awareness, library managers must be aware of the advantages of using ICT facilities in libraries and information sectors. It is very important to train workers on the use of the ICT and other related technologies for services delivery in an organisation such as academic libraries (Haliso, 2011).

Academic libraries in developed countries have moved away from manual cataloguing as they have embraced the new technology (Arinola et al., 2012). According to Mason (2004) libraries are classic examples of how automation has impacted on the traditional ways of getting work done especially in cataloguing section by changing how and by whom the cataloguing is done. Therefore, the result of the impact of ICT on technical service in the words of Ajibero (2003) shows that the roles of cataloguers have completely changed and that cataloguers have become interdependent in their pursuit to produce bibliographic control and access.

Ebunuwele, Ola and Uduebor (2014) conducted a study on the application of information communication technology in academic libraries in Nigeria, and they found out that the use of ICT is known and widely accepted. This is because its application to the day-to-day activities of any organisation is very efficient and effective. Oketunji (2000) remarked that ICT is used to automate technical services such as cataloguing information and classification processes and other activities such as indexing, preservation of materials, authority control and bibliographic control.

Ebunuwele, Ola and Uduebor (2014; p 426-427) summarise the usefulness of ICT in the libraries as follows:

- it allows easy integration of various activities;
- it facilitates cooperation and formation of library network;
- it helps to avoid duplication of effort within a library and between libraries in a network;
- it eliminates some uninteresting and repetitive work;
- it helps to increase the range of services offered;
- it provides marketing opportunities of its services;
- it ultimately may save and/or generate money;

- it increases efficiency;
- it provides more up to date information;
- it provides unlimited information from different sources;
- it provides for users round the clock access to information sought by individual according to requirements;
- it provides accurate results; and
- it provides the ability to search and combine data in many different ways.

Information and Communication Technology improves the workflow of the library which helps reducing manual work and, with this, it proliferates the library services (Bhoi, 2017). Basically, to satisfy the needs of library users, speed and accuracy is the two most important dimensions. Hence, the application of ICTs to library functions and services results in improved services, saves the time of the staff and users (Akidi & Okezie, 2018). In this sense, librarians are manipulating ICT to meet the varied needs of their users and staff members on time. Fischer (2012) on the other hand, asserted that ICTs aid the library staff to provide information to the right users at any time, from anywhere in the right way is possible using web based technological settings.

The emergence of ICTs in libraries ensures easy integration of various library activities as it increases efficiency in acquisition, cataloguing, classification, access to data, and information retrieval and dissemination (Ramzan and Singh, 2008). One of the library activities that involves ICTs is copy cataloguing. According to Reitz (2004), copy cataloguing defined as the adaptation of a pre-existing bibliographic record to fit the characteristics of the item being processed, with modifications to correct obvious errors and minor adjustments to reflect locally accepted

cataloguing practices. In addition, Ramzan and Singh (2008) confirms that copy cataloguing is mostly required for books that are difficult to catalogue and completely new books.

Broughton (2004) opined that online cataloguing and classification requires tools that help the librarians in the process of cataloguing and classifying their library materials. Broughton (2004); Sibiya and Shongwe (2018) enumerated these tools as Dewey Decimal Classification (DDC), Universal Decimal Classification (UDC) and Library of Congress Subject Heading (LCSH), Anglo American Catalogue Rule II (AACR2), Machinery-Readable Cataloguing (MARC) standards and Resource Description and Access (RDA). All these tools are essential and make the work of cataloguers and classifiers more efficient.

According to Buchholz (2011), the use of ICT in academic and other libraries in Namibia is not well developed as yet. The author supports the above statement by stating that only NUST and UNAM libraries that have similar commercially-acquired library management software which are capable of handling Machine-Readable Cataloging 21 (MARC21) bibliographic records. The University of Namibia library uses INNOPAC library system while Integrated Tertiary Software (ITS) is used at the Polytechnic of Namibia Library, former name of NUST. The University of Namibia Library is an example of an academic library in Southern Africa that faces many problems mainly because of shortcomings as far as technological, financial and human resources are concerned and because of its geographic isolation (Buchholz, 2011).

2.1.3 Knowledge of the cataloguers and classifiers in the use of ICT facilities

Nkamnebe, Okeke, Udem and Nkamnebe (2012) conducted a study on the extent of ICT skills possessed by librarians in the University libraries in Anambra State and found out that the librarians lacked skills on library automation, e-mail operations, automation cataloguing and

classification, presentation using Microsoft PowerPoint, database creation and management. The authors further noted that ICT skills are expected to be possessed by the ICT skilled person and ICT skilled librarian. A librarian with necessary ICT skills would be able to manage and operate libraries in twenty-first century. Chron Contributor (2020) pointed out that an associate or bachelor's degree in computer science, computer engineering, information systems or other computer-related fields may give one an edge when applying for a support specialist position. This claim is supported by Gerolimos and Konsta (2008) who shared the same sentiment that a degree in Library and Information Science and working experience skills were expected to be with the highest percentage, and should be considered for all librarians, without any further value.

There is a need to train librarians on ICT to be able to operate in the twenty-first century libraries. This claim is supported by Imo and Igbo (2009) who assert that regarding the new information era, training of librarians towards developing their knowledge and skills is essential. The authors further argue that the new technology requires radical changes and additions to librarianship skills.

The challenges of the new information era have attracted numerous authors, such as Ochogwu (2009), Turney (1991), Adams (1999), Ochalla (2003), Diso and Njoku (2007), and Kamba (2011). These authors indicate that library education and training should be designed towards developing ICT skills of professionals in order to expose them to the practical aspects of the professional skills. As a result, well-trained librarians could perform their tasks more effectively and efficiently.

A study by Krubu and Osawaru (2011) on the impact of information and communication technology in Nigeria university libraries show that staff of the university library under the study acquired ICT skills via staff-in-house training, self-study, formal training and trials and error.

Edem (2007) supports the view that short computer training and training programs should be organised from time to time in order to assist librarians and library staff who do not have the ability to update their knowledge and computer skills. This would aid awareness of computer potentials and capacities.

Buchholz (2011) indicates that staff training programs in Namibia regarding the use of various types of ICT equipment are done through the Computer Centre on campus (UNAM). She further emphasises that training sessions for the use of the library catalogue and electronic databases are done by librarians for staff and students at the beginning of each academic year as well as on special request.

2.1.4 The rate of adoption of ICT in cataloguing and classification

According to Blurton (1999), ICT appears in different types and is used for different purposes, such as to communicate, to create, to disseminate, to store and manage information in the libraries. In a study conducted by Siddike, Munshi and Sayeed (2011) titled "The adoption of information and communication technology (ICT) in university libraries in Bangladesh", the writers discuss the present conditions of using ICT by public and private libraries. The study found out that the adoption and use of ICT is accelerating and has resulted in the globalisation of information and knowledge resource (Islam & Islam, 2007).

Qutab, Bhatti and Ullah (2014) note that many libraries in Pakistan started automation in 2000 and later. They state that most libraries in Pakistan are going through the process of automation, whereas only some libraries are fully automated. They also noted that acquisition, technical processing and circulation services are performed by using computers and internet. Automation is

a vision of every library in the twenty-first century. In addition, the study showed that the public sector libraries are behind in adoption of ICT for complete library operations compared to private sector libraries. According to Qutab, Bhatti and Ullah (2014), current ICT adoption situation of Pakistan university libraries is quite better than ten years ago when Saeed et al. (2000) studied the use of the Internet in University libraries in Pakistan. The authors found out that only 50% of the university libraries have Internet connections.

The results found by Qutab, Bhatti and Ullah (2014) indicate that a low level of ICT usage for library operations and services is alarming. The authors further noted that university libraries in developed countries are completely automated and immigrated to Web 3.0, when compared to Pakistan university libraries, which are still at commencement stage for introducing, developing advanced library automation and electronic operations in their libraries. The findings and recommendations of the study were observed to be helpful for the policy makers, higher education commission of Pakistan, library professionals and management authorities in order to solve the problems causing the low level of ICT applications in university libraries of Pakistan (Qutab, Bhatti & Ullah, 2014).

2.1.5 Problems hindering the use of ICT for cataloguing and classification

ICTs offer several benefits to academic libraries, however their application and use is affected by several factors (Kapondera, 2016). Academic libraries face a problem of epileptic power supply as the use of ICT facilities in libraries is aided by the availability of power supply (Krubu & Osawaru, 2011). Ebijuwa (2005) suggests that electricity should be readily available twenty-four hours.

Msoffe and Sife (2008) opined that ICT facilities rely on electricity for their functioning. They indicate that frequent power cut is a huge problem in Tanzania. According to Ighodaro (2010), electric power supply affects the efficacy and competitiveness of every critical economic and social activity, which includes university library services. This affects productivity in the library because power is a basic necessity when using ICT. A back-up generator was requested in 2001 by Sokoine National Agricultural Library Tanzania in order to fight the problem of unreliable power supply, especially when it is cut. Although the generator was bought, this however did not solve the problem as no funds were allocated for fueling and running the generator.

Adegbore (2010) recommends that Nigerian university libraries should not rely on the public power supply, but also to look into solar electronic generating system and power inverter or any other electric power alternative. The author further indicates that no library automation could succeed without proper and timely power supply. The present state of electricity supply in Nigeria is in urgent need of an alternative power supply.

Adeleke and Olorunsola (2010) mention several problems facing the libraries such as power failure, internet down time and slow cyber-speed. However, these are all constraints when using online cataloguing and classification processes. Correspondingly, Eze (2012) also mentions lack of ICT and other infrastructures like steady power supply, internet facilities and an adequate number of computers to support automation. Ebiwolate (2010) observed that lack of ICT is not only a major problem in academic libraries but also in public libraries. This is primarily caused by inadequate funding for libraries.

Arinola et al. (2012) identified several problems facing ICT-oriented cataloguing and classification services, for example, technicality of cataloguing and classification application, cost of

maintenance, system failure and inconsistence due to electrical power failure. Mostly, cost of maintenance and inconsistencies due to electrical power failure.

Public sector libraries (government funded libraries such public libraries, school libraries, etc.) more than private sector (such as academic libraries) are faced by many problems such low funding, skilled and willing staff, less supportive administration, less number of computers, poor Internet connection as well as insufficient cooperation among libraries (Qutab, Bhatti & Ullah, 2014). These authors confirm that similar problems are faced by libraries in Nigeria, India, Thailand and other developing countries in Africa.

A major and very critical constraint as mentioned by Adeleke and Olorunsola (2010) is lack of skills in using the Internet by library staff. These authors opined that not every librarian could make effective use of the online catalogue due to lack of skills in this regard. Eze (2012) indicated that there is inadequate number of professionals, lack of skills and training in libraries.

Similarly, Adeyoyin (2005) remarks that most university libraries in Nigeria still have professional librarians whose skills are far away from what is required in the 21st century. The author further stated that academic libraries should consider training their librarians to be able to use the Internet.

Kapondera (2016) indicated that staff with ICT skills are required in libraries and if they do not have any ICT skills then they should be trained. However, it was reported that several academic libraries do not provide ICT training for their staff such that many librarians acquire their skills through trial and error (Krubu & Osawaru, 2011).

In the study conducted by Khan and Bhatti (2012), as cited by Ademodi and Adepoju (2009), computer skills of librarians in academic libraries in Nigeria was investigated. It was found that

there was a shortage of computers and computer skills among professionals. The study further recommended that more attention should be paid to and funds should be provided for training of ICT infrastructure in Nigerian university libraries.

Similarly, Adomi and Anie (2006), in their study on computer literacy skills of professionals in Nigeria university libraries concluded that most professionals do not have a high level of computer skills and their use of ICT is still maturing. Adomi and Anie (2006) suggested that library management are required to organise and offer in-house computer training programme for staff. In addition, libraries should be provided with an adequate number of computers in this regard.

Another constraint as noted by Eze (2012) is lack of funding for libraries. This was indicated by all the libraries that funding is a major hindrance in carrying out automation and computerised activities in public libraries in Nigeria. The above findings are not only applicable to public libraries but also to academic libraries as noted by Siddike, Munshi and Sayeed (2011), who discovered that there is a lack of financial support for libraries, which has made the possibility of ICT application in the academic libraries of Bangladesh much more complex.

Similarly, Kumar and Biradar (2010), Krubu and Osawaru (2011), and Nwakwuo and Nwakwuo (2014) reported that poor funding is hindering the application of ICT in academic libraries. Odion and Adetona (2009) also thought that inadequate funding could be solved by providing more generous financial support.

Nwalo (2000) also advocates for sufficient funds to acquire modern ICT facilities such as computers, servers, scanners, photocopiers, software as well as to pay for offline and online services such as e-journals and digital libraries. He adds that most of these ICT facilities and services are exceedingly expensive and could be purchased from developed countries but due to

the insufficient funds, it appeared to be impossible. In addition, it was revealed that most university libraries in Africa and other developing countries receive petite funds from their parent institutions and governments to keep library activities going (Nwalo, 2000; Mutula, 2004). This situation is caused due to poor perception of the importance of library services by top leaders and other stakeholders in their parent institutions, resulting in the modest funds allocated to maintain and provide the ICT facilities and services.

2.2 Theoretical Framework

The theoretical framework is the structure that could hold or support the theory used for a particular research study (Abend, 2008). In other words, the theoretical framework introduces and describes the theory that explains why the research problem under study exists. Babbie (2007) as cited in Hamutumwa (2014) noted that theories are systematic sets of interrelated statements intended to explain some aspects of social life. This study is grounded by the theory of Ranganathan's Law of Library Science and Technology Acceptance Model (TAM). These are discussed below:

2.2.1 Ranganathan's Five Laws of Library Science

Babu (2011) asserted that five laws of library science proposed by Ranganathan in the early 1930s, left a legacy of concise laws for libraries as most librarians worldwide accept them as the foundations of the philosophy of their work and service in the library. These five laws have remained a centerpiece of professional values and as powerful inspirations for social change. Ranganathan's Five Laws of Library Science are:

1. Books are for use

2. Every reader his/her book

3. Every book its reader

4. Save the time of the reader

5. The library is a growing organism

This theory is important as it grounds the study by emphasising the utilisation of ICT in libraries. The theory is applicable to this research because it serves as evidence that law four and five of Library Science (4. save the time of the reader and 5. the library is a growing organism) are useful to this research. These two laws would assist in the development of ICT usage which resulting in digital information that replaces the manual system used in various libraries.

The laws “Save time of the users” is essential to keep the reader satisfied and it is assumed that a satisfied reader is whose time is saved (Haider, 2017). In other words, the reader gets the needed service in minimum time possible. However, the author also points out that the use of Information Technology in libraries invariably speeds up many activities. So to fulfil this law, IT should be introduced in libraries.

Babu (2011) supports the idea of Haider with regard to IT being introduced at libraries by saying “libraries should adopt suitable methods such as ICT facilities in order to save the time of their library users. Babu (2011) also emphasises that ICT helps users in getting their required information on their laptops, palmtop and desktops. Consequently, the concept of library without wall has come into the picture, where broadband connection information professionals provide information to its users promptly.

The fifth law “Library is a growing organism” is associated with twenty-first century libraries that remained a growing organism and this encompasses every component of the library including library resources, infrastructure and staff (Mcmenemy, 2007). Babu (2011) indicates that the word ‘organism’ implies a ‘system’ while growing’ implies a ‘living system’. Therefore, a library that wants to grow fast in terms of size and services might have to go for the computerisation of various housekeeping operations such as acquisition, circulation, cataloguing and classification.

Hasan (2013) notes that previously the libraries grew with the collection, but nowadays the digital library or visual library or e-library does not show the characteristics of the growing of a library by volume. However, that growth of the libraries is in the use of the sophisticated technologies.

The laws “Save time of the users and library is a growing organism” supports the use of ICT in libraries in the sense that it would ensure the availability of information in libraries and also it would help the librarians to organised library materials in their collection in such a way that the retrieval might not be difficult for the library users (Haider, 2017). Therefore, with easy retrieval, ICT would ensure the satisfaction of users with complex demands by allowing them to access their libraries everywhere they would be without visiting the physical library (Babu, 2011). Thus, it would break down the distance barrier of the users.

Information and Communication Technology according to Haider (2017) would shorten the time required to search for books. As a result, when searching for books on OPAC, the user would get the information at their fingertips and also ICT would ensure that the right information is given at the right time. The author also indicates that with ICT in place, the library would solve the library’s demand of collection development. This could be ensured when users make use of the OPAC system to search for books in the library, it is then recorded in the statistics of books searched and

also it gives options to request a book, even if it is not available in the library at that time. In this case, the library staff responsible for the acquisition would get a clear indication of what the user needs to be added in their collection and in that way the library would grow when adding new books relevant to the users' demand (Mcmenemy, 2007).

Information and communication technology is really an excellent tool for any library information center and with Ranganathan's laws it assists the librarian who would like to flourish their career and to be a successful librarian, therefore they must keep the five laws of Library Science in their mind (Babu, 2011). And the librarian who wants to maintain their library service fully must have to apply these laws in their library. These five laws might be considered as the main motto of library science.

2.2.2 Technology Acceptance Model

According to Chen, Li and Li (2011), the Technology Acceptance Model (TAM) was developed by Davis in 1989. TAM is one of the most influential research models in studies of the determinants of information systems and information technology acceptance to predict intention to use and acceptance of information systems and information technology by individuals. There are two determinants in the Technology Acceptance Model and they are Perceived Ease of Use (PEU) and Perceived Usefulness (PU).

According to Lee, Cho, Gay, Davidson and Ingraffea (2003) Perceived Usefulness is the degree to which an individual believes that using a particular information system or information technology would enhance his or her job or life performance. While Perceived Ease of Use is the degree to which a person believes that using a particular Information system or information technology would be free of effort (Alrafi, 2009, Wahdain, Ahmand and Zakaria, 2014).

Perceived ease of use and perceived usefulness positively affects the attitudes toward an information system, and further, positively affect the individuals' intentions to use and the acceptance of the information system. In addition, perceived ease of use positively affects the perceived usefulness, and both of perceived ease of use and perceived usefulness are influenced by external variable.

Figure 1 below shows the components of TAM.

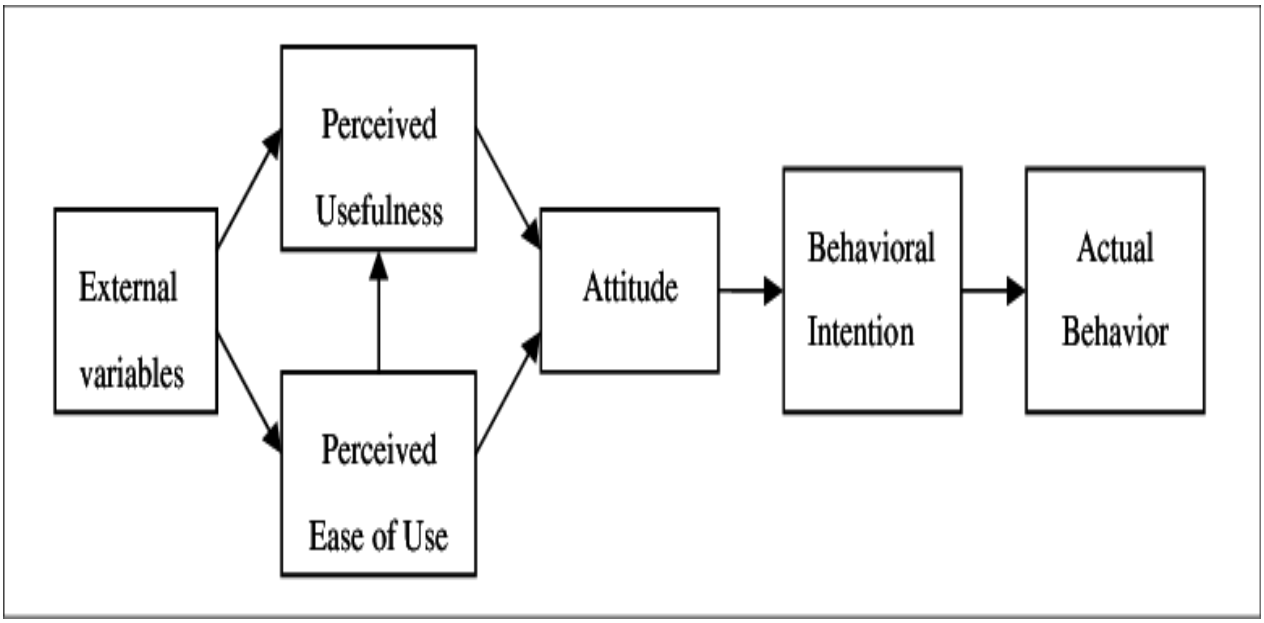

Figure 1: *Technology Acceptance Model Source: Davis, Bagozzi and Warshaw, P. R. (1989).*

In this study, Perceived Ease of Use and Perceived Usefulness were used to measure one's attitudes towards acceptability of a particular technology or information system used in the library. In the context of information technologies, TAM suggests that users formulate a positive attitude toward a particular technology when they perceived that the technology is useful and easy to use (Davis, 1989). Therefore, with positive attitude towards technology, it would make it easier for the

librarians to accept and make use of information system in their everyday activities such as cataloguing, classification, circulation and through constant usage of technology, librarians will use them effortlessly. Perceived Ease of Use allows individuals to accept that using certain technology would be effortless and hassle free (Zhu, Linb and Hsu,2012).

If staff members are experiencing difficulties with adopting to new technologies, then staff training on emerging technologies should also be made a serious priority so that staff would be capacitated and be able to use the new knowledge in their everyday activities. Consequently, this would increase staff confidence in handling technologies and use ICT facilities to perform their job properly.

Based on the two determinants of TAM (PEU & PU), technologies would easily enhance their job performances and would be free from effort as indicated by technology acceptance model, it is recommended that, staff be educated on potentials of new technologies to improve job performance before introducing them (Chen, Li & Li, 2011). Training modules should be highly simplified and practical training emphasised above theory so that the staff would get used to doing it with less efforts. Therefore, the understanding of information system used in the libraries would make the librarians develop interest to make use of them and increase productivity at their workplaces.

2.3 Summary

The literature review has addressed the research objectives posed in the study and what has emerged is that similar studies were carried out in several countries in Africa (Nigeria and South Africa, Namibia and Tanzania) and Asia (Bangladesh and Pakistan). The study was grounded by

Ranganathan's Five Law of Library Science, where two laws were most appropriate to the study (save the time of the reader and the library is a growing organism) and also Technology Acceptance Model. The theory of Library Science and TAM model were further discussed to explain how they ground the study. The next chapter addresses the research methodology used to carry out the study on the utilisation of ICT in cataloguing and classification of library materials in academic libraries as they process their library materials.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This chapter presents a detailed explanation of the research methodologies used in this study. Research methodology is defined by Rajasekar, Philominathan and Chinnathambi (2006) as the procedures by which researchers go about their work of describing, explaining and predicting phenomena. This chapter aims to discuss the research design (3.3), and paradigm (3.2) used in the study. The chapter further outlines the population (3.5), and sample (3.6), followed by drawing suitable research instruments that was used to collect research data (3.4). In addition, issues of validity and reliability are also outlined in this chapter (3.7), proceeded by procedures used before and during the process of conducting the study (3.8). Finally, the chapter outlines how the data was analysed (3.9) and reviewed the study's research ethical considerations (3.10), before concluding the chapter with a summary.

3.2 Research paradigm

Research paradigm is defined as a cluster of beliefs and dictates which for scientists in a particular discipline influence what should be studied, how research should be done, and how results should be interpreted (Plooy- Cilliers, 2014). Similarly, Bryman (2012) defines research paradigm as an action that describes a group of beliefs, which dictate and influence researchers' traditions on how research should be conducted and how results should be done and interpreted. The research paradigms allow researchers to embrace a particular way of approaching and studying a phenomenon in a specific field of study (Plooy- Cilliers, 2014). This means that, any researcher who chooses to conduct research might select different philosophical assumptions to approach different phenomena in various disciplines. However, there are three main paradigms, which are

widely used to study the world, namely: interpretivism, positivism and pragmatism. The three are briefly discussed below.

3.2.1 Interpretivism paradigm

Interpretivism paradigm is originally rooted in the fact that methods used to understand knowledge related to human and social sciences could not be the same as its usage in physical sciences because human interprets their world and then acts based on interpretation while the world does not (Hammersley, 2013). According to Plooy-Cilliers (2014), interpretivism is concerned with the view that common sense is a vital source of information, considering that it is used in guiding people. This implies that the interpretivism paradigm rests on the assumption that people are different from objects.

Plooy-Cilliers (2014) states that human beings change all the time depending on the influence from their environment, unlike objects. Consequently, interpretivism adapts a relativist ontology in which a single phenomenon might have multiple interpretations rather than a trust that could be determined by a process of observation and measurement (Pham, 2018). Thus, its purpose is to strictly observe and measure. In this case, researchers tend to gain deeper understanding of phenomena and its complexity in its unique content instead of trying to generalise the base of understanding for the whole population (Creswell, 2007).

In the same way, Hammersley (2013) emphasises that multiple interpretations are developed among human's relationship, interpretivism researchers should try to understand and try to avoid bias in studying the events and people with their own interpretations. On this note, it is believed that the interpretivist paradigm mainly uses qualitative methods (Nind & Todd, 2011). Willis (2007) emphasises that "interpretivists tend to favor qualitative methods such as case studies and

ethnography" (p.90). As explained by Willis, qualitative approaches often give rich reports that are necessary for interpretivist to fully understand contexts. The interpretivist approach depends on methods such as observation and interviews to collect data. In other words, this study used these methods to collect data. These data collection methods help the researcher to explore, describe and explain the use of the ICT in cataloguing and classification of library materials in Namibian academic libraries of UNAM and NUST. Therefore, on the basis of this analysis, this research paradigm underpins this study in order to gain insight or in-depth and contextualised information on the use of the ICT in cataloguing and classification of library materials in Namibian academic libraries.

3.2.2 Positivism paradigm

According to Crotty (1998, p. 8-9), Positivism paradigm, which falls under objectivism epistemology, "is a methodological philosophy in quantitative research where the methods of natural sciences were applied to discover the study of social science". In this respect, understanding of phenomena in reality must be measured and supported by evidence (Hammersley, 2013). Pham (2018) asserts that, given its advantages in helping researchers to continuously developing their understanding about humans and events in the areas of social research based on the clear evidence, this paradigm still maintains some limitations. The first concerns of using this paradigm in social research projects is that it could be impossible to measure phenomena related to intention, attitudes, thoughts of a human because these concepts profoundly might not explicitly be observed or measured with sense experience or without evidence (Hammersley, 2013). Another concern is that positivism aims to generalise the result of the research to a large extent, there should be a risk that individuals whose understanding and interpretation related to any events, phenomena or issues could reveal a lot of truth about reality which might be neglected (Hammersley, 2013). Thus,

positivism has been the dominant approach in the philosophy of science and most quantitative researchers tend to employ positivism as their epistemological underpinning of their studies, which could be why positivism has long been identified as the epistemology of quantitative research (Yang, Lee & Tzeng, 2008). As a result of this narrative nature, positivism paradigm was disregarded for this study. This paradigm is employed in studies which applied statistical methods to test hypothesis, thus it is appropriate to mixed method approach which includes both qualitative and quantitative approach. On the other hand, mixed method uses survey questionnaire to gather data. The current study used interview and observation which heavily depend on interpretive approach. For better understanding, this study selected qualitative approach as a single approach to investigate the use of ICTs in cataloguing and classification of library materials in academic libraries in Namibia. Thus, this paradigm was disregarded for this study because of its nature of relying on numbers.

3.2.3 Pragmatism paradigm

Pragmatism is deconstructive paradigm and advocates the use of mixed methods in research (Feilzer, 2010). This enables one to understand the world by getting involved to maximise meaning and not simply observing it (Goldkuhl, 2012). In addition, Guthrie (2010) supports the idea that pragmatism combines methodologies to suit the research problem at hand. While Goldkuhl (2012) claims that paradigms should not be mixed, but kept apart as distinct approaches. Another scholar asserts that "mixing methods is wrong, not because methods should be kept separate but because they should not have been divided at the outset" (Gorard, 2007, p.1). This paradigm is closely related to Positivism paradigm. Both paradigms advocate the use of mixed methods in research. Pragmatism paradigm analyses both numerically codes and narrative data (Brierley, 2017). The pragmatism paradigm and positivism paradigms are therefore not applicable for this study as they

are focusing mixed methods. This study adopts interpretivism paradigm as a single research paradigm to explore the use of ICTs in cataloguing and classification of library materials in academic libraries in Namibia.

3.3 Research design

Welman, Kruger and Mitchell (2005) define research design as a selected procedure or guide specifying how the chosen method may be applied to address the ultimate goal of the study. Punch (2005) describes research design as all the issues involved in planning and executing a research project - from identifying the problem through to reporting and publishing the results. In other words, research design is a guideline of how the researcher aims to carry out the study, and this involves how the researcher plans to gather and analyse the data.

Case studies are qualitative in nature and are appropriate for gaining insight and in-depth information on the use of ICT facilities in cataloguing and classification section at the two Namibian academic libraries under investigation. Cresswell (1994) defines qualitative research as, an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. Silverman (2000) views qualitative research as the analysis of words and images rather than numbers as it is concerned with meaning rather than behavior, while attempting to document the world from a point of view of the people under study.

Zainal (2007) defines a case study as a method that enables a researcher to closely examine the data within a specific context. One of the reasons for the recognition of case study as a research method is that researchers were becoming more concerned with the limitations of quantitative methods in providing holistic and in-depth explanations of the social and behavioural problems in question (Zainal, 2007). Therefore, this study used a multiple case study design which involves

the two academic libraries of UNAM and NUST. When a study includes more than one single case, a multiple case study is needed (Gustafsson, 2017). Multiple cases are studied to understand the differences and the similarities between the cases (Baxter & Jack, 2008). Gustafsson (2017) is of the opinion that in a multiple case study, a researcher is trying to establish the similarities and differences between the cases. Multiple case studies could be used to either predict contrasting results for expected reasons or similar results in the studies (Yin, 2003). Furthermore, Yin (2014) argues that the results generated from multiple cases are considered more convincing and robust in comparison to results from a single case study, which makes it more reasonable to generalise the findings. This study was carried out at two institutions of higher learning in Namibia, namely, UNAM and NUST, and the researcher was able to postulate the conclusions of this study to UNAM and NUST main campuses.

3.4 Data collection method

This study employed qualitative research method to gather data on the use of ICT facilities in cataloguing and classification section at two Namibian academic libraries. According to David and Sutton (2004), data collection is the process of gathering and measuring information on variables of interest. Huberman, Mathew and Miles (1996) also define data collection as methods for impact evaluation that vary along a continuum, at the one end this continuum are quantitative research methods and the other end of the continuum are qualitative research methods for data collection. There are a variety of methods of data collection in qualitative research, including observations, textual or visual analysis (e.g. from books or videos) and interviews (individual or group). However, the reason for applying the two methods, Interviews and observation, was that these were the best suitable for this study in order to yield the desired data.

3.4.1 Interviews

An interview is a formal face-to-face meeting, especially, one arranged for the assessment of the qualifications of an applicant, as for employment (Modell, 2007). The "interview" is a managed verbal exchange (Ritchie & Lewis, 2003 and Gillham, 2000) and as such its effectiveness heavily depends on the communication skills of the interviewer (Clough & Nutbrown, 2007). There are different types of interviews, such as structured, semi-structured, and unstructured interviews (Bryman 2012).

Different types of interviews are assigned as following, structured interviews are assigned to quantitative methods, while semi-unstructured and unstructured are assigned to underlying qualitative philosophy (Edward & Hollard, 2013). This study therefore employed semi-structured, face-to-face interviews. Where face-to-face interviews require the interviewer to be present while asking questions concerning the study in order to help provide clarity on questions when anticipated. Adams (2015), the semi-structured interview employs a blend of closed and open-ended questions, often accompanied by follow-up "why?" or "how?" questions. McMillan and Schumacher (1993) claim that qualitative research involves interviews that have open-ended questions to obtain data from participants in order to obtain information regarding how individuals perceive their world and how they explain or make sense of the important events in their lives. In this research, the semi-structured interview is considered to be a research data technique carried out with the definite purpose of gathering data by means of the spoken word through the use of a planned series of questions. Therefore, semi-structured interviews were seen as the richer and most useful option to collect data on the use of ICT facilities in cataloguing and classification of library materials in academic libraries in Namibia.

3.4.2 Observation

Observation is a "complex combination of sensation (sight, sound, touch, smell and event taste) and perception" (Gray, 2009, p. 396). Similarly, O'Leary (2010) describes observation as a systematic method of data collection that relies on a researchers' ability to gather data through his or her senses. The observation method enables the researchers to systematically observe and record people's behavior, actions and interactions (Hennick, Hutter & Bailey, 2011). The authors further indicate that there are two types of observation in social science research, namely: participant and non-participant observation. The purpose of both types of observation is to collect data from the respondent or sample. This study therefore employed participant observation, where the researcher was part of the natural setting being observed.

Participant observation defined by Williams (2003) as a qualitative research method in which the researcher not only observes the research participants, but also actively engaged in the activities of the research participants. The author further asserts that participant observation provides the researcher with access to information that might not be easily accessible to outsiders, as the researcher is part of the social setting that is being investigated. In addition, the participant observation allows the investigator to observe and record information about the characteristics of a setting through experience as a participant in that setting. On the other hand, the limitations of using participant observation according to Kawulich (2005) were that the method tends to be time consuming and expensive in relation to the comparatively small amount of respondents. Participant observation was appropriate for this study where the researcher was part of the natural setting being observed. The researcher joined the cataloguing and classification section at both institutions' (UNAM and NUST) libraries for five days to observe the cataloguers and classifiers processing the library materials and resources before availing them on the shelves. The researcher

was part of the observed group and this group was aware of the observer. Observation was based on the library management system used by both institutions. The study observed processes at both institutions, which support the selection, ordering and purchasing of library materials.

3.5 Population

The population according to Polit and Hungler (1999, p. 37) is "an aggregate or totality of all the objects, subjects or members that conform to a set of specifications". According to David and Sutton (2004), population is defined as all members of the category under investigation. Populations comprise of groups, individuals, humans, products, events and even organisations (Welman, Kruger & Mitchell, 2005). The total target population size for this study was 18. This comprised of 12 UNAM staff members from cataloguing and classification (A. Samupwa, personal communication, January 22, 2020) and six NUST staff members from cataloguing and classification (V. Kankindi, personal communication, January 21, 2020).

3.6 Sample

Sampling is defined as the process of selecting units (people, organizations) from a population of interest so that by studying the sample the researcher might fairly generalise results back to the population from which they were chosen (Trachoma, 2006). Sampling is very significant in all qualitative research (Omona, 2013). Therefore, qualitative researchers need to select sample sizes and sample designs that are most compatible with their research purposes (Onwuegbuzie & Leech, 2005). Sampling methods are normally classified as either probability or non-probability. In probability samples, each member of the population has an equal chance of being chosen to be in the sample. The method includes random sampling, systematic sampling, and stratified sampling (StatPac, 2012). With regard to non-probability sampling, the sample group is selected from the

population and how the sample differs from the population cannot be determined (StatPac, 2012). Non-probability methods include convenience sampling, judgment sampling and quota sampling.

The most suitable sampling method for this study was non-probability sampling technique, where purposive or judgmental technique was chosen for this study. Purposive or judgmental technique is defined by Blanche et al. (2006) as a sampling that is based on careful selection of cases that are typical of the population being studied and is often used to create small, relevant samples in qualitative research or case studies. As a result, purposive or judgmental sampling technique was used to select eight respondents in total who were more experienced in the processes involving cataloguing and classification of the library materials as compared to their colleague librarians. The participants comprise of University of Namibia Librarian, the Director at NUST Library, two heads of cataloguing section, two cataloguers and an IT technician (one each) from both NUST and UNAM.

3.7 Research instruments

Research instruments are tools which are used to gather or collect data for a study being done (David & Sutton, 2004). Research instruments are designed by the researcher to gather data from participants of the study. Semi-structured interview guides and observation checklists data collection instruments were used to collect qualitative data.

Welman et al. (2005), semi-structured interview guides comprised of fixed informal questions and used to explore general area of interest in depth and this method allow researchers to formulate further questions triggered by participant responses during the face-to-face interviews. Therefore, interviews were used to gather data from a university librarian, the Head of the cataloguing section, a cataloguer and an IT technician where different interview questions were used for respondents.

An observation checklist was compiled for the cataloguing and classification section when processing their library materials, and to examine the Collection Development Policies (CDPs) of the two institutions under study to see if the selection, ordering and purchasing of library materials at the NUST and UNAM libraries are supported.

3.8 Reliability and Validity

Creswell (2014) describes validity as a procedure that a researcher uses to demonstrate the accuracy of their findings and convince readers of the accuracy or credibility. Bailey (1994) defined reliability as the extent to which a questionnaire, test, observation or any measurement procedure produced the same results on repeated trials. To ensure validity, all four interview guides were pretested among four participants who formed part of the study. Pretesting helped the researcher identify questions that do not make sense to participants, or problems with questions that might lead to biased responses. This aided the researcher to improve the interview guides before having to conduct further interviews. Walliman (2005) stresses that it is necessary to conduct a pilot study on a small number of participants from the population of interest, to establish any possible errors or problems that may arise.

Reliability refers to the extent to which a scale produces consistent findings if repeated measurements are made on the characteristics (Welman, Kruger & Mitchell, 2005). Similarly, Koonin (2014) emphasises that reliability refers to the fact that different research participants being tested by the same instrument at different times should respond identically to the instrument. On the other hand, this means that the researcher using the same participants and the same instruments to get the same findings. To ensure reliability of the data in this study, the interview guides consisted of simplified and clear questions to make sure that the participants understood them,

which result in them giving clear answers. The researcher also made sure that every step was recorded carefully and the report reflects original narratives and descriptions given by the participants to ensure unique results.

3.9 Procedure

Research procedure is defined as the order or manner that one would follow during or before gathering any data (David & Sutton, 2004). Similarly, Bless et al. (2006) also defined data collection procedure as the manner in which data would be collected and how the research instruments would be used to collect data. Normally, when researchers carry out studies that involve obtaining data from people, an explanation would have to be given on the topic under study before the arrangement of interviews.

Firstly, the researcher requested permission to conduct the study at UNAM and NUST. Once the permission letter was signed by the institution (see Appendix A and B), data collection commenced. Subsequently, the researcher set up appointments with the participants through phone calls and emails to confirm the availability, venue and time suitable for participants to be interviewed. The interviews were conducted in the participants' offices. The researcher introduced herself, the topic, and explained why the participants were chosen to be part of the study. An informed consent letter (see Appendix D) was distributed to the participants for signatures to agree to take part in the study. A digital voice recorder was used during the face-to-face interview process with the participant's consent. Each interview lasted between 30 and 40 minutes. Since the researcher is not an employee of UNAM and NUST, the researcher also made arrangements with the Heads of cataloguing section to be placed on a voluntary basis in their respective departments for a week in order to observe how cataloguers process their materials. The researcher was not

only observing the cataloguers and classifiers, but was actively engaged in the activities of the research participants.

The document analysis was attained from Collection Development Policies (CDPs) of both institutions. The CDPs were obtained from the Director of the Library at NUST and the University Librarian UNAM to observe if CDPs supported the provision of library materials. This was observed by following the check-list guidelines to see if the written CDPs supported the selection, ordering and purchasing of library materials at NUST and UNAM library, this procedure took about ten minutes for both institutions.

3.10 Data analysis

According to Mcniff and Whitehead (2009) data analysis explains how the data was analysed and required specific processes to be described referring to available methods and literature. Nalusiba (2006) also described data analysis as a process of looking at data and summarising them. This research adapted a qualitative approach, which meant that the data consisted of the answers given by the participants during the interviews. With regard to this analysis, the qualitative data was not limited to one particular method, as different approaches could be used to analyse the study depending on the nature and purpose of the study (Dey, 1993). Thus, the content of the data obtained from interviews and observation was examined through the process of transcription, categorisation under thematic issues as derived from the study and coding.

Content analysis is a procedure used to categorise verbal or behavioral data for the purpose of classification, summarisation and tabulation (David & Sutton, 2004). In this case, content analysis was used to transcribe data collected during interviews. Coding entails marking different sections of the data as being instances of, or relevant to one or more of the research's themes. Blanche et

al. (2006) indicated that the researcher codes a phrase, a line, a sentence or a paragraph to identify textual bits by virtue of material containing or that pertains to the themes under consideration. Thus, coding as a method of analysing data was utilised to code names of the participants in the study for instance, “A1 and A2” as well as data that addressed the same issue or questions was grouped into one category and a code or label was assigned to it for identification. This was done to avoid misunderstanding and data overload.

3.11 Research ethics

Resnik (2011) stated that ethics are rules that distinguish between right and wrong. Research ethics defined by Resnik (2015) as norms of conduct that distinguish between acceptable and unacceptable behavior. Ethics exist to protect those selected to participate in the research (Flick, 2014). It is important to adhere to ethical norms when dealing with human participations. As this study involved human participations, the researcher sought ethical clearance from UNAM Research Ethic Committee (UREC) which was grated before data collection process. Permission to conduct a study was sought from the Director of the Library at NUST library and University Librarian at UNAM Library.

The ethical issue of informed consent was considered. Israel and Hay (2006) state that informed consent meant that, participants need first, to comprehend and, second, to agree voluntarily to the nature of the research and their role within it. This was accomplished through the signing of a consent form by all research subjects. The consent form also given the participants an option to withdraw from participations without consequences. The consent form stated the nature of the study and what was expected of all participants in the research. All the participants were assured of confidentiality. Hence, to ensure that the principles of anonymity and confidentiality were

guaranteed, there was no collection of the details or the personal information on the participants and their names were not revealed in this study. The researcher also sought special consent from the participants to be recorded or not recorded during interviews. Confidentiality was attained by securing raw data collected on a hard disk with encrypted files and the retention of data to be kept possibly longer after the completion of the study, depending on UNAM's research guidelines if any in place. Furthermore, the group observed was aware of the observer's presence as the researcher was part of the environment of the observed group. The observation was based on the library management system used in by both institutions.

3.12 Summary

The chapter looked at methodology used in this study. The philosophical assumptions along with research paradigms such as interpretivism, positivism and pragmatism were discussed in this chapter. Based on the research paradigms discussion, interpretivism paradigm was understood to be most suitable in guiding this study. The research design employed in this study was a multiple case study design, which was achieved through engaging qualitative data collection methods of interviews and observation. The population of the study comprised of cataloguing and classification section staff members at both institutions and the total population is 18. Purposive or judgmental sampling technique was used to select eight respondents in both institutions. Interview guides and check-list were used to collect data from participants. Validity and reliability was safeguarded in this study by employing the right tools, knowledgeable participants in the area of investigations and systematic recording of the research process. Finally, qualitative data analysis was also covered in this chapter as well as the procedures and how the researcher addressed ethical issues in the study. The next chapter focuses on the analysis and presentation of data.

CHAPTER FOUR: PRESENTATION OF RESEARCH DATA FINDINGS

4.1 Introduction

This chapter presents the analysis of the data, which centers around the following themes derived from objectives of the study as identified in Chapter one, assess the areas of cataloguing and classification affected by ICT (4.3); assess the use of ICT by cataloguers and classifiers (4.4); evaluate how knowledgeable the cataloguers and classifiers are in the use of ICT facilities (4.5); the rate of adoption of ICT in cataloguing (4.6); and classification and problems hindering the use of ICT for cataloguing and classification (4.7). The data was gathered through semi-structured interviews and by means of observations, where the researcher assumed the role of a participatory observation at the two institutions regarding the cataloguing and classification sections as well as the reviewing of the Collection Development Policies (CDPs). In order to maintain confidentiality and anonymity, the names of the interviewees have been withheld. The respondents are distinguished by symbols “A1, B1, C1, D1” (UNAM) and “A2, B2, C2, D2” (NUST). Data is presented in the form of descriptive narrative with direct quotations from participants as well as figures. In one case, due to unforeseen circumstances, the University Librarian at UNAM could not be present for the interview, therefore, the Deputy University Librarian was recommended as the respondent.

4.2 Participants of the study

Data was gathered from participants “A1, B1, C1, D1” and “A2, B2, C2, D2” from UNAM and NUST respectively. Additional data was also gathered through observing the cataloguers & classifiers’ work as well as from reviewing the Collection Development Policies (CDPs) of the two institutions.

Table 4.1 below shows the number of respondents interviewed subdivided by category of interviewees, that is “A1, B1, C1, D1” (UNAM) and “A2, B2, C2, D2” (NUST).

Table 4.1: Number of interviewees by interviewee category, **N=8**

Institution	**Number of respondents interviewed by category of interviewee**								**Total**
UNAM	A1	1	B1	1	C1	1	D1	1	4
NUST	A2	1	B2	1	C2	1	D2	1	4
Total count		2		2		2		2	8

4.3 Objective 1: to assess areas of cataloguing and classification affected by ICT

This study was based on the use of ICTs by the cataloguers and classifiers when cataloguing and classifying their library materials. In order to establish the extent usage of ICTs by cataloguers and classifiers in the two institutions (UNAM and NUST) the researcher posed several questions to the following participants “A1, B1, C1, D1” from UNAM and “A2, B2, C2, D2” from NUST. The answers to these questions are presented according to thematic subheadings in the following sub chapters.

4.3.1 Types of Library information systems

Participants were asked to identify the kind of information systems used in their library. All eight participants from both institutions indicated that they were using the Sierra Library Management System (SLMS).

Respondent "B2" from NUST remarked *"The SLMS has many modules. However, here we use cataloguing module that comes with the system".* The interviewee further explained that "*we only catalogue and classify. We do not purchase, issue nor return books, these activities are taken care of by different departments in the library".*

The researcher posed a question on how the respondents rated the library system in terms of how easy it was to use. All respondents "A1, B1, C1, D1" from UNAM and "A2, B2, C2, D2" from NUST rated their library management system as user friendly. Respondent C1 from UNAM explained that their library management system was easy to use, but emphasized that one required to have skills and knowledge to be able to operate the system. The respondent further explained that *"there are helpful guidelines online on how to use the system if there is anything you do not understand".*

4.3.2 Location of library materials

The study was guided by two of Ranganathan Laws of Library Science as discussed in Chapter two. Respondents were asked questions to find out how the institutions saved the time of their readers and adopting change in terms of growth in their libraries to best answer the fourth and fifth law of library science used in the study, "save the time of the reader" and "the library is a growing organism".

4.3.3 Save time of the reader

Participants were asked this question: *"Explain how ICT facilities enhance the job performance in term of productivity and time".* Respondents C1 and C2 from both institutions highlighted that they save the time of their users by using the Online Public Access Catalogue (OPAC) system

instead of the card or manual catalogue systems. Respondent C2 from NUST remarked that "*The OPAC system allows one to easily type in the title, author and the subject of the item. The item is immediately displayed and can be located quickly on the shelf".* Another respondent C1 from UNAM commented that "*we do not use other access points such as indexes and bibliographies, we only use the OPAC system alone to locate what is in our library collection".* This means librarians are confidently making use of OPAC system, thus saving time to locate and retrieve the materials available.

Furthermore, it was observed that both institutions were only using online catalogues as opposed to card catalogues or a hybrid of both card and online catalogues. However, the use of online catalogues is only applicable in the cataloguing section in both institutions. The periodical section at NUST still uses card catalogues.

4.3.4 Library is a growing organism

A question was raised to find out the reasons why the two institutions chose to use the OPAC and card catalogue systems in their libraries. Respondent B2 from NUST replied as follow: "*The library uses OPAC system which is referred to as an Encore and it comes with Sierra, another reason we use OPAC is because it enables users to search the library catalogue on their own and see what is available in the library collection"*. Another reason mentioned was that the Encore system was user friendly, and it allows the users to search for library resources according to their preferred searches. Respondent C2 pointed out that they were using the OPAC system because they were keeping abreast with new technology, therefore the card catalogue was phased out as it had outlived its usefulness in the library, especially in the cataloguing and classification section, although it was still being used in the periodical section of their library.

Another question asked was *"do you think the system (OPAC and card catalogue) helps the staff members in uplifting the library productivity?"* The response from interviewees B1 from UNAM and B2 from NUST, and A1 from UNAM and A2 from NUST was that "*the system is very helpful in uplifting the staff productivity*". However, respondent D1 from UNAM commented that *"the system is very expensive but it makes work easier for the staff"*.

4.3.5 Library system

The researcher posed the following question to the D1 and D2 in both institutions: *"which information system database is in place for your library?"* Respondent D1 from UNAM could not answer this question because he felt it will be best answered by respondent C1. However, respondent D2 from NUST remarked that information system database used in their library called Postgres and Sierra Library Management System is part and parcel of Postgres database.

Commenting if the information system database was user-friendly, the Respondent D2 from NUST said "*the database is user-friendly and easy to operate on"*. Respondents D1 and D2 from both institutions were asked if they wished to change anything regarding their system database. Respondent D2 from NUST remarked that *"there is nothing to be changed, maybe in future*".

4.4 Objective 2: to assess the use of ICT by cataloguers and classifiers

The second objective of the study was to establish the use of ICT facilities in libraries especially in the cataloguing and classification section. The interviews were designed to establish the types of ICT facilities used in libraries for cataloguing and classifying library materials and how they enhanced the job performance of the staff members. The use of ICT facilities is influenced by the

two determinants of TAM, namely, perceived ease of use and perceived usefulness, which determine or measure one's attitudes towards the use of ICTs in libraries.

4.4.1 ICT facilities

The researcher wanted to find out about the type of ICT facilities present in the libraries being studied. The responses from interviewees C1 and C2 and D1 and D2 in both institutions indicated the types of ICTs such as computers, the Internet, CDs and DVDs players, speakers, photocopier machines, scanners, printing machines, telecommunication, such as tablets and cellphones and assistive technology, such as a photocopy machine for people with disabilities (visually impaired). The researcher posed another question to determine if the above-mentioned ICT facilities were useful in cataloguing and classification section, and respondent C1 from UNAM indicated that "*Yes, they were useful however they cannot function if there is no internet and electricity".* The respondent C2 from NUST remarked that *"Yes, ICT facilities are useful in our library because they help us to improve our services".* Respondents C1 and C2 from both institutions indicated that they are spared time when using these facilities and they uplift their job performance.

The cataloguing and classification section in both institutions were observed to determine the ICT facilities in place for cataloguing and classification. The researcher noted that there were eight workstations in the cataloguing and classification section at UNAM and nine workstations at NUST, which are all connected to the Internet. It was also observed that all computers in this section were installed with the Sierra Library Management System (SLMS) and the Online Public Access Catalogue (OPAC). The researcher also noted that all the computers were connected to printing machines and they are all equipped with CDs and DVDs disc drives for playing the CDs and DVDs accompanying the monographs.

4.4.2 Job performance enhancement

The question on how ICT facilities enhance the librarian's job performance was asked. Respondents C1 and C2, who had six years of experience, indicated that ICT improves their productivity in the sense that it is fast and saves time. They also managed to do a lot when using ICT facilities as opposed to using a manual system to catalogue library materials. Respondents C1 and C2 also indicated that when they import records from online catalogues, it saved time, as they do not have to create a new entry of each item from scratch.

Information communication and technology not only save time, but also help with eliminating duplication of records, which would make it increasingly difficult for librarians to identify when using the card catalogue system, as it is then referred to the manual system. Concerning the Technology Acceptance Model (TAM), the researcher found out that librarians were exposed to multiple technologies. The study found out that librarians came to accept and use different technologies such as computers, laptops, photocopier machines, the Internet, scanners and telecommunication (cellphones, tablets). During observation, the researcher noted that librarians' attitudes toward technology use had a positive effect on their day-to-day productivity through perceived ease-of-use.

4.4.3 Impact of using ICTs

Responding to the question: *"What are the positive and negative aspects of using ICT facilities?"* Respondent C2 from NUST commented on the positive aspect of using ICT facilities that it makes cataloguing and classifying library materials much easier for the librarians. Respondent C1 from UNAM commented on the negative aspects of using ICT facilities by noting that, when librarians import records from online catalogues such as Online Computer Library Center (OCLC) they

might get comfortable and forget the step-by-step skills of cataloguing and classification. The respondent further commented on the challenges that comes with the Internet connectivity that the system cannot function without power supply.

4.4.4 Shared catalogue

Respondents C1 and C2 in both institutions were asked if they had a shared catalogue with other institutions and both answered that there was none. Respondents C1 and C2 commented that they only have web online where everyone with an internet connection could access the library catalogue wherever they were. The respondent C1 from UNAM further added that students of that specific institution could access their library catalogue with a username and password for off-campus use.

4.5 Objective 3: to evaluate how knowledgeable, the cataloguers and classifiers are in the use of ICT

This section presents the analysis of the data on aspects of the skills and knowledge required for the job (cataloguing and classification position) as well as training programmes in keeping the library staff afloat with new technology.

4.5.1 Education qualification

In response to the question: *"What are the educational qualifications required for the job of an IT technician of the library?"* Respondent D1 from UNAM indicated that a practical industrial computer qualification is needed for the job of an IT technician. While respondent D2 from NUST noted that the requirement is five years' degree in IT. Respondents C1 and C2 from both

institutions indicated that a four-year degree in Library and Information Science and experience is needed for the cataloguing and classification job.

4.5.2 Skills and knowledge needed for the job

The researcher asked the question*: "What skills and knowledge are required by IT personnel, cataloguers and classifiers to perform their duties?"* This question was only applicable to the IT personnel, cataloguers and classifiers from both institutions. The responses were as follows: Respondents C1 and C2 from both institutions indicated that in order to perform the cataloguing and classification duties, library staff needed to have an understanding on how to use ICT facilities because the library management system required a skilled and knowledgeable staff. Another requirement is to have a thorough understanding on the use of cataloguing and classification tools such as Anglo American Cataloguing Rules edition 2 (AACR2), Dewey Decimal Classification (DDC), Resource Description and Access (RDA) and Library of Congress Subject Heading (LCSH). These cataloguing and classification tools can be used in computerised and manual systems.

They also indicated that the cataloguers and classifiers should have practical skills in cataloguing and classification. On the aspect of skills and knowledge required for the job, respondent D1 from UNAM indicated that practical skills, analytical skills and diagnosing skills were required. While respondent D2 from NUST indicated that *"IT staff needs to have skills on LINUX and minor database knowledge".*

4.5.3 Training

The researcher raised the following question to both participants from UNAM and NUST: *"How often do you get training in keeping afloat with new technologies?"* Respondents C1 and C2 and D1 and D2 from both institutions indicated that staff members received in-house training especially if there is something new. For instance, the new ICT applications or new development in the library.

On the other hand, the respondents A1 and A2 from both institutions added that short training courses on ICTs could be identified and attended to, whenever the budget allows it.

Participant A1 from UNAM further asserted that another way for librarians to develop their ICT skills would be to embark on further studies. This would ensure that they get to know and learn new ways to handle ICT equipment in their libraries. Respondent B2 from NUST highlighted that new staff members received on-the-job training as part of the induction course, and, if they attended international training, then they were required to capacitate other staff members.

4.6 Objective 4: to find out the rate of adoption of ICT in cataloguing and classification

This section analyses and presents the data on the issue of ICT adoption in cataloguing and classification. The researcher investigated the online tools, the need and benefits of using ICTs and ICT policy. The researcher also investigated database maintenance requirements in the event of disaster and database update.

4.6.1 Online tools

Responses to the question: *"What kind of online tools do you use when cataloguing and classifying library materials?"* Respondents C1 and C2 in both institutions listed a few online tools, such as OCLC, Sabinet, LCSH Online, and RDA Online.

It was discovered that both institutions used the listed online tools when cataloguing and classifying their library materials. Respondents C1 and C2 in both institutions commented that they use physical DDC to confirm the DDC number generated from OCLC.

Interviewee C2 from NUST indicated that AACR II phased out, and was only applicable to the Integrated Library Management System (ILMS) that was previously used by NUST. However, using the Sierra Library Management System and Resource Description and Access (RDA) was the most applicable in both institutions. Cataloguers and classifiers keep abreast with digital age as they adopt new sets of rules such as Resource Description and Access, which replaced the Anglo American Cataloguing Rule.

4.6.2 The benefits of using ICTs

Regarding the benefits of ICTs, the researcher raised the following questions to the respondents C1 and C2 in both institutions *"What are the benefits of using ICT facilities when cataloguing and classifying? How effective is the use of ICT on cataloguing and classifying of library materials?"* The responses show that both institutions use ICT facilities because of the following reasons:

- ICT facilities make cataloguing and classification easier to work.
- ICT facilities help the cataloguers and classifiers to detect the duplications and errors.

- In case cataloguers and classifiers find words difficult to understand they can now make use of computers to search for their meaning.
- ICT facilities save time in the sense that the cataloguers and classifiers seemed to do more in a short period of time.

It was observed that, ICT facilities were used by the library staff members to catalogue and classify their library materials, to search for the meaning of words from the Internet especially if they do not understand the topic and store their records in the computers. Based on the observation, the researcher noticed that the use of ICTs to cataloguing and classification enabled library staff and users to easily seek, identify, find, and locate the information resources in the library in the quickest possible time.

4.6.3 ICT policy

The researcher posed the following questions: "*Does your library have an ICT policy in place? And what does it say on the use of ICT in the library?"* These questions were asked because policies are important in any organisation as they support and clarify the standards that are acceptable and unacceptable in the *workplace*. The responses show that both institutions have no ICT policy for their libraries. The respondent A1 from UNAM indicated that libraries require an ICT policy that would spell out the mandatory and regulatory framework for the proper management and utilization of ICT in service delivery.

4.6.4 System maintenance and system backup

Participants were asked the following questions: *"How is a database maintained and restored in event of a disaster? And what provisions are in place for back-ups? How often do you update your database?"* These questions were addressed to participants D1 and D2 in both institutions only.

In case of maintenance and restoration in the event of disasters, interviewee D1 from UNAM indicated that *"the institution has a dual-server-setup which is divided into two servers called application and database server", which means that, in the event of a disaster, this is where data would be resorted.*

Respondent D1 from UNAM reported that there are two hosts. One is the enterprise back-up, which is used for automatic back-ups and located in the library. The second host is a separate server located in the computer center section. That server is placed offsite in a different location; in the event a disaster occurs. While respondent D2 from NUST indicated that in the event of a disaster they backup their data in the log shipping.

Responding to the question: *"How often do they update their databases?"* the responses from respondent D2 from NUST urged that they update their database daily with retention while D1 from UNAM commented that they synchronise files automatically, the backups happen every night and the IT staff verify in the morning if the actual backup had happened. For reasons related to space available, the institutions keep the history of the week and delete the old history. Respondent D1 from UNAM further indicated that Backups in libraries are vital because they protect and keep data safe from getting lost, especially when librarians enter materials in the system through data entry, it will be saved in external hard drives. If a hard drive crashes, files are deleted accidentally or during natural disaster, files can be accessed and resorted easily thereafter.

4.7 Objective 5: to determine if there are any problems hindering the use of ICT for cataloguing and classification.

The researcher investigated the problems hampering the use of ICT for cataloguing and classification. The next sub-topics under this theme includes the challenges facing the cataloguers and classifiers when cataloguing and classifying their library materials using ICTs.

4.7.1 Challenges faced by the cataloguers/classifiers when using ICTs

Responding to the question: *"What challenges do you think cataloguers & classifiers are facing when cataloguing and classifying their library materials when using ICT facilities?"* the interviewees A1, B1, C1 and A2, B2, C2 from both institutions indicated that if there is a power outage or the Internet becomes inaccessible, no cataloguing and classification work could be performed during that period.

The respondent A1 from UNAM cited that classification numbers are very long. As a result, this would discourage users to locate library books on time. A1 further advised that the library should have a shorter call number that can easily be identified by the library users and also have all books with the same subject grouped together. This would assist the library users to easily find the library books.

Another difficulty identified by respondent D1 from UNAM was a "system audit". It was reported that the "system trial" does not keep the track of the username and password of the staff members. Consequently, this makes it very difficult for the system auditors to trace the work performed in the system by various staff members.

Another challenge raised by respondent D1 and D2 in both institutions were that the systems used in the two institutions did not support short messages (SMS) default. Respondent D1 from UNAM

reported that it is a very expensive exercise to have SMS default in the system. The advantage of having short messages (SMS) default in the library management system is to automatically alert the user to return the borrowed items on time.

Respondent D2 from NUST identified communication with the system vendor as another hindrance to work efficiently. D2 further urged that it is difficult to solve system problems due to communication barriers. This means that the system vendor has to communicates with the A1 and A2 in both institutions, and only then, will they report to the IT personnel. The system vendor communicates to the Head of the library because usually IT personnel does not have offices in the library. Thus, the IT personnel is not aware of challenges faced by librarians. Respondents D1 and D2 from both institutions found it very difficult to understand that, and how to solve the problem at hand. In such situations, there is always a misunderstanding that leads to conflict between the IT personnel and the Head of the library.

Regarding the issue of communication, respondent D1 from UNAM reported that communication barriers arise only when the librarians report about certain problems using the cataloguing and classification language which are not present in IT language. They find it difficult to report back to their system vendor.

4.8 Collection Development Policy

Collection Development Policy (CDP) is the most important library policy document which supports the library's primary task of selecting, maintaining, and providing access to relevant and representative information resources for all library users. This policy covers essential elements that are aimed at developing quality and providing relevant library services. Therefore, the researcher analysed the Collection Development Policies (CDPs) for both institutions to observe

how ICT impacted the collection development activities and these activities are budgeting, selection and acquisition of library materials.

4.8.1 Budgeting of library materials

The aspect of budgeting was covered in the CDP of both institutions. The CDP for UNAM indicated that the budget shall be prepared by the library and submitted to the Office of the Bursar for allocation of the annual budget. While CDP for NUST signals that the budget allocation should be done in July every year and approved by the Office of the Deputy Vice-Chancellor: Administration and Finance. In case of budgeting, academic libraries should provide funding to procure ICT facilities and supporting infrastructures, maintenance and training for librarians especially if new application and development of ICTs arise.

4.8.2 Selection of library materials

The issue concerning selection was covered in the CDPs of these two institutions. The CDP of UNAM revealed that the subject librarians, librarians, and students should equally suggest information resources that they deem relevant in order to be added in the library collection. It was also stated in the CDP that academic staff are experts in their subjects and librarians should use their expertise to select information resources that would add value to the library collections. The CDP of NUST specified that, when purchasing new titles, the selectors should consider the strength and weakness of the existing collection in which the new titles would be added. For proper identification of library materials to be purchased, electronic tools such as computers connect to the Internet are required to assists in the selection of materials from online publisher catalogues, Amazon, Book finders, online databases, etc. This is not possible without the help of ICTs.

4.8.3 Acquisition of library materials

The CDP of UNAM shows that the university library is responsible for ordering, cataloguing, classification and processing of information resources for easy retrieval by university students and staff. While the CDP for NUST states that individual faculty members should request items to be purchased and forward their requests to the departmental library liaisons for review. Following approval, the departmental library liaisons forward the requests to the library for approval and then the books are ordered. The ordering of library materials will be effortless with the help of ICT facilities. The use of ICTs saves time in collection development activities by enhancing a quick delivery of materials.

4.9 Summary

This chapter presented the research data from interviews and observations. The data has been structured according to the objectives of the study. Data was presented in the form of a descriptive narrative with direct quotations from participants. The data showed that cataloguers and classifiers used and accepted the different technologies placed in their libraries. The research findings revealed that the use of ICTs facilities in libraries helps the librarians to improve their day-to-day productivity in the sense that they assist staff members to improve their services, spare time especially when locating library materials for users and eliminate duplications of items in the system.

The study established that all cataloguers and classifiers preferred online catalogue as opposed to the card catalogue. The findings showed that ICT facilities were perceived to be useful and that cataloguers and classifiers were confident about the benefits they get when using ICT facilities in their job. Perceived usefulness was the primary reason for the acceptance of ICT by cataloguers

and classifiers. This resulted in staff members strictly using ICTs when cataloguing and classifying their library materials.

Data collected in the study, showed that the use of ICTs by cataloguers and classifiers in their libraries did not go without challenges. It was found that cataloguing and classification could not be done without Internet connection and power supply. Based on the findings, ICT knowledge and skills are a prerequisite to cataloguing and classification position. In other words, computer knowledge and skills are needed to perform the cataloguing and classification duties. The next chapter discusses the research findings of the study.

CHAPTER FIVE: DISCUSSION OF FINDINGS

5.1 Introduction

This chapter discusses the finding of the study. According to Annesley (2010), the purpose of the discussion chapter is to interpret and describe the significance of the findings based on what was already known about the research problem and explain any new understanding or fresh insight about the problem after the findings were taken into consideration. Welman, Kruger and Mitchell (2005, p. 253) opine that in the discussion chapter "the findings are not just repeated but their meaning and implication are explained in the light of the purpose of the study".

As outlined in chapter one, the main objective of the study was to compare the utilisation of ICT facilities in cataloguing and classification processes at UNAM and NUST. The study was further guided by the following specific sub-objectives:

a) To assess areas of cataloguing and classification affected by ICT.
b) To assess the use of ICT by cataloguers and classifiers.
c) To evaluate how knowledgeable, the cataloguers and classifiers are in the use of ICT facilities.
d) To find out the rate of adoption of ICT in cataloguing and classification.
e) To determine if there are any problems hindering the use of ICT for cataloguing and classification.

In addressing whether each research objective has been met, the discussion looks at the findings as presented in Chapter four and incorporate literature. The findings are discussed under themes drawn from specific sub-objectives of the study as well as those which arose from the responses provided by respondents. These themes are areas of cataloguing and classification affected by ICTs (5.2), the use of ICT by cataloguers and classifiers (5.3), skills and knowledge in ICT (5.4), the rate of adoption of ICT (5.5), and problems hindering the use of ICTs for cataloguing and classification (5.6).

5.2 Areas of cataloguing and classification affected by ICTs

The first objective of this study was aimed at exploring the different areas in cataloguing and classification section affected by the use of ICTs. With regards to this objective, the study looked at library management systems, the location of library materials, cataloguing and classification of library materials, selection and ordering of library materials as laid out in the sub chapters below.

5.2.1 Types of library and information systems

The study found that the two institutions under investigation were using the same library management system called Sierra Library Management System (SLMS), which was used to both catalogue and classify their library materials. It was further found that SLMS was not only used for cataloguing and classification of library materials, but had additional modules that were used for other library activities, such as circulation and acquisition. The results of this research corroborate with Barkett, Ritchie and Standley (1978) who found confirmed that ICT brought a great change in technical service section of libraries where acquisition, cataloguing, classification, indexing, preservation, authority control and bibliographic description are taking place. Moreover, Ilo (2015) corresponded that the work of cataloguers and classifiers has shifted from manual

bibliographic description to cataloguing and classification of library materials using ICT facilities. In this light, this study observed that the institutions under study were using a computerised method to catalogue and classify their library materials.

5.2.2 Location of library materials

The findings revealed that the two institutions used Online Public Access Catalogue (OPAC) to retrieve their library materials. The study findings agreed with Rao and Babu (2001) who indicated that most libraries now have OPAC in their libraries to assist users to locate library materials. In this light, the study found out that OPAC was easy to use and fast to retrieve library materials for both library staff and users. It was further observed that both institutions under investigation used online catalogues as opposed to manual catalogues. The results of this research corroborate with that of Antherjanam and Sheeja (2008) who also found that information technology enhanced easy information retrieval of documents in libraries. The author noted that information retrieval from internet is simpler, easier and faster unlike the manual system.

5.2.3 Save time of the reader

The Ranganathan's fourth Law of Library Science "save time for the user" was used in this study to provide an understanding of why cataloguers and classifiers prefer saving time of their users. This particular finding is similar to that of Haider (2017) who indicated that this law was used to keep the reader satisfied, because a satisfied reader is one whose time is saved. In addition, this study also found out that the OPAC system speeded up the processes of locating library materials by users. In other words, the OPAC system saved users' time as it allowed library staff and users to find library materials by authors, keywords, subjects and title. This study's finding concurs with that of Haider (2017) who recorded that ICTs in libraries ensures the availability of information

and helps librarians organise library materials in their collection in such a way that the retrieval would not be difficult for the library users. Moreover, Babu (2011) suggested that ICTs must be introduced in libraries in order to save users' time, as it helps many users in obtaining requested information on time.

5.2.4 Library is a growing organism

The library is a growing organism as the fifth law of Ranganathan was used in this study to provide evidence as to why librarians preferred to use information and communication technologies in their daily activities. The results of this research revealed that OPAC system was used in the libraries under study simply because they wanted to keep abreast with the new technology. This finding supports Ranganathan (2013) who affirmed that previously libraries grew with the collection, but nowadays the digital libraries or visual libraries or e-library do not show the characteristics of libraries growing in terms of a collection, but rather in the use of the sophisticated technologies.

5.3 The use of ICT by cataloguers and classifiers

The second objective was to find out about the use of information and communication technology by cataloguers and classifiers and how they enhanced their job performance. This objective was addressed by the following themes delineated below.

5.3.1 ICT facilities

This study established that both institutions used computers, the Internet, CDs and DVDs players, speakers, scanners telecommunications such as tablets and cellphones, photocopy and printing machines to catalogue and classify their library materials. The findings are similar to those of a

study by Alegbeleye (2006) who revealed that libraries must have facilities like computers, internet access, constant power supply, telecommunication appliances such as telephones and e-mail facilities. Again, this study revealed that ICT facilities cannot function if there is no internet and electricity. The findings of this study concur with the findings of Ilo (2008) who found that the facilities can be used effectively if there is sufficient supply of electricity. Alegbeleye (2006) also supported the study findings by indicating that internet connectivity is very important as ICTs depend on it when cataloguing and classifying of library materials and as well as helping cataloguers and classifiers to access libraries in other parts of the world.

The study found out that ICT facilities were useful in libraries because they helped improve their services, especially cataloguing and classifying, circulation and acquisition of library materials, and also saved time of their users and uplift their job performances. Ebunuwele, Ola and Uduebor (2014) reached a similar conclusion by stating that the application of ICTs to the day-to-day activities of any organisation is very efficient and effective.

5.3.2 Job performance enhancement

The study established that both institutions found that ICT improves their productivity in a sense that they are fast and save time. The finding of the study agreed with Akidi and Okezie (2018) who noted that the application of ICT to library functions and services results in improved services, saves the time of the staff and users, thus, librarians are manipulating ICT to meet the varied needs of their users. Again, it was also found that librarians managed to do a lot when using ICT facilities as opposed to manual system to catalogue and classify their library materials. The findings of the study collaborated that of Bhoi (2017) who affirmed that ICT enhances the workflow of the library which helps reduce manual work and, with this, proliferates the library services. Fischer (2012)

also supported the idea that ICT helps librarians to provide information to the right users at any time, from anywhere in the right way possible using web-based technological settings.

Technology Acceptance Model was used in this study to provide an understanding as to why individuals should use and accept technology through the two determinants of TAM, Perceived Ease of Use (PEU) and Perceived Usefulness (PU). For this study, the two determinants PEU and PU were used to measure one's attitude towards acceptability of a particular technology or information system used in the library. The study found that librarians came to accept different technologies such as computers, laptops, the use of the Internet, speakers, scanners, telecommunications such as tablets and cellphones, photocopy machines and printing machines in their day-to-day activities. Davis (1989) suggested that users should develop a positive attitude toward a particular technology, in particular when the form of technology is deemed useful and easy to use. It is therefore believed that if librarians developed a positive attitude towards technology, it would be easier for them to accept and use ICT facilities in their everyday activities. It was observed that librarians' attitudes towards technology use had a positive effect on their day-to-day productivities. Chen, Li and Li (2011) shared the same sentiments and added that individuals are likely to accept technology easily if that specific technology enhances their job performances.

5.3.3 Impact of using ICTs

The study found that ICT facilities makes cataloguing and classifying of library materials much easier for librarians. Ramzan and Singh (2008) agreed with the findings and opined that ICT ensures easy integration of various library activities, increases efficiency in acquisition, cataloguing, classification, access to data, and information retrieval and dissemination. This study

also found that copy cataloguing, which involves importing records from Online Computer Library Center (OCLC), will make the librarians forget the step-by-step skills on how to catalogue and classify their library materials as they depend on it greatly. Reitz (2004) defined copy cataloguing as the adaptation of a pre-existing bibliographic record to fit the characteristics of the item being processed, with modifications to correct obvious errors and minor adjustments to reflect locally accepted cataloguing practices. Ramzan and Singh (2008) also asserted that copy cataloguing is mostly required for books that are difficult to catalogue and completely new books.

5.3.4 Shared catalogue

Shared catalogue should allow libraries to form a consortium for resource sharing and bibliographic records that might not be available to an individual institution (Walden, 1999). It is therefore crucial that shared catalogues are used in libraries to save costs and prevent duplications in cataloguing and classification of library materials (Nwalo, 2006; Yusuf, 2009 & Arinola et al., 2012). The findings of this study could not correspond with what was found by other researchers, in a sense that the findings showed that there was no a shared catalogue at the two institutions under study, but instead they only have web online where everyone with an internet connection could access the library catalogue wherever they were.

5.4 Evaluate how knowledgeable, the cataloguers and classifiers are in the use of ICT facilities.

The third objective of this study was to find out the kind of skills and knowledge that cataloguers and classifiers had. This objective is addressed in the sub chapter hereunder.

5.4.1 Education qualification

This study found that educational qualification required for an IT job is a five years' degree in IT while the cataloguers and classifiers cited four years' degree in in Library and Information Science. Chron Contributor (2020) agreed with the findings of the study by citing that having an associate or bachelor's degree in computer science, computer engineering, information systems or other computer-related fields may give one an edge when applying for a support specialist position. Correspondingly, Gerolimos and Konsta (2008) shared the same sentiment that degree in Library and Information Science and working experience skills were expected to claim the highest percentage, and should be considered for all librarians, without any further value.

5.4.2 Training

The data presented in Chapter four indicated that the librarians had skills required for the job (cataloguing and classification position). Nkamnebe, Okeke, Udem and Nkamnebe's (2012) findings do not complement the study findings. These scholars found out that university librarians lacked skills on library automation, electronic mail operations, automation cataloguing and classification, presentation using Microsoft PowerPoint, database creation and management, which a librarian with necessary ICT skills would be able to manage and operate libraries in the twenty-first century (Nkamnebe et al., 2012). In this light, the findings of this study revealed that if new ICT application and development arise in libraries, librarians acquired ICT skills through in-house training, short training courses and through further studies. This finding is similar to that of Krubu and Osawaru (2011) who found that librarians acquired ICT skills via staff-in-house training, self- study, formal training and trial and error.

In addition, this study also found that short training courses on ICT, such as training on the database used for cataloguing and classification could be identified by university management to capacitate their librarians in order to improve and develop their ICT skills. This finding concurs with that of Edem (2007) who highlighted that short computer training and training programs should be organised from time to time in order to assist librarians and library staff who do not have the ability to update their knowledge and computer skills. Likewise, Imo and Igbo (2009) supported the idea of training and added that librarians needed ICT training to be able to operate efficiently in 21st century libraries.

5.5 The rate of adoption of ICT in cataloguing and classification.

The fourth objective of this study was aimed at finding out the rate of ICT adoption in cataloguing and classification sections in the two libraries under investigation. The themes below address this objective.

5.5.1 Online tools

The study revealed that both institutions used online tools such as Online Computer Library Center (OCLC), Southern African Bibliographic Information Network (SABINET), Library of Congress Subject Headings (LCSH), and Resource Description and Access (RDA) to catalogue and classify their library materials. These tools are believed to assist the librarians when cataloguing and classifying their library materials. Broughton (2004); Sibiya and Shongwe (2018) affirmed that there are tools for cataloguing and classification processes and they are DDC, Universal Decimal Classification (UDC) and LCSH, AACR, MARC standards and (RDA). All these tools are essential and lighten the work burden of cataloguers and classifiers.

5.5.2 The benefits of using ICTs

The study findings revealed that cataloguers and classifiers preferred using ICTs when cataloguing and classifying their library materials. The respondents in this study noted that the use of ICT helped the cataloguers and classifiers to easily detect duplications of work and errors. Ebunuwele, Ola and Uduebor (2014) concurred with the study findings by highlighting the usefulness of ICTs in libraries, which are to help avoid duplication effort with libraries and between libraries in a network, eliminate some uninteresting and repetitive work, and provide accurate results. The ICTs application to libraries' functions and services resulted in improving services, saves the time of the staff and users, thus, librarians are manipulating ICTs to meet the varied needs of their users.

5.5.3 System maintenance and system backup

The study investigated the existence of servers in the libraries. It was found that the two institutions had dual-server-setup which was divided into two servers called application and database server. The respondents also indicated that there are two hosts used for backup. These hosts are enterprise back-up, which were used for automatic back-ups and located in the library. Another host is a separate server located in the computer center section; this server was placed offsite in case a disaster occurs. However, Vora and Anandache (2014) who corresponded with the study findings by noted that library data are expected to be stored off-site and if the computer collapsed then data could be retrieved from elsewhere on the backup network. Moreover, for security reasons, data is encrypted by the backup service's software program on computer before it is sent to the cloud, so hackers on the Internet could not interrupt it. Backup systems are a necessity in all organisations that adopted ICTs especially in delivering of their services as they protect files by automatically save copies of data performed for instance data entry that involved in cataloguing and classification of library materials to an external hard drive. With the aid of Backup systems, in case of a hard

drive crash, accidental deletion of a file or natural disaster, files can be accessed and resorted easily.

5.6 Problems hindering the use of ICTs for cataloguing and classification

The fifth objective of this study was aimed at finding out the problems hindering the use of ICTs by cataloguers and classifiers when cataloguing and classifying their library materials. The following sub chapters address this objective as follows.

5.6.1 Challenges faced by the cataloguers and classifiers when using ICTs

a) Electricity

This study found out that electricity was a necessity in the cataloguing and classification section. It was discovered that all ICT facilities function when connected to electricity and in the event of a power outage, no cataloguing and classification work could be done. The findings of this study is corresponding with Msofe and Sife (2008) who opined that ICT facilities rely on electricity for their functioning. Ighodaro (2010) adds that power cut affects the productivity in the library as it is a necessity when using ICTs.

This study found new challenges that were unique regarding Namibian academic libraries since they were not noted by other researchers around the world. These challenges included lengthy classification numbers, system audit and communication between the library and the system vendors. They will be discussed as follow.

b) Lengthy classification numbers

The finding concerning lengthy classification numbers discouraged users to locate library books on time. It was advised by respondent A1 from UNAM that the library should have a shorter call number that could be easily identified by the library users and also to group books with the same subjects together. This would assist the library users to easily find the library books on the shelf. This is an indication that the classification number must be easy to write, type and remembered to hold in one's mind long enough to get from the OPAC system to the shelves. Thus, it is advisable that UNAM should use shorter classification numbers.

c) System audit

Another unique challenge identified in this study was the system audit. It was found that the "system trail" did not keep track of the username and password of the staff members. Consequently, this made it very difficult for the system auditors to trace the work performed in the system by cataloguers and classifiers.

d) Communication between the system vendor and the library

On the issue of communication between the system vendor and the library, it was found that it was difficult to solve the system problems due to communication barriers between the IT and the system vendor. These communication channels involved the Head of the library, the IT personnel and the system vendor. It was indicated that the IT personnel found it very difficult to solve problems regarding the system because the communication channel poses a challenge. It was discovered that the system vendor communicated to the Head of library as opposed to IT personnel who dealt with the system maintenance. This is the case because the IT technicians were sited in different department outside the library. In addition, the IT personnel did not work with the system

on a daily basis as cataloguers and classifiers. Consequently, the IT personnel do not know what challenges are being faced by librarians regarding the system, unless they are informed.

5.7 Collection Development Policy (CDP) (policy and procedures on the purchase and management of library information resources)

It was discovered that both institutions under study had a Collection Development Policy (CDP) which supports the provision of library materials including electronic resources. This emerged though data collection method (content analysis) as presented in Chapter Three and Chapter Four. The following guidelines directed the budget allocation, selection and acquiring of library materials at the two University libraries under the study as shown in 5.3.2.1 to 5.3.2.3 and also how ICT impacted the collection development activities.

5.7.1 Budgeting of library materials

This study revealed that the two universities have guidelines in place for budget allocation and how individual library goes about it and budgeting is done on ICT systems and applications such as Spreadsheets. It was found that budget allocation for UNAM Library was done by the Office of the Bursar (UNAM, 2013). While for NUST Library, it was done in July every year and approved by the Office of the Deputy Vice-Chancellor: Administration and Finance. This means that these academic libraries received funds in the budget to develop their library collections each year (NUST, n.d). The budget of university libraries includes funding to acquire ICT facilities needed in the libraries and supporting infrastructures such as the Internet, maintenance and training funds for the librarians when new ICT applications and development arises.

5.7.2 Selection of library materials

It was also established that both universities had guidelines on how libraries should select their library materials and by whom. It was observed that the Collection Development Policy of UNAM required that the subject librarians, librarians, and students equally suggested information resources that they deemed relevant for acquisition such that they are added in the library collection (UNAM, 2013). At NUST, when purchasing new library materials, the selectors considered the strength and weakness of the existing collection in which the new materials placed. This implied that the selection could be done by means of selection criteria provided by a specific library, which is a set of guidelines used by librarians in deciding whether a resource must be added in the library or not (NUST, n.d). Thus, with selection criteria in place in both libraries (UNAM and NUST), it therefore reduced personal bias by setting individual selection decisions and identified gaps in collection development responsibilities. The quickest and easy way to identify library materials to purchase, selection of library materials is done online using ICTs. This will give the selectors of the library items an opportunity to access different vendors locally and internationally such as Amazon, Book finders, online catalogues, etc. Online vendors provide the prices, image of the item to purchase and a brief content summary. This helps the librarian to carefully select items and as well using the budget wisely based on the prices allocated to items.

5.7.3 Acquisition of library materials

The study also revealed that the institutions under study have guidelines that directed the acquisition process. As indicated in the Collection Development Policy of UNAM (2013), the university library was responsible for ordering, cataloguing, classification and processing of information resources for easy retrieval by university students and staff. On the contrary, Collection Development Policy for NUST (n.d) stated that individual faculty members should

request items to be purchased and forwarded their requests to the Departmental Library Liaisons for review. Furthermore, when the library received the purchased materials, the cataloguers and classifiers were responsible for availing materials to the users. The acquisition of library materials is done through the use of information and communication technologies such as e-mails, mobile phones and telephones with suppliers. The acquisition of library materials is impacted by ICTs in the sense that the work will be effortless and saves time in enhancing quick deliveries of items.

5.8 Summary

The chapter discussed the findings of this study. The findings showed that ICT facilities were accepted and widely used by cataloguers and classifiers when cataloguing and classifying their library materials. The results also revealed that the reason of using ICTs facilities in libraries helped the librarians to improve their day-to-day productivity. This, however, forced librarians to strictly use ICTs when cataloguing and classifying their library materials. Despite the application of ICT facilities in the two university libraries studied, cataloguers and classifiers indicated that they preferred online catalogues as opposed to the card catalogue due to the benefits that they get when using ICT facilities in their daily activities. The issue relating to policies and guidelines guarding the provision of library materials including the ICTs were in place and amply utilised in the two Namibian academic libraries. These guidelines were found in the Collection Development Policies of both University libraries studied. The study also found challenges hindering the use of ICTs by cataloguers and classifiers in their libraries, such as electric power supply, lack of ICT knowledge and skills and communication barrier with the system vendor. Some of these challenges were experienced by other libraries around the world as indicated in different studies discussed. Chapter Six presents the overall summary of the findings, conclusions drawn from the findings and provides recommendations for future studies.

CHAPTER 6: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter summarises, concludes and makes recommendations for future study. As Bless and Higson-Smith (1995) cited in Nengomasha (2009) state, the last chapter of the thesis is to summarise the aims of the research, compare them with the findings and draw conclusions on how much and in which manner, the goal has been achieved. Hess (2004) also indicates that this chapter helps the reader to understand the study better by sharing the conclusions reached and the way forward.

The chapter is divided into three main sections, namely, the summary (6.2), conclusions (6.3), and recommendations (6.4). The summary is arranged according to the main thematic areas, within which data is presented in Chapter Four. The conclusions are presented under the sub-objectives of the study. The recommendations section of this chapter provides the insight gained through the study and how the findings gained could be applied and implemented (Enslin, 2014).

6.2 Summary of the findings

This section summarises the findings of the study. The findings are summarised under the following thematic areas as drawn from the research objectives:

- Areas of cataloguing and classification affected by ICT;
- The use of ICT by cataloguers and classifiers;
- Skills and knowledge in ICT;

- The rate of adoption of ICT; and
- Problems hindering the use of ICT for cataloguing and classification.

6.2.1 Areas of cataloguing and classification affected by ICT

It was evident that ICT brought a great change in cataloguing and classification section of the University libraries under study. One of the areas affected by ICT was library automation. Both libraries (UNAM and NUST) were using Sierra Library Management System (SLMS) to catalogue and classify their library materials. All procured library materials were recorded in the SLMS of each library. Another area affected was the online catalogue system which was used in this academic libraries as opposed to manual catalogue system. Both university libraries used manual system to catalogue their library materials before the ICT era which then replaced by the online catalogue system. It was cited by the librarians that online catalogue which was OPAC, saves users' time in retrieving resources in the library against the manual or card catalogue system. The recorded library resources in the system could be searched and retrieved by the library users through the OPAC system. The OPAC system was found to be easy to use and fast to retrieve library materials for both university libraries under study.

6.2.2 The use of ICT by cataloguers and classifiers

It was revealed that both institutions under study widely used and adopted ICTs in their day-to-day activities. Computers, printers, laptops, photocopy machines, the use of the Internet, scanners and telecommunication (cellphones, tablets) were used in the two academic libraries by librarians to perform their duties. Perceived Ease of Use allowed individuals to accept that using certain technology would be effortless and hassle free. Participants cited that ICTs were used as they improve the information services provided in the library. Based on the information services offered

in these libraries, it shows that ICTs brought easy access and fast services to its end users. As a result, ICT facilities saves time for both library users and staff in retrieval of library materials. Lastly, librarians also indicated that ICTs were vital in their daily work as they enhance their job performances. Based on the two determinants of TAM (PEU and PU), technologies used in libraries would easily enhance librarians' job performances and they would be free from effort. Therefore, the use of ICT facilities in libraries would make the librarians develop interest to make use of them and improve productivity at their workplace.

6.2.3 Skills and knowledge in ICT

Librarians in both institutions in this study indicated that they had ICT skills required for cataloguers and classifiers. It was further cited that if new ICT skills and development arises among libraries, then this could be attributed to the ICT skills obtained through various trainings such as in-house training, short training courses and through furthering studies as personal development. Moreover, this study also established that if there was a need for librarians to be trained on ICTs, library's management could identify short courses that librarians could be capacitated with. One reason for short courses to be identified was merely to help librarians improve and develop their ICT skills to keep abreast with the new technology trends.

6.2.4 The rate of adoption of ICT

The study further reveals that both institutions under study used ICT facilities in their libraries for different purposes. Librarians indicated that ICTs were not limited to cataloguing and classification of library materials only but they were also used for storing of information, searching for information and communication via Electronic mails (E-mails). Moreover, cataloguers and classifiers also added that ICT facilities were very useful in their day-to-day work as they assist

then to detect duplication of work and errors when cataloguing and classifying the library materials.

6.2.5 Problems hindering the use of ICT for cataloguing and classification

The study found that electricity supply was one of the challenges faced by the university libraries under study. It was discovered that all ICT facilities function only when connected to electricity. The challenge that the libraries face is that power outage prevents them from cataloguing and classifying library materials. In other words, ICTs rely on electricity in order to function. In addition, Uninterrupted Power Supply (UPS) were present in both libraries but they would not last for the whole day in the event of a power outage.

Another challenge that was discovered in this study was the use of lengthy classification numbers at the UNAM Library. The lengthy classification number argued discouraging users to locate and find the library materials timely. The respondent further asserted that the cataloguers and classifiers should consider building short classification numbers for their library materials. This would assist the users to remember the classification number from OPAC system to find the shelf where the book is located. It was also stressed that books with the similar subjects should be grouped together to allow library users to locate and find books easily.

System audit was identified as another challenge in this study. It was found that the system auditors would find it difficult to trace the work performed in the system by cataloguers and classifiers. The system trials do not keep track of the username and passwords. In this aspect, the system would not provide evidence of data added and withdrawn, such as when and by whom.

Communication between the system vendor and library was a common challenge at both universities. It was discovered that the communication channel used at both institutions to address

problems that might face the system was noted to be very complicated. The communication channel used in the two institutions involved the head of the library, the IT personnel and the system vendor. Thus, it was discovered that the IT personnel found it very difficult to solve problems regarding the system. However, both institutions suggested that the communication channel should only involve IT personnel and the system vendors to thoroughly understand the library complaints about the system in order to provide the best solutions in a timely fashion. This would help the librarians to do their work without interruptions.

6.3 Conclusions

This section, as Thomas (2013) puts it, should briefly indicates how the objectives were met. The concluding section of this study is arranged according to the following research objectives:

- To assess areas of cataloguing and classification affected by ICT;
- To assess the use of ICT by cataloguers and classifiers;
- To evaluate how knowledgeable, the cataloguers and classifiers are in the use of ICT;
- To find the rate of adoption of ICT in cataloguing and classification; and
- To determine if there are any problems hindering the use of ICT for cataloguing and classification.

6.3.1 Assess areas of cataloguing and classification affected by ICT

Librarians cited a great change in the cataloguing and classification section. Automation of libraries made the work easier, time saving and more accurate as library materials were catalogued and classified electronically. Before the digital era, both institutions used manual system to catalogue their library materials which was replaced by online cataloguing system. Procured

library materials were recorded in Sierra Library Management System and library users used OPAC to search the library catalogue. Librarians cited easy and fast use to retrieve library materials as some of the reasons why OPAC system was used.

6.3.2 To assess the use of ICT by cataloguers and classifiers

The study established that librarians were exposed to multiple ICT facilities such as computers, printers, laptops, photocopy machines, the use of the Internet, scanners and telecommunication (cellphones, tablets) to perform their duties. This was influenced by Perceived Ease of Use which allowed individuals to accept the use technologies that would be effortless and hassle free. Easy access and fast services were reasons librarians preferred to use ICT facilities. Participants cited that their job performances were uplifted due to the use of ICTs in the daily activities. During observation, the researcher noted that librarians' attitudes toward technology use had a positive effect on their day-to-day productivity through perceived ease-of-use. Therefore, the use of ICT facilities in libraries developed librarians' interest to make use of them and improve productivity at their workplace.

6.3.3 To evaluate how knowledgeable, the cataloguers and classifiers are in the use of ICT

Librarians cited that they had ICT skills required for cataloguers and classifiers. They also indicated that if new ICT skills and development emerged in libraries, they acquired these skills through in-house training, short training courses and personal development. Training needs for librarians were fulfilled when the library manager identifies and sends the librarians to a training workshop.

6.3.4 To find the rate of adoption of ICT in cataloguing and classification

The findings of this study showed that the libraries moved away from manual cataloguing system as they embraced the new technology (as mentioned earlier in this chapter under 6.3.1). Detecting duplication of work and errors when cataloguing and classifying library materials was the reason why cataloguers and classifiers preferred an online cataloguing system. Finally, cataloguers and classifiers also mentioned that ICTs were not limited to cataloguing and classification only, but also used for storage, searching for information and communication purposes.

6.3.5 To determine if there are any problems hindering the use of ICT for cataloguing and classification

Librarians encountered challenges of erratic power supply as it delays the cataloguers and classifiers' work. As it was mentioned earlier in this chapter under 6.2.5, that ICT facilities rely on electricity to function. Other challenges mentioned were lengthy classification numbers as they discourage users to locate and find library materials on time. Other problems identified were regarding system audits, as auditors found it difficult to trace the work performed on the system by cataloguers and classifiers as well as difficult to communicate with the system vendors to address the system challenges at hand.

6.4 Recommendations

The interpretation and presentation of data in Chapter four have shown that there is a need to improve the use of ICTs in academic libraries especially in cataloguing and classification section in Namibia. Based on the literature and study's findings, the researcher formulated recommendations that attempt to address the current weaknesses regarding the use of ICTs in

academic libraries in Namibia. The following section provides overall recommendations based on the findings of the study.

a) Policies that would encourage the development of ICTs in all tertiary institutions should be formulated and implemented countrywide.

b) The libraries should improve training and retraining of library staff which would help improve their ICT skills and quality cataloguing and classification to keep abreast with current development and trends.

c) Library management system vendor technical support should provide a thorough training to all library staff working on the system. In addition, vendor technical support should be able to access the system to detect possible errors and problems faced by system before it affects the daily activities of the library.

d) There should be regular power supply, functioning internet facility and adequate bandwidth for the application of ICT to cataloguing and classification practices to be effective.

6.4.1 Recommendations for further research

Based on the findings and conclusions drawn in the study, further research on the use of ICT in cataloguing and classification should focus on the following:

a) This study only focused on the institutions regarding centralised cataloguing and classification sections at the University of Namibia and the Namibia University of Science and Technology. This means that the International University of Management (IUM) and Welwitschia University were not studied. Therefore, a study incorporating all higher

institution libraries with centralised cataloguing and classification sections should be considered.

b) There is a need for a study that compares both cataloguing and classification, and reader service sections in the institutions of higher education in order to provide evidence on how the OPAC system and reader services have been impacted upon by the use of ICT in cataloguing and classification of library materials

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APPENDIX A: RESEARCH PERMISSION LETTER (UNAM)

OFFICE OF THE UNIVERSITY LIBRARIAN
Mr Joseph Ndinoshiho: University Librarian
University of Namibia, Private Bag 13301, Windhoek, Namibia
340 Mandume Ndemufayo Avenue, Pioneers Park
☎ +264 61 206 3872/74, Fax: +264 61 206 3879, E-mail: jndinoshiho@unam.na URL: http://www.unam.edu.na

UNAM
UNIVERSITY OF NAMIBIA

11 August 2018

Ms Aune Iyambo
The National Museum of Namibia
Windhoek

Dear Ms Iyambo,

Re: Permission to conduct your empirical study at the University of Namibia Main Campus library

Your email dated 10 August 2018 regarding the above subject matter bears reference.

I am pleased to inform you that approval has been granted to you to collect data as part of your empirical study for your Master Degree in Arts (Library and information science) with the University of Namibia (UNAM).

In accordance with research ethics standards, the data you will gather at UNAM Library should be treated with confidentiality and should solely be used for the purpose of your research entitled

> "A comparative study on the use of Information and Communication Technology (ICT) in cataloguing and classification of library materials at University of Namibia (UNAM) and Namibia University of Science and Technology (NUST)".

Let me take this opportunity to wish you all the best in the successful completion your research project.

Sincerely,

Joseph Ndinoshiho
University Librarian

UNIVERSITY OF NAMIBIA
11 AUG 2018
OFFICE OF THE LIBRARIAN
PRIVATE BAG 13301, WINDHOEK
REPUBLIC OF NAMIBIA

APPENDIX B: RESEARCH PERMISSION LETTER (NUST)

NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Office of the Registrar

14 Storch Street
Private Bag 13388
Windhoek
NAMIBIA

T: +264 61 207 2118
F: +264 61 207 9118
E: registrar@nust.na
W: www.nust.na

11 September 2018

Ms Aune Iyambo
Windhoek
NAMIBIA

Dear Ms Iyambo

RE: CONSENT TO CONDUCT YOUR RESEARCH WITH THE NAMIBIA UNIVERSITY OF SCIENCE AND TECHNOLOGY STAFF AND STUDENTS

Your email communique received on 11 September 2018, and the letter from Dr M Janik, Chairperson: FHSS FRC, University of Namibia, has reference.

Approval is hereby granted for you to conduct the research on *"A Comparative Study on the Use of Information and Communication Technology (ICT) in Cataloguing and Classification of Library Materials At University of Namibia (UNAM) and Namibia University of Science and Technology (NUST)"* in the Namibia University of Science and Technology. Any information gathered during the research is to be used for the purpose of the study only and must be treated as confidential. The results of the study should be shared with the University. Individual information of staff and students will not be made available, nor will biographical information of students be made available in such a way that individual students can be identified.

You are advised to contact the Chief Librarian: Ms Judy Grobler, to compile a list of possible respondents to your data collection instrument.

I wish you all the best with your research.

Yours sincerely,

NAMIBIA UNIVERSITY OF SCIENCE AND TECHNOLOGY
Private Bag 13388
Windhoek
NAMIBIA
2018 -09- 11
REGISTRAR
OFFICE OF THE REGISTRAR

Mr Maurice Garde
REGISTRAR

CC: Deputy Vice-Chancellor: Academic Affairs
Chief Librarian
Assistant Registrar

APPENDIX C: ETHICAL CLEARANCE

University of Namibia, Private Bag 13301, Windhoek, Namibia
340 Mandume Ndemufayo Avenue, Pioneerspark
☎ +264 61 206 3111; URL - http://www.unam.edu.na

UNAM
UNIVERSITY OF NAMIBIA

09 August 2018

The Research Supervisor: Dr N Hamutumwa
ILRC: Librarian
Faculty of Humanities and Social Sciences
University of Namibia
Windhoek

Dear Dr Hamutumwa

Re: Ethical Clearance for Research Project of MA Student Aune Iyambo (200849395)

It is with great pleasure that the Faculty of Humanities and Social Sciences' Research and Publications Committee wants to inform you that your student's ethical clearance for the research project titled:

"A COMPARATIVE STUDY ON THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN CATALOGUING AND CLASSIFICATION OF LIBRARY MATERIALS AT UNIVERSITY OF NAMIBIA (UNAM) AND NAMIBIA UNIVERSITY OF SCIENCE AND TECHNOLOGY (NUST)"

has been granted by the Faculty.

The details of this study that Ms Aune Iyambo intends to do have been reviewed during an ethics meeting on 03 August 2018.

The FHSS FRPC wishes you and Ms Iyambo all the best with this noble project.

Kindly,

Dr M Janik
Chairperson: FHSS FRPC
University of Namibia
mjanik@unam.na

APPENDIX D: INFORMED CONSENT FORM

Title of the study: A comparative study on the use of information and Communication Technology (ICT) in cataloguing and classification of library materials at University of Namibia (UNAM) and Namibia University of Science and Technology (NUST).

Researcher: Aune N.N. Iyambo

Community Library Services

Tel: 061-2935258 / Fax: 061-2935253

Cell: 081-2226361

E-mail: iyambo.aune@gmail.com

This research aims to compare the use of ICT in the area of cataloguing and classification in academic libraries in Namibia. All responses will be treated with confidentiality. Participation is voluntary. The study will benefit the academic libraries especially the cataloguing and classification section, as it will provide information that can be used to develop and improve library services. The findings of the study will be made available to you on request.

If you have any question or contribution regarding this research, do not hesitate to contact me at the above contact details or my supervisors Dr. Nampa Hamutumwa at nhamutumwa@unam.na or Tel: 061 206 4658; Dr. Yule Wilson at wyule@unam.na or Tel: 061 206 3683 (Department of Information and Communication Studies at UNAM).

If you agree to partake in this study, you are then required to sign a consent form as part of agreement.

_____	_____	_____
NAME	**SIGNATURE**	**DATE**

APPENDIX E: INTERVIEW SCHEDULED FOR THE HEAD OF CATALOGUING, UNIVERSITY LIBRARIAN AND NUST LIBRARY DIRECTOR

I, Aune N.N. Iyambo, a student in the Department of Information & Communication Studies, kindly invite you to participate in the research project entitled ***"A comparative study on the use of Information and Communication Technology (ICT) in cataloguing and classification of library materials at University of Namibia (UNAM) and Namibia University of Science and Technology (NUST)".*** This research project is undertaken as partial fulfilment of the requirements for the Master of Arts degree in library and information science at UNAM

I have picked you to voluntary participate in this research. Hence you are kindly requested to answer questions in this interview to the best of your ability. Personal details are not necessary for confidentiality. You are requested to sign a consent form as part of the agreement.

1.1 Assess the areas of cataloguing and classification affected by ICT.

a. What kind of information system (database) used in your library for cataloguing and classification?
b. Which information system mostly used by the cataloguers and classifiers for your library? (Card or Online). Why are you using that specific system?

1.2 Assess the use of ICT by cataloguers and classifiers.

a) What ICT facilities for cataloguing and classifying are available in your library?
b) Do you think the ICT facilities in your library are easy or difficult to use when cataloguing and classifying library materials?
c) How effective are ICT tools on cataloguing and classification?

1.3 Evaluate how knowledgeable the cataloguers and classifiers in the use of ICT facilities.

a. In your own opinion, how is the ICT literacy for your cataloguers and classifiers?

b. Do you organize in-house training, seminars and workshops cataloguers and classifiers on the use of ICT?

c. How often does your staff attend these trainings? Are they helpful in terms of skills and knowledge development?

1.4 The rate of adoption of cataloguing and classification.

a. Does your library have an ICT policy in place? What does it say on the use of ICT in the library?

1.5 Problems hindering the use of ICT for cataloguing and classification.

a. What challenges/ opportunities do you think cataloguers are facing when cataloguing and classifying their library materials?

b. What do you think can be done to overcome these challenges (if any)?

1.6 General comments

a. Could you comment generally on how ICT use can be improved in academic libraries?

Thank you for your time and contribution to this research.

End of Interview

APPENDIX F: INTERVIEW SCHEDULED FOR THE CATALOGUERS AND CLASSIFIERS

I, Aune N.N. Iyambo, a student in the Department of Information & Communication Studies, kindly invite you to participate in the research project entitled ***"A comparative study on the use of Information and Communication Technology (ICT) in cataloguing and classification of library materials at University of Namibia (UNAM) and Namibia University of Science and Technology (NUST)"***. This research project is undertaken as partial fulfilment of the requirements for the Master of Arts degree in library and information science at UNAM.

I have picked you to voluntary participate in this research. Hence you are kindly requested to answer questions in this interview to the best of your ability. Personal details are not necessary for confidentiality. You are requested to sign a consent form as part of the agreement.

1.1 Assess the areas of cataloguing and classification affected by ICT.

a. What kind of information system is used in your library?
b. Does your library offer online catalogue or card catalogue?
c. Is the catalogue used in your library difficult or easy to use?

1.2 Assess the use of ICT by cataloguers and classifiers.

a. Which ICT facilities do you use in your library for cataloguing and classification?
b. How long have you been using the ICT facilities to catalogue and classifying library materials?
c. Do you share your catalogue with other libraries? Which one?
d. Explain how you share your database?

1.3 Evaluate how knowledgeable the cataloguers and classifiers are in the use of ICT facilities.

a) Do you know how to use ICT facilities in your library previously mentioned above?

b) Do you find it easy or difficult to use ICT facilities when cataloguing and classifying library resources?

c) What skills and knowledge are required to do your job? Especially concerning cataloguing and classification?

d) What educational qualifications are required for this job?

e) How would you rate your skills and knowledgeable in cataloguing and classification?

f) How often do you get training in keeping afloat with new technologies in cataloguing and classification?

1.4 The rate of adoption of cataloguing and classification.

a. What kind of online tools do you use when cataloguing and classifying library materials?

b. Why do you use ICT facilities when cataloguing and classifying library materials?

c. Do you see the need of using ICT facilities when cataloguing and classifying in your library?

d. In your own opinion, what are the benefits of using ICT facilities when cataloguing and classifying?

e. How effective is the use of ICT on cataloguing and classifying of library materials?

1.5 Problems hindering the use of ICT for cataloguing and classification.

a) What challenges/ opportunities do you think cataloguers are facing when cataloguing and classifying their library materials?

b) What do you think can be done to overcome these challenges (if any)?

1.6 Recommendation.

a. Anything else that you would like to say regarding the usage of ICT in cataloguing and classification of the library materials?

Thank you for your time and contribution to this research.

End of Interview

APPENDIX G: INTERVIEW SCHEDULED FOR AN IT TECHNICIAN

I, Aune N.N. Iyambo, a student in the Department of Information & Communication Studies, kindly invite you to participate in the research project entitled ***"A comparative study on the use of Information and Communication Technology (ICT) in cataloguing and classification of library materials at University of Namibia (UNAM) and Namibia University of Science and Technology (NUST)"***. This research project is undertaken as partial fulfilment of the requirements for the Master of Arts degree in library and information science at UNAM

I have picked you to voluntary participate in this research. Hence you are kindly requested to answer questions in this interview to the best of your ability. Personal details are not necessary for confidentiality. You are requested to sign a consent form as part of the agreement.

1.1 Assess to areas of cataloguing and classification affected by ICT.

a. Which information system database is in place for your library?

b. Is the database user friendly? Is there anything you wish to be changed in the system offered by the library?

1.2 Assess the use of ICT by cataloguers and classifiers.

a. What kind of ICT facilities are available in your library?

1.3 Evaluate how knowledgeable the IT Technicians in the use of ICT facilities.

a. How long you been working in this section as an IT Technician?

b. When accessing the ICT, do you find it easy or difficult to use?

c. How often do you update your database?

1.4 The rate of adoption of ICT in cataloguing and classification

a. How is database maintained and restored in the event of a disaster?

b. What provisions are in place for back-ups?

1.5 Problems hindering the use a cataloguing and classification.

a. What challenges/ opportunities facing the IT Technicians when operating on the library database?

b. What do you think can be done to overcome these challenges (if any)?

1.6 R**ecommendations**

a. What relationship do you have with the cataloguers on the use of the database used in the library?

Thank you for your time and contribution to this research.

End of Interview

APPENDIX H: OBSERVATION CHECKLIST

The cataloguing and classification system in place	**Indicate with Yes or No**	
• Online catalogue		
• Card catalogue		
• Online and Card catalogue		
ICT facilities in place for cataloguing and classification	**Yes or No**	
• Number of computer workstation		
• Number of computers connected to internet		
• Number of computers with database software		
• Number of computers with OPAC		
Use of ICT facilities in the library by staff	**Tick {√}.**	
• Catalogue		
• Search		
• Storage		
Challenges facing cataloguing and classification section	**A-Adequate or IA- Inadequate**	
• Adequate Computers for staff		

• Is there adequate Power supply		
• Are the Staff enough for cataloguing and classifying		
Access points in place for the library	**Comment**	
• Catalogues (card or OPAC)		
• Bibliographies		
• Indexes		
• Directories author		
• Biographies abstracts		
• Others		
The purchasing of library materials covered in the Collection Development Policy (CDP)	**Comment**	
• Budgeting for information resources		
• The selection of information resources for orders		
• Ordering and purchasing of library materials		