



**ACCESS TO AND USE OF ELECTRONIC INFORMATION
RESOURCES IN THE ACADEMIC LIBRARIES OF THE LESOTHO
LIBRARY CONSORTIUM**

By

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DECLARATION

I, Lefuma Sejane declare that:

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DEDICATION

This work is dedicated to my mother, 'Mantsikoe Eliza Lineo Sejane for her continuous love, support, prayers and for always encouraging me to do my best, and to my late father, Thato Ephriam Sejane. I know you would have been very proud of me. Rest in peace.

ABSTRACT

The study presents the findings of a survey regarding access to and use of electronic information resources in academic libraries of the Lesotho Library Consortium (LELICO). Nine institutions were studied, namely; the National University of Lesotho; Lesotho College of Education; Lesotho Agricultural College; Lerotholi Polytechnic; Centre of Accounting Studies; National Health Training College; Lesotho Distance Teaching Centre; Lesotho Institute of Public Administration and Management, and Institute of Development Management. The Unified Theory of Acceptance and Use of Technology (UTAUT) model by Venkatesh *et al.*, (2009) underpinned the study, using the main variables or constructs of direct determinants of intention, being; Facilitating Condition (FC), Effort Expectancy (EE), Performance Expectancy (PE) and Social Influence (SI), also the direct determinants for use behaviour, User Behaviour (UB) and Behaviour Intention (BI). The study adopted the post-positivists paradigm and mixed methods were used; that is, qualitative and quantitative approaches. The self-administered questionnaires were distributed to the librarians (systems librarians, subject librarians and acquisition librarians), while the two semi-structured interviews were conducted with the Pro-Vice Chancellor, Directors and Rectors, University Librarian, and Library Directors. Response rate of 69.6% for librarians, 44.4% for PVC, Directors or Rectors and 56% for University Librarian and Library Directors were achieved. To analyse quantitative data, the SPSS Version 20.0 was used, while qualitative data was analysed by sorting, classifying and arranging data which were examined in relation to combined thematic content analysis. To ascertain reliability and validity of the instruments, pre-testing was done of both the instruments for librarians and the Library Director of the University of KwaZulu-Natal Library, in Pietermaritzburg. The research study was guided by the ethical protocol of the University of KwaZulu-Natal, which was adhered to. It was established that the type of e-resources accessed and used by academic libraries of LELICO included: e-mail, search engines, websites, Online Public Access Catalogue (OPAC), e-journals, full-text databases, reference databases, institutional repositories (IRs) and Compact Disc-Read Only Memories (CD-ROMs). The study established that e-resources which were accessed and used mostly were e-mail, search engines and websites, followed by the OPAC, e-journals, full-text databases, IRs, reference databases. The study further found that main uses of e-resources were for communication, to support teaching and learning activities, such as professional research, assignments and lecture requirements. The findings showed that

awareness of e-resources was mainly through formal engagement, such as library orientation and through informal engagement such as colleagues. The following strategies were in place: IRs, Open Access (OA), Information Literacy (IL) programme as well as library orientation sessions to improve on the access to and use of e-resources. It has been further revealed that challenges such as budget cuts, low internet bandwidth, lack of up-to-date Information Technology (IT) infrastructure, inadequate searching skills, shortage of staff and high cost of subscription fees posed many of the threats to access to and use of e-resources in the institutions libraries. The findings revealed lack of guidelines and e-resources collection development policies. The study concluded that access to and use of electronic information resources in the academic libraries were influenced by how e-resources were accessed, systems in place, effectiveness of the consortium, challenges facing libraries and strategies in place. The study recommended the establishment of e-collection development policies, guidelines and procedures for budget allocation, conducting of needs assessment to selection, collections maintenance, evaluation and resource sharing formulated to be implemented to enhance the efficient management of e-resource collection by providing selection procedures, requirements, standards and specifications in terms of Information and Communication Technologies (ICTs) infrastructure, equipment and human resource recruitment. The findings of the study influenced the formulation of e-resources collection development policies in academic libraries of the LELICO. The research is a strong platform for critical knowledge exchange and engagement and the presentation of results enhanced the understanding of the current realities and status in relation to access to and use of e-resources in the higher education setting particularly in the academic libraries. Furthermore, the study makes significant contribution in the areas of policy, theory and practice regarding access to and use of e-resources. The present study contributes to the body of knowledge, information and literature, especially in the context of Lesotho.

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LIST OF ABBREVIATIONS AND ACROYNMS

ACCA	Association of Chartered Certified Accountants
ACHEA	Eastern Cape Higher Education Association
ADSL	Asymmetric Digital Subscriber Lines
ADSU	Adamawa State University
AGFI	Adjusted Goodness of Fit Index
AGM	Annual General Meeting
AGORA	Access to Global Online Research in Agriculture
AJOL	African Journals Online
ALA	American Library Association
ALEPH	Automated Library Expandable Program Hebrew
ARL	Agricultural Research Library
ASERL	Association of Southeast Research Libraries
AVE	Average Variance Extracted
BANSDOC	Bangladesh National Scientific, Technical and Documentation Centre
BANSLINK	Bangladesh National Scientific and Library Information Network
BLC	Botswana Libraries Consortium
BLCMP	Birmingham Libraries Cooperative Mechanisation Project
BOAI	Budapest Open Access Initiative
BU	Behaviour Use
BW	Botswana
CALICO	Cape Library Consortium
CALIM	Consortium of Academic Libraries in Manchester
CARL	Colorado Alliance of Research Libraries

CARLIGH	Consortium of Academic and Research Libraries in Ghana
CAS	Centre for Accounting Studies
CBL	Central Bank of Lesotho
CCTV	Closed Circuit Television
CEARL	Consortium of Ethiopian Academic Research Libraries
CD-DVD	Compact Disc-Digital Versatile Disc
CD-ROMs	Compact Disc-Read Only Memories
CDS-ISIS	Computerised Documentation System-Integrated Set for Information Systems
CHAL	Christian Health Association of Lesotho
CHE	Council on Higher Education
CHEC	Cape Higher Education Consortium
CHEST	Combined Higher Education Software Team
CIBER	Centre for Information Behaviour and Evaluation Research
CONZULAC	Committee of New Zealand University Library Acquisitions Consortium
COSALC	Coalition of South African Library Consortia
COSC	Cambridge Overseas School Certificate
COTUL	Consortium for Tanzania Universities and Research Libraries
COUNTER	Counting Online Usage of Networked Electronic Resources
CR	Composite Reliability
CUUL	Consortium of the Uganda University Libraries
CUP	Committee of University Principals
DEF	Danish Electronic Research Library
DOAJ	Directory of Open Access Journals
DL	Digital Library

DLC	Digital Library Consortium
DLE	Digital Learning Environment
DRM	Digital Rights Management
DTPB	Decomposed Theory of Planned Behaviour
EASSy	Eastern Africa Submarine Cable System
EBSCOhost	Online Research Databases
EBQ	Electronic Business Quality
EE	Effort Expectancy
eIFL	Electronic Information for Libraries
ERIC	Educational Resources Information Centre
eSAL	Eastern Seaboard Association of Libraries
eSATI	Eastern Seaboard Association of Tertiary Institutions
FAIFE	Freedom of Access to Information and Expression
FAO	Food and Agriculture Organisation
FC	Facilitating Condition
FinELib	National Electronic Library of Finland
FORSA	Forum for Research Sharing in Astronomy and Astrophysics
FOTIM	Foundation of Tertiary Institutions of the Northern Metropolis
FRELICO	Free State Library and Information Consortium
FTE	Full-Time Equivalent
GAELIC	Gauteng and Environs Library Consortium
GALILEO	Georgia Library Learning Online
GFI	Goodness of Fix Index
Heal-Link	Hellenic Academic Libraries Consortium

HESA	Higher Statistics Agency
HINARI	Health InterNetwork Access to Research Initiative
HKBK	Hazrat Kwaja Khuthubuddin Bakhtiar Kaki, College of Engineering, Nigeria
HR	Human Resource
HTML	Hyper-Text Mark-up Language
ICOLC	International Coalition of Library Consortia
ICTs	Information and Communication Technologies
ID	Identification
IDAL	Illinois Digital Academic Library
IDM	Institute of Development Management
IDT	Innovation Diffusion Theory
IE	Institute of Education
IFLA	International Federation of Library Association
IL	Information Literacy
ILC	Indian Library Consortium
ILL	Inter-Library Loan
INASP	International Network of Availability of Scientific Publications
InfoNET	Information Network
INNOPAC	Innovative Interfaces Incorporated Library System
IOP	Institute of Physics
IPs	Internet Protocols
IRS	Information Retrieval System
IRs	Institutional Repositories
IS	Information System

ISAS	Institute of Southern African Studies
ISBN	International Standard Book Number
ISI	Indian Statistical Institute
ISSN	International Standard Serial Number
IT	Information Technology
ITOCA	Information Training and Outreach Centre for Africa
ITS	Integrated Tertiary Software
IUDL	Intention to Use Digital Library
IULC	Inter-University Library Committee
IQ	Information Quality
IVR	Interactive Voice Response
JC	Junior Certificate
JISC	Joint Information Systems Committee
KLISC	Kenya Libraries and Information Consortium
LAC	Lesotho Agricultural College
LAN	Local Area Network
LASU	Lagos State University
LCE	Lesotho College of Education
LDTC	Lesotho Distance Teaching Centre
LELICO	Lesotho Library Consortium
LHDA	Lesotho Highlands Development Authority
LIS	Library and Information Studies
LIPAM	Lesotho Institute of Public Administration and Management
LP	Lerotholi Polytechnic

LPPA	Lesotho Planned Parenthood Association
LNLS	Lesotho National Library Services
LS	Lesotho
MALICO	Malawi Library and Information Consortium
MB	Mega-Byte
MDGs	Millennium Development Goals
MM	Motivational Model
MIS	Management Information Systems
MPCU	Model of Personal Computer Utilisation
MPhil	Master of Philosophy
MSL	Medical Science Library
MU	Mauritius
NA	National Assembly
NEPAD	New Partnership for Africa's Development
NHTC	National Health Training College
NSF	National Science Foundation
NTTC	National Teachers Training College
NUL	National University of Lesotho
NULC	Nigerian University and Information Consortium
NULIB	Nigeria University Libraries Consortium
OA	Open Access
OCLC	Ohio College Libraries Centre
OERs	Open Educational Resources
OHIOLINK	Ohio College and University Libraries

OHIONET	Ohio Libraries Network
OP	Operating System
OPAC	Online Public Access Catalogue
OSISA	Open Society Initiative for Southern Africa
PALCI	Pennsylvania Academic Library Consortium Incorporated
PDF	Portable Display Format
PE	Performance Expectancy
PEAK	Pricing Electronic Access to Knowledge
PERI	Programme for the Enhancement of Research Information
PhD	Doctor of Philosophy
PJ	Palace of Justice
POD	Print-On-Demand
PORTALS	Portland Area Library Consortium
PVC	Pro-Vice Chancellor
RIN	Research Information Network
RMSEA	Root Mean Square Error of Approximation
SA	South Africa
SAILOR	Service of the Maryland Public Library Community
SASLI	South African Site Licensing Initiative
SAQA	South African Qualifications Authority
SEACOM	African Cable System
SEALS	South Eastern Alliance of Library Systems
SCONUL	Society of College, National and Universities Libraries
SCT	Social Cognitive Theory

SD	Swaziland
SEM	Standard Error of the Mean
SI	Social Influence
SMS	Short Message Service
SMTP	Simple Mail Transfer Protocol
SQ	Service Quality
TAM	Technology Acceptance Model
TEAM	The East African Marine System
TIFRLC	Tata Institute of Fundamental Research Libraries Consortium
TPB	Theory of Planned Behaviour
TRA	Theory of Reason Action
TRC	Transformation Resource Centre
UBL	University of Botswana Library
UCT	University of Cape Town
UG	University of Georgetown
UGC	University Grants Commission
UK	United Kingdom
UKZNP	University of KwaZulu-Natal Pietermaritzburg
UML	University of Malawi Library
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNIX	Universal Network Information Exchange
UNP	University of Natal Pietermaritzburg
US	United States
UTAUT	Unified Theory of Acceptance and Use of Technology

UWI	University of West Indies
VIVA	Virtual Library of Virginia
WAN	Wide Area Network
WBQAS	Web-Based Question-Answer Service
WEBPAC	Innovative Interfaces Web Public Access Catalogue
WI-FI	Wireless Fidelity
WIPO	World Intellectual Property Organisation
WSIS	World Summit on Information Society
WWW	World Wide Web
ZALICO	Zambia Library Consortium

CHAPTER ONE: INTRODUCTION TO THE STUDY

1.0 Introduction

Academic libraries today are complex institutions with multiple roles and a host of related operations and services developed over the years, yet their fundamental purpose has remained the same, to provide access to trustworthy, authoritative knowledge. Consequently, academic libraries along with their private and governmental counterparts have long stood unchallenged throughout the world as the primary providers of recorded knowledge and historical record. Within the context of higher education especially, when users wanted dependable information, they turned to academic libraries (Campbell, 2006). The current study is investigating access to and use of electronic resources in academic libraries of the Lesotho Library Consortium (LELICO). The chapter introduces the background to the study, outlines the research problem, the purpose of the study, justification, scope and limits of the study. Definitions of key terms used in the study are provided, including the historical background and concepts of e-resource, academic libraries, as well as library consortia are defined. The methodology used in the study in relation to data collection procedures and population of the study is described. Lastly, a brief discussion of the structure of the study, the theoretical model adopted for the present study and finally, the ethical considerations are discussed.

1.1 Background to the study

Today's rapid changing world highlights the influence and impact of technology in all aspects of learning life. Higher education institutions in developed western countries believe that these developments offer rich opportunities to embed technological innovations within the learning environment. This places developing countries like Lesotho, striving to be equally competitive in international markets, under tremendous pressure to similarly embed appropriate blends of technologies within their learning and curriculum approaches, and consequently enhance their learning experiences. Al-Adwan *et al.*, (2013) stated that although many universities across the world have incorporated internet-based learning systems, the success of their implementation requires an extensive understanding of end-user acceptance process.

Tao (2008) concurs that with the advancement of computer and networking technologies, there is a significant growth in the availability and use of e-resources. The internet, online databases, e-journals, e-books and various e-resources can be accessed through computers, and other electronic devices. Most people prefer e-resources to traditional print and human information resources.

Electronic resources (e-resources) have become a sign of the modern age and is an invaluable tool for teaching, learning and research. Sethi and Panda (2011) notes that the library and information landscape has transformed with the onset of the digital era and today, traditional libraries have changed their role to serve as 'knowledge centres' with priority on value added electronic information services. Academic institutions are focusing on services which compliment as cutting-edge technology. Such institutions have changed their contemporary outlook towards the functions, operations and services of the academic libraries. The traditional environment has been rapidly changing to an electronic one and the demand for internet and e-resources among academic and research communities has increased manifold over the years. However, the literature reveals that there is a dearth of studies on the use of e-resources and the internet in the context of academics, researchers and students across the globe (Sethi and Panda, 2011).

According to Sethi and Panda (2011) the revolution in Information and Communication Technologies (ICTs), particularly the internet, is exerting profound effects on information-based services. The proliferation of new technologies gives rise to a number of challenges for teaching, learning and research. Notable, among these are those associated with the adoption and institutionalisation of these emerging technologies in teaching, learning and research. As a result, in the last few years, there have been many initiatives to enhance the developed and developing countries capacity to harness this technology in reshaping their educational sectors in ways that are consistent with current knowledge societies. The internet, therefore, has created the possibility of establishing alternative models for the dissemination of information.

Use of the internet by research scholars therefore, is an important area of study in today's information environment. It has become an important component in academic institutions as it

plays a pivotal role in meeting the information and communication needs of institutions. Madhusudham (2007) agrees that the internet makes it possible to access a wide range of information, such as up-to-date research articles, from anywhere in the world. It enables scholars and academic institutions to disseminate information to a wider audience having websites and a way to search them and organise the output. A global effort is on the way to allow access to and use of e-resources in academic libraries. Lesotho is not an exception in this regard, LELICO from its members in the cluster of academic libraries has noted that these libraries should also have access to these resources.

1.2 The research problem

According to Bak (2004: 20), a research problem is that part which captures the essential focus of the study, and therefore, it is important that the researcher formulates a clear, focused and interesting academic problem that is researchable. One major input into research, teaching and decision-making related to learning activities is information and knowledge. Therefore, access to and use of appropriate and up-to-date information and knowledge by researchers, students and policy-makers is vital if they are to carry out their activities successfully. Unfortunately, due to various factors, among them, the reduced funding to libraries, the higher cost of library resources, licensing fees, subscription fees, very few African countries, including Lesotho, can afford such costs. However, with the availability of electronic resources (e-resources) the situation is changing due to the collaboration amongst libraries.

Library collaboration and cooperation is a current trend and therefore widely studied. LELICO, for instance, has been the subject of various studies by Taole and Dick (2009); Moshoeshoe-Chadzingwa (2009); as well as Kakoma and Mariti (2008) among others. However, no study has focused on the actual access to and use of e-resources. Therefore, this study takes an original tandem by contributing to the existing body of knowledge on the subject. This study will serve as a benchmark for access to and use of e-resources to other user groups of various libraries within the consortium and will contribute towards establishing an e-resources development policy, improve management strategies for the academic libraries of LELICO for improving teaching, learning and research regarding access to and use of e-resources.

LELICO is a collaborative initiative of some Lesotho libraries seeking to enhance resource sharing using ICTs. It was founded in March 2003, with the assistance of Open Society Initiative for Southern Africa (OSISA), which was cognisant of the need to enhance resource sharing among libraries in Lesotho (Taole, 2008). The consortium membership consists of nineteen (19) libraries which include academic, national and special libraries (eIFL, 2014). LELICO academic libraries subscribe to e-resources in support of the educational needs of students and staff of their institutions. Due to the high cost of e-resources subscriptions, LELICO is charged with making cost-effective and balanced decisions based on institutional needs. The majority of e-resources, such as e-journals and electronic databases, are available through the consortium, while the rest are individual institutional subscriptions.

Dhanavandan and Tamizhchelvan (2012), defined e-resources as resources which requires computer access or any electronic product that delivers a collection of data, be it text, referring to full-text bases, electronic journals, image collections, other multi-media products and numerical, graphical or time based as a commercially available title that has been published with an aim to be marketed. These may be delivered on Compact Disc-Read Only Memory (CD-ROM) on tape, via internet and so on. Johnson *et al.*, (2012) argued that e-resources are those materials that require computer access, whether through personal computer, mainframe, or handheld mobile devices. They may be accessed remotely via the internet or locally. E-resources are now recognized as being of great importance to even small academic and public libraries, however, they are consuming an ever-increasing share of library budgets, often to the detriment of monographic acquisitions (Gakibayo *et al.*, 2013). The following are the most frequently encountered types of e-resources:

- Electronic Journals (e-journals);
- Electronic Books (e-books);
- Electronic Mail (e-mail);
- Electronic Images (e-images);
- Full-Text Databases;
- Electronic Audio/Visual Resources;
- Indexing and Abstracting Databases;
- Reference Databases (Biographies, Directories, Dictionaries, Encyclopaedias, and so forth);

- Numeric and Statistical Databases; and
- Online Public Access Catalogues (OPACs).

The study will focus mainly on the full-text databases, e-journals, reference databases, OPACs, and institutional repositories, and so forth, including resources that are freely available on the internet through search engines and websites. Though academic libraries subscribe to e-resources, observation has shown that there is low usage which poses a challenge to libraries and the management of institutions as a whole. Unfortunately, there are no statistical figures to support this, because these libraries do not keep statistics on usage and access to these resources. Hoskins (2010) argued that academic libraries do not keep statistics on usage, budget and the expenditure on periodical subscriptions. Despite the increasing use of e-resources for teaching and learning purposes, LELICO academic libraries do not seem to have embraced the management of e-resources, so that the libraries can ensure access to and full utilisation of these resources. In spite of the potential value of e-resources and huge investments required to make them available through LELICO, academic library users do not draw optimum benefits from the resources. According to Premchand-Mohammed (2011), there is a need to put together a single framework that speaks to all aspects of e-resources such as a collection development policy, selection and acquisition management of e-resources, technological issues, staff skills and budgets allocations. It is imperative for LELICO academic libraries to develop policies for e-resource collections to facilitate access and usage of e-resources in order to overcome overspending on resources which are not being utilised.

1.3 Lesotho library consortium

As mentioned earlier, LELICO is a collaborative initiative of some Lesotho Libraries seeking to enhance resource sharing using ICT. The purpose of this consortium is “to provide information and documentation services among members by harnessing and sharing national and international resources through efficient utilisation of ICT’s” (Taole, 2008: 39-40). LELICO is a legally registered independent organisation, under the management of a board and committees. Type of members include nine (9) academic libraries of colleges and a university library with its branches; a research library; a national library with four (4) branches serving as public libraries and seven (7) special libraries in government departments, inter-

governmental organisations, governmental organisations and non-governmental organisations (eIFL, 2014).

1.4 The purpose of the study

Given the nature of the problem, the purpose of the study was to investigate access to and use of e-resources in the academic libraries of the LELICO.

1.5 Objectives of the study

The two main objectives of this study were to investigate access to and use of e-resources in the academic libraries of LELICO.

1.6 The research questions

The study investigated access to and use of e-resources information in academic libraries of LELICO. In particular, the following research questions were investigated:

- How are e-resources in the LELICO academic libraries accessed?
- What systems are in place to facilitate access to and use of e-resources in the libraries?
- What is the effectiveness of LELICO in influencing access to and use of e-resources?
- What challenges do libraries face in facilitating access to and use of e-resources?
- What strategies can be adopted to enhance access to and use of e-resources?

1.7 Justification of the study

De Vos *et al.*, (2011: 107) noted that there are three broad aspects for the justification of a study. The study:

- Must contribute to knowledge-either theoretically or methodologically;
- The relevant practice and/or policy arenas should find usefulness and meaning in the study; and
- The study should be useful for the intended target group.

No comprehensive study has been carried out in Lesotho relating to access to and use of e-resources in academic libraries of LELICO. Therefore, the study will contribute an improved understanding on the access to and use of e-resources in Lesotho. The study is important for libraries in Lesotho, be it academic, research or public, since they play a vital role in teaching, learning and research. The study will also assist library management and all LELICO stakeholders in decision-making and formulating improved policies regarding the access to and use of e-resources.

1.8 Limitations and delimitations of the study

The study was limited to academic libraries of LELICO though other type of libraries, namely; research, special, national and public libraries are members of the consortium. Another limitation included the fact that access to and use were examined from the perspective of the consortium and library staff, and not library users.

1.9 Definition of key terms used in the study

The following are the key terms and concepts used in the study:

- **E-resources**

E-resources are defined as resources which require computer access or any electronic product that delivers a collection of data, be it text referring to full-text databases, electronic journals, image collections, other multi-media products and numerical, graphical or time based as a commercially available title that has been published with an aim to be marketed (Dhanavandan and Tamizhchelvan, 2012). The concept of e-resources will be defined in more detail later in the chapter.

- **Academic library**

Reitz (2007: 5) defines an academic library as “an integral part of a college, university, or other academic institution for post-secondary education, organised and administered to meet the information needs of students, faculty, and affiliated staff of the institution”. On the other hand, Igun (2006: 18) states that an academic library is part of a university or other higher education institutions where books and non-book materials are kept for users. Such a library is a building containing reading materials that staff and students can consult. This library can also be considered to be an organised collection of published books and journals and other reading materials and includes the services of staff able to provide and interpret research, educational, recreational and cultural needs of users. The concept of academic libraries will be defined in more detail later in the chapter.

- **Library consortium**

Brimah (2000), defines library consortium as a formal association of libraries, not under the same institutional control of libraries, type of materials, or subject interest, which is established to develop and implement resource sharing among members. Rosnah and Umar (2014) argued that library consortia refers to cooperation, coordination and collaboration between and among libraries for the purpose of sharing information resources. The library consortium concept will be defined in more detail later in the chapter.

- **Access**

Johnson *et al.*, (2012) refers to access as applied delivery, instructions, methods with e-resources, ensuring proper technological software, hardware, and Internet connections, as well as providing user instruction on how to use these materials effectively. Delivery of e-resources can appear in a variety of formats such as Hyper-Text Mark-up Language (HTML), Portable Display Format (PDF) documents, as well as through various download or Inter-Library Loan (ILL) means. Methods of access vary from in-library connections, proxy servers, link servers, and virtual access to materials ensuring that users are able to make use of electronic information which they are entitled to (Omollo, 2011).

- **Use**

According to the Research Information Network (RIN, 2009), use in the historical context of e-resources refers to page views to abstracts, full-text and search engines pages. Johnson *et al.*, (2012) argued that ‘use’ is the frequency of resource access made by users.

1.10 Historical background to e-resources

According to Miller (2000), twenty years ago, common use of the Internet and such formats as CD-ROMs were still in their infancy stage; many academic libraries still did not have integrated library systems, though most were using every means they had to acquire them. Academic libraries have responded to major changes in the nature of their collections and user demands while materials budgets have provided less purchasing power than in the previous decades. Partly due to general economic factors (inflation, weak local currencies, increased publishing costs) and partly due to other demands on universities or colleges (budgets, technology, student demographics, staff benefits and so on) library material budgets have tended to diminish, if not in actual currencies, certainly in what could be purchased and in the percentage of needed materials acquired. The situation was complicated as publishing, fed by economic pressures, expanded disciplines. Added to this, pricing for scholarly journals, the backbone of any academic collection, increased annually by percentages in double digits with devastating effects on print collections. Since the cost of printed serials have continued to escalate beyond the general economy; electronic reference tools offered an advantage over print, as such libraries are increasingly spending for current online access over the purchase of print materials. The focus now is on maximising online access from multiple remote locations.

While material costs annually increased at percentages in the double digits, the new economics pushed librarians’ attention to e-resources and document delivery. Various forms of resource sharing and ILL have come into existence to support research and instruction because of the increasingly high cost of serials. Journal prices have created a crisis because few budgets can keep pace with the inflated costs and changing needs. Therefore, reallocation of material budgets has now become an issue (Miller, 2000). The need to balance traditional print resources

with e-resources should be stated along with information about the high inflation rates affecting all serial formats, print and electronic.

1.11 Defining the concept of e-resources

Bavakenthy *et al.*, (2003) in discussing the concept of e-resources noted that, e-resources are resources in which information is stored electronically and is a broad term that includes a variety of publishing models, including OPACs, CD-ROMs, online databases, e-journals, e-books, internet resources, Print-On-Demand (POD), e-mail publishing, wireless publishing, electronic link and web publishing, and so forth. In this context, the term primarily denotes any electronic product that delivers a collection of data be it in text, numerical, graphical, or time based, as a commercially available resource (Bavakenthy *et al.*, 2003). According to the International Federation of Library Associations (IFLA, 2015), e-resources consists of materials that are computer-controlled, including materials that require the use of a peripheral (for example, a CD-ROM player) attached to a computer; the items may not be used in the interactive mode. There are two types of e-resources: *data* (information in the form of numbers, letters, graphics, images and sound or a combination thereof) and, *programmes* (instructions or routines for performing certain tasks including the processing of data and programmes (for example, online services, interactive multimedia) (Haridasan and Khan, 2009).

Graham (2003) noted that, e-resources are the mines of information that are explored through modern ICT devices, refined and redesigned and more often stored in the cyber space in the most concrete and compact form and can be accessed simultaneously from infinite points by a great number of audiences. The phrase ‘electronic resources’, has broadly been defined as, information accessed by a computer and may be useful as bibliographic guides to potential sources but, as of yet, they infrequently appear as cited references in their own right. E-resources, therefore, refer to documents in digital formats which are made available to library users through a computer based information retrieval system. The internet is said to be the right and most extensively used channel to acquire the majority of e-resources through different search engines (for example, Google, Alta Vista, Bing, Yahoo, and so forth) WebOpac and, of course, some offline databases in CD-DVD formats that can even be accessed without the help of the internet (Swain and Panda, 2009).

However, e-resources have become very important in recent times as they are up-to-date, multi-dimensional and directional in nature and also can be accessed as well as used anywhere, crossing all geographical boundaries. Such resources add value to all spheres of human activities. Thus, the present study's aim was to study and investigate the access and use of e-resources for the academic and research activities by academic libraries of LELICO, in Lesotho.

1.12 Defining the concept of an academic library

According to Juceviciene and Tautkeviciene (2003), an academic library plays a significant role in the context of this new learning paradigm. Academic libraries, as a sub-system of an organisation, are divisions that not only provides services for studies and research. Instead, the academic library has become an important unit of an organisations academic information infrastructure and an active participant in the learning process of the particular study programme. McCarthy and Ortiz (2010) viewed academic libraries as fundamental indicators of what is taking place at the heart of an institution at any particular time. They define the depth and scope of the educational experience and indeed, the degree of learning, which takes place.

Schopfel *et al.*, (2015) argued that academic libraries have two aspects:

- The academic library's mission is to provide useful and valuable information for the academic community; and
- In the new environment of learning, academic libraries extend the concept of useful and valuable information resources than scientific and technological information.

Together with organisations, academic departments and teaching staff, the academic library strives to realise the organisation's missions and goals in terms of teaching and research. The library becomes one of the potential learning environments that functions in the organisation. It is characterised by the abundance of information sources. However, the richness of information does not ensure the development of a functional learning environment. Within the library space an individual has to identify an environment that helps to achieve the learning goals set. Striving to find rich and empowering learning environments in the library, an educational environment has to therefore be created in the library. The latter should meet the

needs of academic study programmes, have the potential to be transformed into multifunctional learning environments as well as define the aims for developing participant's information and meta-learning competence (Juceviciene and Tautkeviciene, 2003). Thus, the aims and content of the academic curriculum operate in the educational environment of the academic library. It means that an academic library is influenced by the content of the curriculum. The educational environment of the academic library is therefore characterised by the following academic specificity:

- It is an integral part of the institute's educational system;
- It has to interact with all the educational environments of academic study programmes;
- Its regular users (students, teachers, lecturers, researchers and administrative staff) interact with each other; and
- The selectivity of academic library learning environments depends on the type of clients and the educational environment of the study programme (it is important for students in particular) (Juceviciene and Tautkeviciene, 2003).

The academic library learning environment is an individualised learning space and it is comprised of the library educational environment that is identified by an individual learner according to his/her experience, competence and learning goals.

Academic libraries are adapting to the electronic information age by providing improved access to electronic resources. E-resources can offer prompt access to a wide range of information, but the challenge still stands, that if; redistributing funds previously used for collections into e-resources, resource sharing and commercial document delivery. Therefore, there remains the need to monitor usage and access costs. Those who fund libraries have recognised that there is no way to keep up with the level of service demands and the rise in costs without the application of management principles to control costs by urging libraries into arrangements that take greater advantage of leveraged resources (Bedi and Sharma, 2008). These include consortia information purchases and more centralised coordination of what has been a decentralised system of information acquisition previously. One of the biggest changes that libraries have to make therefore is a redirection of the budget for facilitating access to and use of resources.

1.13 Defining the concept of library consortia

Information explosion, emergence of internet and particularly World Wide Web (WWW) as a new medium of information storage has facilitated the work of library consortia. In the age of information explosion, the most challenging tasks for the information professionals and libraries all over the world are to organise and provide access to the huge amount of information that is produced and developed in the world. It is impossible for a single library to monitor and provide access to all the information from every knowledge field globally. To cope with this situation, the phenomenon of consortia has become very important in the last few years. Initially, the term used for resource sharing activities was library cooperation. Though cooperation theoretically could embrace almost all library activities, practically it was confined to ILL of library documents (Ghosh *et al.*, 2006).

However, with the advent of ICTs and its application in library activities, new opportunities opened up for greater cooperation among libraries. At the global level, national and local level several library networks and databases were created for information sharing. In recent years availability of information resources in digital or electronic medium has further facilitated exchange of information resources among libraries, thus creating favourable conditions for increased resource sharing.

A consortium of libraries is well known for sharing of resources all over the world. Several libraries in the world have formed consortia to share their human and e-resources. However, consortia have been established worldwide because of the development of digital information. The work of consortia include co-operation, co-ordination and collaboration between and amongst libraries for the purpose of sharing information resources. Islam and Mezbah-ul-Islam (2005) notes that currently university libraries are purchasing materials to satisfy the needs of their users. This task would be difficult for a single library. By forming a consortium among libraries, it becomes possible to purchase information jointly at reasonable prices (Ghosh *et al.*, 2006) In Lesotho, many libraries, including academic, research, special and public libraries realised the need to form a consortium, hence the establishment of LELICO.

According to Islam and Mezbah-ul-Islam (2005), a consortium of libraries is well known for sharing of resources all over the world. Consortia is the plural form of consortium but is often used in place of the singular form. The term is derived from the Latin word for ‘fellowship’: the meaning emphasises the coming together of separate groups for a purpose. Homogenously the term is used as, alliance, coalition, collaboration, cooperation, partnership. By definition, a consortium is said to be a cooperation arrangement among groups of institutions or an association or society (Islam and Mezbah-ul-Islam, 2005). Library consortium would therefore be an organisation of libraries formed to realise the benefit and opportunities of collaborative activities. It is a comparative alliance of libraries to share human and information resources. However, the common theme of all definitions is the coming together of libraries having common interests and needs to achieve a common goal that is beyond what an individual library could achieve on its own. Some major issues related to library consortium for effective functioning of a successful consortium are:

- Selecting a coordinating agency to deal on behalf of the entire group of members to execute monitoring of the work;
- Source of funding to meet subscription costs;
- Identifying and negotiating the potential publishers/vendors to provide access under consortia purchase/subscription;
- Legal issues involved in contracts and usage of material within the consortium;
- Identifying the necessary infrastructure for access to e-resources;
- Issues related to back-up, documentation and database archival; and
- Training of staff.

Fresnido and Yap (2014) noted that, while a library consortium fulfils certain needs that may be difficult to achieve when undertaken individually, it similarly raises issues and challenges that libraries seldom experience as an independent entity. Among the issues being encountered by the academic library consortium is, the varying level of technology developments. It is no doubt that technology has created new opportunities for libraries to improve on the way they offer services. This, however, may create a problem among member libraries of a consortium when some of the members who may not have much to offer in terms of e-resources and ICT facilities as well as online services start relying heavily on those who have. In this way, it

distorts the concept of cooperation and reciprocity and replaces such with dependency and loop-sidedness, thus destroying the sense of balance in terms of resource sharing.

According to Moghaddam and Talawar (2009), libraries in developing countries have been working on consortia at national, regional and international level. However, some barriers such as poor technological and communication infrastructure, inadequate finances, attitudes towards consortia and multiple efforts are reported to be the limitations of consortia activities in developing countries. For an academic library consortium to function effectively and efficiently, it should have sufficient funds to manage its day-to-day operations and finance its cooperative activities and projects (Fresnido and Yap, 2014).

1.14 Overall theoretical approach of the study

There are several approaches to research. According to Neuman (2006), theoretical approaches involve the study of people; their beliefs, behaviour, interaction and institutions. The following beliefs which are normally called paradigms, encompass a few approaches of which the positivist, post-positivist, constructivism, interpretative and critical are best known (de Vos *et al.*, 2011: 5). The study adopted the post-positivist approach due to the following advantages of the approach. Post-positivist is an open and flexible paradigm. It allows for the development of alternative research strategies that may be able to find information in the most unlikely and creative ways (Glicken, 2003: 28). The study adopted the Unified Theory of Acceptance and Use of Technology model (UTAUT), which provided the conceptual framework for the study. Data was collected from the Pro-Vice Chancellor (PVC), Directors and Rectors of the university and institutions (see Appendix 4); University Librarian and Library Directors (see Appendix 6) and from systems librarians, acquisitions librarians and subject librarians (see Appendix 2).

1.15 Methodology of the study

There are two types of research methods, namely; qualitative which involves interviews and documentaries, and quantitative which involves the collection of numerical data using

questionnaires. The study used both methods. Quantitative research requires imagination, patience and discipline at the planning and design stages. Data collection may present technical problems and requires tenacity but is often straightforward; the tasks of data analysis and write-up are largely, although not entirely, determined by the way the research project was set up (Creswell, 2003). Quantitative research requires careful thought at the onset; it requires mental agility, flexibility and alertness during data collection; it calls for advanced skills in data management and text driven creativity during the analysis and write-up (Davies, 2007: 9). Johnson and Onwuegbuzie (2004), describe mixed methods research as “the class of research where the researcher mixes or combines quantitative and qualitative techniques methods, approaches, concepts or language into a single study”. The present study used a semi-structured interview schedule directed at the PVC, Directors and Rectors and University Librarian and Library Directors. This was used as a supplementary data collection tool. The main instrument for data collection was self-administered questionnaires which were directed at the systems librarians, acquisitions librarians and subject librarians. The units of analysis were the nine (9) academic libraries of LELICO. The quantitative survey data was evaluated and analysed using SPSS while thematic content analysis was used to analyse the qualitative data. Data was analysed to describe characteristics of the population and units of analysis.

1.16 Conceptual framework informing the study

Kombo and Tromp (2006) state that a conceptual framework is a tool that is designed to assist the researcher to develop an awareness and understanding of the problem under examination. The study adopted the UTAUT model which is useful in enhancing the understanding of technology acceptance and use of electronic library services in academic libraries (Ayele and Sreenivasarao, 2013).

1.17 Structure of the study

The research problem, purpose, justification, scope and limits of the study, definition of key terms and concepts have been outlined in this introductory chapter. The next chapter, Chapter Two will provide the conceptual framework for the study. Chapter Three will review the relevant literature related to the study. The research methods used for the study are explained

in Chapter Four and the results are described in Chapter Five. Chapter Six provides an interpretation of the results and the last chapter, Chapter Seven, will provide a summary, conclusion and recommendations. The list of works cited and appendices are presented after the final chapter.

1.18 Ethical considerations

Ethical considerations were followed by applying the Ethics Policy of the University of KwaZulu–Natal. All questionnaires were anonymous and confidentiality or anonymity was not violated. Data collected were strictly used only for the purpose of the research and analysis and use of data conformed to confidentiality standards. Participation in the study was voluntary. All references cited in the study were appropriately referenced.

1.19 Summary of the chapter

In this chapter, the introduction, problem of the study, purpose of the study, justification and scope and limits have been described. Definitions of key terms used in the study have been provided including the historical background of the concepts of e-resources, academic libraries and library consortia. The methodology of the study is briefly discussed, in relation to data collection procedures, and the population of the study is described. The chapter ends with a brief discussion of the structure of the study. UTAUT model for information retrieval provides the conceptual framework for the study. The next chapter will discuss the conceptual framework in relation to the study in greater detail.

CHAPTER TWO: CONCEPTUAL FRAMEWORK

2.0 Introduction

The chapter provides a discussion of the conceptual framework for the study. According to Creswell (2009), the purpose of the conceptual framework in a study is to examine its validity. Creswell (2009: 51), defined theory as an interrelated set of constructs or variables formed as propositions or hypotheses that specify the relationship among variables. The purpose of a theoretical conceptual framework is to make research findings meaningful and to be generalised. They help to stimulate research and the extension of knowledge by providing both direction and impetus (Polit and Beck 2004: 119). Neuman (2006: 74), stated that a theoretical framework is a general theoretical system with assumptions, concepts and specific social theories. Kombo and Tromp (2006), state that a conceptual framework in research denotes a tool that is designed to assist the researcher to develop awareness and understanding of the problem under examination and communicate it. It should therefore be noted that the framework does not only focus on the technological aspect of analysing access and use of e-resources, but more importantly, it explores institutional challenges of academic libraries and strategies put in place to enhance access to and use of e-resources. The UTAUT model adopted as a conceptual framework for the study thus provides an analysis of the aspects to be considered for e-resource use in the LELICO academic libraries.

2.1 Concept of a model

According to Bailey (1994: 322), a model is a copy, replica or analogy that differs from the real thing in some way. Kerlinger and Lee (2000: 11-12), argued that a model springs from a theory. A social science model is one that consists mainly of words, a description of a social phenomenon, abstracting the main features of the phenomenon without an attempt to explain it or predict anything from the description. Thus, the goal with social science models is not necessarily to include all features of the system being modelled but only those necessary for research purposes. Frequently, not all the important features can be adequately modelled because of a complexity or lack of information, and the researcher must be content with an incomplete model, a skeletal model or a model with some of the variables or components

represented by question marks. Barker (2003: 276) saw a model as a representation of reality where social workers, for instance, use the life model to represent the interaction of forces to be found in the client's environment that influence and are influenced by the client. Doing research is in effect, setting up models of what reality is supposed to be and then testing the models against empirical data. A model merely agrees in broad outline with the phenomenon of a model. The model is therefore, used to suggest new areas of research because certain relationships and dimensions are emphasised to an unusual degree. The following section provides a brief background of the relationship between humans and use of information technology.

2.1.1 Information technology

According to Taiwo and Downe (2013), information technology pervades the international community from programmable home appliances to organisation and applications. An increase in technological innovation and applications brought about changes to human life and work endeavours. Furthermore, interaction between humans and computers is affected by quite a number of human factors and its characteristics, to which studies have given rise to theories and models which investigate factors that influence humans to use computers and their applications (Taiwo and Downe, 2013). Therefore, availability of the ICTs facilities is a key pre-condition towards learning, adopting and benefiting from e-resources.

The design, development and acceptance of information technologies have received substantial attention in the past few decades. Many theoretical models have been proposed to provide explanation to end-users acceptance behaviour. The newest among them is the UTAUT by Venkatesh *et al.* (2003), which has been applied and empirically tested in different domains. Since its inception, many empirical studies have been conducted using UTAUT. The model is believed to be more robust than other technology acceptance models in evaluating and predicting technology acceptance (Venkatesh *et al.*, 2003).

The study reviews the variables of e-resources access to and use in academic libraries for teaching, learning and research purposes. The present study, therefore, adopted the UTAUT

model. The UTAUT model was basically formulated by Venkatesh *et al.*, (2003) basing the constructs from existing theories which were tested. The results showed a positively new approach on the new theory of user intentions of new technology. The main focus of the model according to Venkatesh *et al.*, (2003) is to predict human behaviour. The selection of this model for this study is justified by its global and integrative approach, incorporating a wide variety of explanatory variables from the main theoretical models developed to explain technology acceptance and use. Venkatesh *et al.*, (2003) carried out an in-depth analysis of literature on the topic and proposed a unified model that integrates the common contributions to the previous theories. It is, therefore, reasonable to expect a theory that integrates the most important contributions from other models to be superior to the previous theories explanation of technology acceptance and use. The following section provides background information of the model adopted for the present study.

2.2 Background to the Unified Theory of Acceptance and Use of Technology model

UTAUT is a unified model that was developed by Venkatesh *et al.*, (2003) based on social cognitive theory with a combination of eight prominent IT acceptance research models. They examined the predictive validity of eight models in determining the behavioural intention and usage to allow fair comparison of the models. The following are the theories and models which were used to develop UTAUT:

- Theory of Reason Action (TRA) (Fishbein and Ajzen 1975);
- Social Cognitive Theory (SCT) (Bandura 1986);
- Technology Acceptance Model (TAM) (Davis 1989);
- Theory of Planned Behaviour (TPB) (Ajzen 1991);
- Model of Personal Computer Utilisation (MPCU) (Thompson *et al.* 1991);
- Motivational Model (MM) (Davis *et al.* 1992);
- Combined TAM and TPB (C-TAM-TPB) (Taylor and Todd 1995); and
- Innovation Diffusion Theory (IDT) (Rogers 1995).

This section provides an overview and attempts to discuss the unified theory of acceptance and use of the technology model, together with its constructs.

2.2.1 Unified Theory of Acceptance and Use of Technology model

The model integrates the issues that are mentioned in the relevant documents into four main core determinants: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC) and four control variables, which are: Gender, Age, Experience and Voluntariness to Use. It should be noted that the study is only focusing on the four main core determinants. The following table indicates the core determinants of the model adopted for the present study and indicate the source from which they were integrated from (Venkatesh *et al.*, 2003).

Table 2.1: The four core determinants of UTAUT

UTAUT Determinant	The Sub-Determinant	The Source of Integrated Model
Performance Expectancy (PE)	Perceived Usefulness	TAM/TAM2/C-TAM-TPB
	Extrinsic Motivation	MM
	Job-Fit	MPCU
	Relative Advantage	IDT
	Outcome Expectations	SCT
Effort Expectancy (EE)	Perceived Ease of Use	TAM/TAM2
	Complexity	MPCU
	Ease of Use	IDT
Social Influence (SI)	Subjective Norm	TRA/TAM2/TPB/DPTB/ C-TAM-TPB
	Social Factors	MPCU
	Image	IDT
Facilitating Condition (FC)	Perceived Behavioural Control	TPB/DTPB C-TAM-TPB
	Facilitating Conditions	MPCU
	Compatibility	IDT

Venkatesh *et al.*, (2003) notes that the purpose of UTAUT model is to offer the manager tools, to weigh the introduction of new technology and predict and explain the user's behavior of accepting IT. From the previous test result, it was found that the explanatory power of the UTAUT model was 70% with regard to technology using behaviour, it was more effective than

any of the models that were used before; and the use of UTAUT model had become more extensive in recent years, and is no longer confined to the discussion of the use of Information System (IS), such as mobile commerce (Carlsson *et al.*, 2006); online searching (Zeng, 2005); and wireless network (Zhang *et al.*, 2004). It is for this reason that the researcher adopted UTAUT model as the conceptual framework of the study for accessing and using e-resources in the academic libraries of LELICO.

The unification by researchers, add up all constructs from the eight models to four determinants which predicts intentions and usage and four moderators of the key relationships (Venkatesh *et al.*, 2003). The main four constructs of UTAUT, namely; Performance Expectancy (PE); Effort Expectancy (EE); Social Influence (SI); and Facilitating Conditions (FC) have been retained as variables in the present study. To formulate the UTAUT, Venkatesh *et al.*, (2003) reviewed all the constructs in eight models and theorised that performance expectancy, effort expectancy, social influence and facilitating conditions can be significant in the determination of moderators as age, gender, experience and voluntariness of use which are thought to be crucial.

According to Venkatesh *et al.* (2003), the UTAUT aims to explain user intentions to use Information System (IS) and subsequent usage behaviour. The theory holds that four key constructs (PE, EE, SI, and FC) are direct determinants of usage intention and behaviour. Gender, age, experience and voluntariness of use are posited to moderate the impact of the four key constructs on usage intention and behaviour. The model was developed through a review and consolidation of the constructs of eight models that earlier research had employed to explain IS usage behaviour (TRA, SCT, TAM, TPB, MPCU, MM, C-TAM-TPB and IDT). Subsequent validation of UTAUT in a longitudinal study found it to account for 70% of the variance in usage intention and 50% in actual use (Venkatesh *et al.*, 2003). Although UTAUT model was used in developed countries such as Europe and America, it could be adopted in the African context, particularly the Lesotho situation. Some researchers within the African continent also adopted the model in their studies (Alabi, 2016 and Machimbidza, 2015). The following section provides an overview and outlines why the present study adopted UTAUT.

2.3 Reasons for adopting UTAUT

Firstly, UTAUT has been successfully used in many studies which investigated the adoption and use of ICTs, particularly e-resources (Zhou *et al.*, 2010; Dulle and Minishi-Manja, 2011; Deng *et al.*, 2011 and Maldonado *et al.*, 2011). A number of studies employed the survey research design which is also used in the present study and the approaches of both qualitative and quantitative methods, were also underpinned by the paradigm, post-positivist. Secondly, UTAUT was adopted because the researcher found it fit and relevant to the present study for its four main constructs, namely: performance expectancy, effort expectancy, social influence and facilitating conditions. The four constructs will be discussed later in the chapter where they were mapped with the research questions. Thirdly, Venkatesh *et al.*, (2003) argued that UTAUT is comprehensive and powerful and is considered more desirable than other technology acceptance and use of theories. The model has been adopted because it contributes to a better understanding of adoption and use of new technologies than other similar theories and models (Wu *et al.*, 2007). Fourthly, UTAUT has been accepted in most of the continents including Africa and other developing countries. The present study was carried out in Lesotho, which is one of the developing countries in Africa and therefore the researcher found it fit to adopt the model like other studies carried out in developing countries. Ikoja-Odongo and Wokadala (2010) adopted the model in academic libraries of Uganda, while Dulle and Minishi-Manja (2011) applied UTAUT to study the adoption of open access of e-resources in Tanzanian universities. It is evident that UTAUT can be used in a variety of situations and settings and is therefore applicable. Studies carried out around the world are discussed later in the chapter.

The UTAUT is attempting to address access and use of e-resources; systems in place to facilitate access to and use of e-resources; the effectiveness of LELICO in influencing access and use of e-resources; challenges facing academic libraries; and strategies put in place to enhance access and use of e-resources. The model will also assist in necessitating other concepts of access to and use such as Information Retrieval System (IRS). The study gave a rationale that there is low usage of e-resources in the academic libraries of LELICO. Therefore, IRS is seen as a very crucial point in retrieving, accessing and using e-resources. The modified model provides a useful tool for the present study, to assess the success of new technologies that are introduced in academic libraries, and to assess the effective performance for teaching, learning and research purposes. The focus of the model in this regard is, therefore, to find out

the usage of the systems provided. The findings of the study should shed light on levels of end-users' acceptance and use of hybrid library services in universities especially those in less developed countries. The study will also confirm that the efficiency and robustness of the UTAUT model can determine the acceptance and use of technology. The following is a figure of UTAUT model and its main constructs or variables and moderators.

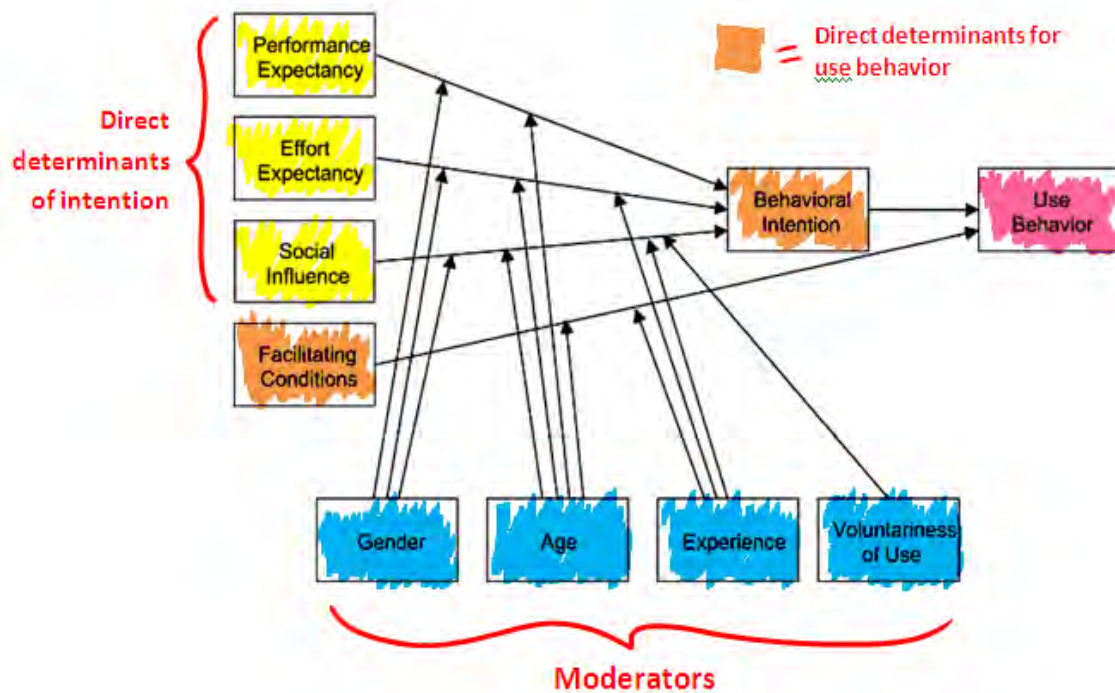


Figure 2.1: The Unified Theory of Acceptance and Use of Technology model (2009)

Source: Modification from Venkatesh *et al.*, (2003).

2.4 The main constructs/variables of UTAUT

The following section describes the main constructs of UTAUT.

2.4.1 Performance expectancy (PE)

It is the degree to which an individual believes that using the system will help him or her to attain gains in job performance. Venkatesh *et al.*, (2003) arranged the five sub-dimensions from the documents in the past, which are perceived usefulness (TAM/TAM2/C-TAM-TPB), external motivation (MM); work correlation (MPCU); relative advantage (IDT), and expectancy to the achievement (SCT). Venkatesh *et al.*, (2003) noted that expected effectiveness refers to 'able to obtain significant rewards after using the system', and from the previous studies, one was aware that the difference between gender and age towards performance expectancy is relatively significant; therefore, the male worker or younger worker who pursues performance will be more outstanding than other groups.

2.4.2 Effort Expectancy (EE)

It refers to the easiness that an individual thinks of when using the system. Venkatesh *et al.*, (2003) arranged the three sub-dimensions from the documents in the past, which are 'consciousness of easy to use' (TAM/TAM2), 'systematic complexity' (MPCU), and 'operating simplicity' (IDT). This means that whether the design of information system can allow the user to use it easily or not, it is one of the key factors of accepting information technology. For instance; whether access to and use of e-resources is clear and easily understood, whether it is easy for the user to use databases or e-journals or access the internet. All of these are factors that determine whether the system is easy to use or not. Venkatesh (2000) believes that the diligent expectations of an individual towards the use of the system would be somewhat different because of gender and age, women or old people are usually more significant, but these influences will be reduced as user gains more experience.

2.4.3 Social Influence (SI)

This variable has been arranged from the three sub-dimensions from the documents in the past, which are 'subjective norm' (TRA, TAM2, TPB/DPTB, C-TAM/TPB), 'social factor' (MPCU) and 'public image' (IDT). The 'subjective norm' refers to 'a certain kind of image of the party

that is given by the people around him/her', or 'people think that how the party should do' (Wu *et al.*, 2008). 'Subjective norm' will urge the party to produce the point of behavioural intention (BI), this was first proposed by Fishbein and Ajzen (1975) in TRA, thereafter through the discussions of many scholars, different results have also appeared. Taylor and Todd (1995) found out that the 'subjective norm' would make party produce the behavioural intention, (Mathieson, 1991; and Davis *et al.*, 1989) believe that the relationship between them and another party is not significant. According to the view of Davis (1989), the strong or weak strength of 'subjective norm' is closely related to the environment that the discussion subject is in. Public image refers to 'the party thinking a certain image helps to maintain or improve his or her own position in the group (Moore and Benbasat 1991), because of the image or impression that the group identifies, so there is significantly positive relationship between the so-called 'public image' and 'role model identification' (Venkatesh and Morris, 2000). Venkatesh *et al.*, (2003) believes the relationship between social influence and use intention would be influenced by the interfering factors such as gender, age, experience and voluntarily use. In addition, social influence has a very significant influence on older workers. But these influences would usually happen only at the beginning of use. After usage for a while, social influence does not have a significant influence on behavioural intention (Wu *et al.*, 2008).

2.4.4 Facilitating Conditions (FC)

They are defined as the degree to which an individual believes that an organisational and technical infrastructure exists to support use of the system. The variable has been arranged by the three sub-dimensions from the documents in the past, which are 'control of conscious behaviour' (TPB/DTPB, C-TAM-TPB), 'promoting condition' (MPCU), and 'compatibility' (IDT). Among them, the so-called 'control of conscious behaviour' refers to the technology assistance that is provided by the objective environment; 'compatibility' is the consistency of the system and organisation value. Therefore, cooperating situation means that the organisation and technical framework support the user to use the system, including the support of computer software and hardware or the assistance on systematic operation (Thompson *et al.*, 1991; Venkatesh, 2000). Experience and age are the interfering factors between the cooperating situation and behaviour. In conclusion, Venkatesh *et al.*, (2003) considers the purpose of experience, gender, and user is to emphasise that there are differences between personal acceptance and the strategy of using information technology under the implemented strategy

appropriately. The variable arranges the sub-dimensions of UTAUT's dimensions and their definitions.

Besides the above-mentioned four-core determinants, there are still four significant moderators in the theoretical structure of UTAUT: gender, age, experience and voluntariness of use. Though UTAUT has these four moderators, the present study has omitted these moderators because they were not mapped with the research questions, and the study was not investigating attitudes or perceptions of users.

Though UTAUT has been applied and has produced successful results in some researches, others have criticised the model. Bagozzi (2008) critiqued the model and its subsequent extensions, stating that UTAUT is a well-meaning and thoughtful presentation, but that it presents a model with forty-one (41) independent variables for predicting intentions and at least eight (8) independent variables for predicting behaviour, and that it contributed to the study of technology adoption 'reaching a stage of chaos'. Instead, Bagozzi (2008) proposed a unified theory that coheres with the 'many splinters of knowledge' to explain decision-making. Van Raaij and Schepers (2008) criticised the UTAUT as being less parsimonious than the previous TAM and TAM2 because its high regression is only achieved when moderating key relationships with up to four variables. They also called the grouping and labelling of items and constructs problematic because a variety of desperate items were combined to reflect a single psychometric construct. Therefore, UTAUT provides aspects to be considered for access to and use of e-resources in the academic libraries of LELICO. The theoretical framework and foundation clearly justifies the constructs included to describe the overall access and use of e-resources in academic libraries.

The following is a table mapping key variables of UTAUT to the objectives and research questions of the present study. The discussion is organised by the variables of the UTAUT which includes: Performance Expectancy (PE); Effort Expectancy (EE); Social Influence (SI); Facilitating Conditions; Behaviour Intention (BI); Behaviour Use (BU).

2.5 UTAUT variables mapped with research questions

Table 2.2: Mapping objectives/research questions to UTAUT variables

1.To investigate the access to e-resources in the LELICO academic libraries	How are the e-resources in the LELICO academic libraries accessed?	Performance Expectancy Behavioural Use Social Influence
	What systems are in place to facilitate access to and use of e-resources?	Facilitating Conditions Perceived Usefulness
2. To investigate use of e-resources in the LELICO academic libraries	What is the effectiveness of LELICO in influencing access to and use of e-resources?	Social Influence Facilitating Conditions Intention to Use
	What challenges do libraries face in facilitating access to and use of e-resources?	Facilitating Conditions Effort Expectancy Intention to Use
	What strategies can be adopted to enhance access to and use of e-resources in academic libraries of LELICO?	Facilitating Conditions Effort Expectancy Social Influence

2.5.1 Performance expectancy and behaviour use

The first question of the present study: “How are e-resources of LELICO academic libraries accessed?” was linked to variables PE, BU and SI of the model adopted. PE is the degree to which an individual believes that using the system will help him or her to attain gains in job performance. BU depends on the degree an individual believes that using the system will bring

about something positive. In the self-administered questionnaire for systems, acquisitions and subject librarians (see Appendix 2), the following questions, 2, 3, 4, 5, 7, 8, 9, 10 and 11 were supposed to investigate how e-resources in the LELICO academic libraries were accessed. The question is linked to performance expectancy and behavioural use, to investigate how well users are able to perform what is expected of them in accessing e-resources, and what hinders their behavioural use of resources for teaching, learning and research purposes.

According to Zhou (2008), the most important factor that determines user acceptance and use of technology such as e-resources, is the user's intention. Behavioural use has been widely researched, especially in the information system research. However, there is a need for further research to further enhance an understanding of the phenomenon (Abubakar and Ahmed 2013). Foon and Fah (2011) studied the behavioural intention of internet banking users. The study concluded that performance expectancy significantly influenced behavioural intention. But their conclusion might not be generalised into other contexts or countries. Wu *et al.*, (2008) studied electronic ticketing adoption among Taiwanese train passengers. Their studies contradicts Foon and Fah (2011) findings. Performance expectancy was found to be insignificant in influencing behavioural intention to use the system. Therefore, previous studies on the relationship between performance expectancy and behavioural intention remained inconclusive, hence further investigation on access to and use of e-resources in the academic libraries of LELICO is needed.

Decisions that libraries make based on financial concerns, such as pay-per-use, may have unintended consequences on user behaviour. Some libraries are formulating collection development policies that encourage lease of e-resources over print materials (Montgomery and King 2002). Library policies that favour e-journals over print are having an effect on user behaviour. Users are increasingly positive about electronic collections and visits to the physical library by academics and graduate students' are decreasing in many libraries, (Rogers, 2001). Users enjoy the convenience and other benefits of electronic access and are adjusting their behaviour as encouraged by the library collection development policies. Library policies affect users in both anticipated and unanticipated ways. Tenopir (2003) noted that visits to the physical library by faculty academic members and graduate students in particular decrease as more digital resources are accessible from their offices or homes. Undergraduates use the

library as a place to socialise and study, so their frequency of use or BU is affected less (Tenopir, 2003).

2.5.2 Facilitating conditions and perceived usefulness

The second research question is “What systems are in place to facilitate access to and use of e-resources?” The question was linked to the variables FC and PU. They are defined as the degree to which an individual believes that an organisational and technical infrastructure exists to support use of the system. The facilitating conditions and perceived usefulness were applied to answer the questions from the self-administered questionnaire, being questions 12, 13, 14 and 15 (see Appendix 2). These were formulated to determine if there were systems in place to facilitate access to and use of e-resources, and also the perceived usefulness of e-resources. An Interview Schedule with the University Librarian and Library Directors (see Appendix 6) included facilitating conditions construct through questions: 2, 3, 4, 10, 11, 14, and 16). Some questions from an Interview Schedule with the PVC, Directors and Rectors (see Appendix 4) included the facilitating conditions construct through questions: 3, 5, and 6. Examples of facilitating conditions for systems to work is adequate funding and technological infrastructure. If the latter are not adequately in place for users to access and use e-resources, definitely, users will not perceive the usefulness of using e-resources. Lack of facilitating conditions will negatively affect their learning process. Therefore, Lack of funding of institutions in supporting teaching, learning and research have a negative impact on facilitating conditions for users to fully access and use e-resources in academic libraries. If those who are responsible for allocating funds are always cutting budgets, users of academic libraries will not have intention to use few e-resources which are available in their academic libraries. Lack of funding, ICTs and other systems facilitating access to and use of e-resources will be discussed in the literature review chapter in detail.

Almost all users perceive many advantages of e-resources, in particular when e-resources are convenient for their teaching and research. The speed of access, desktop availability, and convenience of downloading and printing are most often mentioned as advantages. Most users also perceive some disadvantages. Almost everyone prefers to print articles in PDF for reading, but use HTML for viewing. Some novice users, or users where there is poor technological

infrastructure, are concerned about how they will be able to use the technology. Other users are concerned about longevity and archiving. Systems for example, computers, printers and photocopiers facilitate access to and use of e-resources so without proper infrastructure, users do not perceive usefulness of e-resources.

2.5.3 Social influence, facilitating conditions and intention to use

The third research question: “What is the effectiveness of LELICO in influencing access to and use of e-resources?” The question was linked to constructs, SI, FC, and IU. The following questions from the main data collection instrument, which is the self-administered questionnaire were pinned on questions 16, 17, and 18 (see Appendix 2). The Interview Schedule for University Librarian and Library Directors (see Appendix 6) pinned the questions, 2, 5 and 3. The effectiveness can only be linked to social influence, facilitating conditions and intention to use. According to Venkatesh and Bala (2008), the role of social influence in technology acceptance decisions is complex. Social influence has an impact on individual behaviour through three mechanisms namely; compliance, internalisation and identification (Venkatesh and Davis, 2000). LELICO has a mandate to effectively promote strategies and policies to promote use of technologies for teaching and learning purposes. If there are obstacles or barriers to access or use e-resources, then users will have no intention to make use of such resources.

Library consortia should ensure collective acquisition of e-resources (Dai *et al.*, 2000). This will enable academic libraries to financially contribute to a general pool of e-resources and jointly acquired ICTs as a means of gaining easy access and use. A Consortium with a collective strength of resources of various institutions such as the academic libraries of LELICO are in a better position to resolve the problems of managing, organising and archiving e-resources. Bedi and Sharma (2008) noted that consortia are imperative in terms of the improving libraries in Africa. They further noted that libraries all over the world are forming alliances for the purpose of identifying and addressing common needs arising from developments in information technology, especially the growing importance of the internet and the WWW. These two tools facilitate conditions for accessing and using e-resources. Strategies

to enhance coordinated services in the right direction according to Bedi and Sharma (2008) include the following strategies for consortia:

- Selecting a coordinating agency to work on behalf of the entire group of participants that will be charged with executing and monitoring programmes and activities;
- Identifying and negotiating with the potential publishers/vendors or aggregators to provide access in which purchase is done by consortia; and
- Identifying the necessary infrastructure for e-resources access.

These strategies will enhance the effectiveness of consortium to make it possible for users to access and download the required materials without even going through the elaborate process of ILL.

2.5.4 Facilitating conditions, effort expectancy and intention to use

The fourth research question: “What challenges do libraries face in facilitating access to and use of e-resources?” was linked to variables, FC, EE and IU. Questions 5, 6, 19, 20 and 21 were linked to this research question were from the main research tool, the self-administered questionnaire (see Appendix 2). Intention to use and social influence is the degree to which an individual perceives the new system. From the semi-structured interview with the University Librarian and Library Directors (see Appendix 6), question 4 and 8 attempted to answer the research question on challenges as well. According to Roes (1999), passwords can be a barrier which can influence intention to use a system, which in this case, is intention to use e-resources. Users want free access, without having to remember multiple passwords or log-on protocols. In eliminating special access requirements, however, libraries may create a problem for themselves in this regard. Reffat (2003) observed that lack of knowledge of how libraries carry out its functions leads to users not benefitting accessing and using e-resources fully. Bamberg and Möser (2007), posited that awareness is an important requirement for the development of moral norm. Unfortunately, there is a lack of awareness in developing countries, especially with respect of e-resources services (Abubakar and Ahmed 2013). According to Mofleh *et al.*, (2008), Awareness is defined as user’s knowledge about the existence and advantages of using e-resources. There is evidence that many faculty members and students do not realise that numerous e-journals can be accessed from their offices, residences or home computers through their university username or identification and are actually paid for and provided by the library.

If users are not aware of what the library provides, they will be less inclined to advocate for the library at budget time (Tenopir, 2003).

Although a user's institution pays for subscriptions or access to e-resources, this cost is hidden from the user. Any overt charge or obvious pay per-view has an impact on user behaviour. The Pricing Electronic Access to Knowledge (PEAK) project in the late 1990s was a major experiment with twelve libraries of varying sizes and types and the Elsevier journal collection. The study measured not only the use of e-journals by journal title and type of library, but also measured use under two different payment models for articles. Users of the subject libraries were provided with both 'unmetered' access (in which access comes with a subscription) and 'metered' access (in which users receive an Identity Document (ID) and use tokens, generally paid by the library, to obtain full-texts) to journal articles. Although use increased from the first to the second year in the experiment, 60% of accesses were for 'unmetered' content, most of which was more than one year old. The study concluded that the user cost of access, consisting of both monetary payments and time or effort, has a significant effect on the number of articles that readers access (MacKie-Mason *et al.*, 1999).

Pay-per-view or pay-per-use creates barriers that affect the frequency of online access and downloads. Nicholas and Huntington (2002) found that users who entered an online system from a subscribing institution visited the collection more often than non-subscribers (who could search for free, but had to pay per article, viewed articles from more journals, and used a wider variety of journal titles and subjects than did non-subscribers. The other challenges will be discussed in detail in the next chapter (Chapter Three).

2.5.5 Facilitating conditions, effort expectancy and intention to use

The fifth question: "What strategies can be adopted to enhance access to and use of e-resources?" The self-administered questionnaire included questions 22, 23, 24, 25, 26, and 27 (see Appendix 2) were linked to the constructs facilitating conditions, effort expectancy and intention to use. The questions which attempted to address issues on strategies which can be put in place to enhance access to and use of e-resources from the semi-structured interview

with the University Librarian and Library Directors (see Appendix 6) were, questions 2 and 6. The facilitating condition construct is important in addressing this research question.

Strategies in place encourages a user to make the effort and they make a conducive learning environment for access and use of e-resources, which ultimately allows one to have the experience in accessing and using e-resources. Wong and Dioko (2013) investigated the adoption of interactive whiteboard among Australian early childhood teachers, while Gao and Deng (2012) empirically investigated the determinant of Chinese users' acceptance of mobile e-books. These studies found the relationship between effort expectancy on behavioural intention was significant. The influence of effort expectancy on behavioural intention to use the system appeared to be consistent. Similar studies disagree with these findings. For example, Sumak *et al.*, (2010a) conducted a study to identify the determinants of adoption of virtual learning in Slovenia. They found that student behavioural intention to adopt e-learning was not influenced by effort expectancy. The present study mapped the research question to find out what influences effort expectancy, intention to use and what facilitating conditions have an effect on strategies to enhance access to and use of e-resources in the academic libraries of LELICO.

A system must accommodate most of the variations in use by including features that enable browsing through the table of contents or journals, searching for topics or articles, creating topical subsets of journals or articles, and searching across the entire database. There is some evidence that college students have a low tolerance for system features that do not work or are too difficult. Bishop (2002) conducted user tests at the University of Illinois and found that if an abstract was missing when a student clicked on the abstract button, the student never again clicked on the button for abstracts. Bishop (2002) concluded that one small system failure might have a long-term impact on student searching behaviour.

Academic libraries need to be more proactive in seeking to understand user behaviour and workflows; and rigorously analysing and demonstrating the value of their activities in improving students' experience and in supporting teaching, learning and research. In any circumstance, it is important that academic libraries share ideas and experiences, and to test

what works and what does not work. It is crucial for academic libraries to exploit the potential for cooperation in developing a range of shared services in order to enhance efficiency, as well as the scope and quality of what they provide to both academic staff and students (Tenopir, 2003). Ozoemelem (2009) explained that web experience can be considered to be an act where users engage in applications that are often centred on web experience; in addition, web experience can also be defined in two different ways as perceived use and variety use. Igabaria *et al.*, 1995 noted that while perceived usage refers to the amount of time spent interacting with the web and the frequency of use, variety of use refers to the importance of use and the collection of web package/program use. Essentially, the web experience would often be a tool for wider and more diverse use. Users are increasingly using the web for information retrieval, communicating and so on, via e-mail or online conferencing. The following section provides an application of UTAUT applied to information systems by different researchers.

2.6 UTAUT application to information systems

UTAUT attracted many researchers in information systems research. In Finland, Koivumaki *et al.*, (2008) applied UTAUT to study the perceptions of 243 individuals in northern Finland toward mobile services and technology and found that time spent using the devices did not affect consumer perceptions, but familiarity with the devices and user skills did have an impact. Curtis *et al.*, (2010) applied to the adoption on social media by 409 United States (US) non-profit organisations. UTAUT had not been previously applied to the media and in public relation studies. They found that organisations with defined public relations departments are more likely to adopt social media technologies and use them to achieve their organisational goals. The study found that women considered social media to be beneficial, and men exhibited more confidence in actively utilising social media.

Garfield (2005) used the model to analyse the acceptance of computers in Bentley College, Massachusetts in the United States of America. A study by Pu-Li and Kishore (2006) studied weblog systems to validate UTAUT constructs and concluded by advising researchers to be cautious when interpreting results using UTAUT scales. Louho *et al.*, (2006) discussed factors that affect the use of hybrid media applications using the model. The results showed a high correlation between attitude toward technology use and anxiety. Carlsson *et al.*, (2006) studied

the adoption of wireless mobile communication in Europe using UTAUT to wireless Local Area Network (LAN) technology in smaller enterprises in the US. Cody-Allen and Kishore (2005) adopted UTAUT by adding electronic quality, trust and satisfaction constructs to develop an Electronic Business Quality (EBQ) model. Heerik *et al.*, (2006) used cooperation, empathy, assertion, self-control, responsibility, trust and competence to evaluate social abilities in elderly people within an experimental set-up. After the experiment, participants were interviewed using a questionnaire related to that used by Venkatesh *et al.*, (2003). The investigators used data collected on human-robot interactions in a nursing home for the elderly, and the experiences they went through were utilised to develop guidelines to support human-robot user studies in elderly institutions. Scholars who have also used UTAUT model include Zhang *et al.*, (2006); Wang and Yang, (2005). Morris (2008) investigated the adoption of e-government services using UTAUT. The survey was carried out on 880 students and revealed that performance expectancy, effort expectancy and peer influence determine students' behavioural intention. Similarly, facilitating conditions and behavioural intentions determine students' use of e-government services. Biemans *et al.*, (2005) used the model to examine nurses' behavioural intentions towards the use of a Medical Teleconferencing Application. The study revealed that performance expectancy and effort expectation are high predictors of behavioural intention but social influence prediction was low. Cheng *et al.*, (2008) investigated the validity of UTAUT using 313 intended users of Internet banking in China. The result suggested that performance expectancy and social influence were strong predictors of behavioural intention. The section below provides UTAUT applied in an academic setting by different researchers.

2.7 UTAUT application in an academic setting

Taiwo and Downe (2013) carried out a study to investigate the validity of UTAUT and to reveal how much this validity is substantiated in the literature. In order to achieve this, they harmonised the existing results on UTAUT through the meta-analysis of the model, succeeded in combining and investigating existing empirical literatures. Integrating empirical results of the theory can assist in understanding the application of UTAUT to a variety of technologies in general. Meta-analysis also fosters examination of the relationship between the dimensions of a model as a whole. Thus, analysing relationships between the constructs of UTAUT with a larger sample of subjects becomes more feasible than an individual study (Taiwo and Downe,

2013). They examined the relationship between UTAUT using a larger sample size of over 11,000 which could have been difficult to achieve in a single study. Venkatesh *et al.*, (2003) confirmed that generally, on the basis of meta-analysis in terms of the five constructs of UTAUT, only the relationship between performance expectancy and behavioural intention are strong while others are slightly weak but significant. Further studies which investigated factors which promote or hinder the adoption and usage of ICT, especially digital libraries include: *benefits/usefulness* (Bar-Ilan, 2003; Baruchson-Arbib and Shor, 2002; Theng *et al.*, 2007); *awareness* (Vijayarathy, 2004; and Nov and Ye, 2008) and *ease of use* (Lagier, 2002; and Nov and Ye, 2008) and many others.

In Belgium, Verhoeven *et al.*, (2010) applied UTAUT to study computer use frequency in 714 university first year students. They found out that UTAUT was also useful in explaining varying frequencies of computer use and differences in ICT skills in the university. Heerik *et al.*, (2006) employed a number of external variables such as social factors and individual control to examine the social capabilities of old people using experimental research. The study used a survey questionnaire and interviews. The model suggested that the EE construct can be significant in determining user acceptance of information technology. The model explains that individual differences influence technology use. UTAUT is useful in enhancing understanding of technology acceptance (Venkatesh and Bala, 2008). During the implementation of Perseus Digital Library Project, using a longitudinal and multifaceted view, Marchionini (2000) suggested diverse measurements for evaluation of DL. Saracevic (2000) presented a conceptual evaluation model for digital libraries; while Borgman *et al.*, (2000) identified the effectiveness of DL based on the relationship DL and students' creativity had. Lilly (2001) evaluated a virtual library collection using the UTAUT model. Lagier (2002) used citations to evaluate usage and usability of online databases; Baruchson-Arbib (2002) carried out a survey on the use of electronic information sources by Israel College students using the model.

In India, Sivasubramaniyan and Batcha (2012a) investigated the ability and use of e-resources by the faculty academic staff of Pondicherry University and its affiliated colleges. It was conducted through a questionnaire based survey. Most respondents (69.2%) stated that they used databases and e-journals for both teaching and research, compared with 23.9% who used them exclusively for research and only 0.6% who used them exclusively for teaching. The

university library facilitates access to and use by providing Wi-Fi enabled connectivity to each and every faculty member, and each had been provided with a desktop computer and a printer, hence the high number of 69.2%. The study concluded that the ability to use e-resources efficiently depends on the basis of computer skills; knowledge of what is available and how to use it; and the ability to define, for example, a research problem. The study also concluded that how faculty members attain the above skills and knowledge depends on many factors, such as their discipline, academic status and ranks, age access (hardware and location) to e-resources, and training factors that motivate the use of e-resources, how useful they have found them, and for which purposes they use them.

Several studies have been carried out using UTAUT in the new millennium. In a cross-cultural study of IT adoption, Oshlyansky (2007) found out that performance expectancy, effort expectancy and social influence predicts use intention. Furthermore, Sumak *et al.*, (2010b) found that social influence has a significant impact on students behavioural intention to use and students' behavioural intention is a powerful predictor of the use of the e-learning system. An empirical study by Fang *et al.*, (2008) suggested that performance expectancy, effort expectancy, and social influence significantly predicted managers intention to engage in knowledge sharing using web 2.0. Maldonado *et al.*, (2011) examined the acceptance of an e-learning technology in a secondary school in Peru where 240 students took part in the survey. Results from their study suggested that social influence significantly predicts behavioural intention. Carlsson *et al.*, (2006) examined the acceptance of mobile telephone and found that performance expectancy, effort expectancy and social influence are predictors of behaviour intention. Wu *et al.*, (2007) investigated the acceptance of 3G services in Taiwan and found that performance expectancy and social influence as predictors of behaviour intention. They also found that performance expectancy, effort expectancy, social influence and facilitating conditions are predictors of use behaviour.

In Malaysia, Rahman *et al.*, (2011) carried out a study on the intention to use digital libraries by postgraduate students based on modified UTAUT model. The study addressed the effect of four constructs of the model (PE, EE, Information Quality (IQ), and Service Quality (SQ)) and several interaction factors. PE and EE were found to be the most influential predictors for Intention to Use Digital Library (IUDL). However, differences were identified with respect to

moderating effects. Both gender and age do not significantly moderate the relationship between PE, EE and use of a DL. The study only found that two additional predictors namely; IQ and SQ to be important for use of a DL. Ayele and Sreenivasarao (2013) conducted a similar study to the present one using the UTAUT model. They assessed the acceptance and use of electronic library (e-library) services in academic libraries of the different universities in Ethiopia and to identify the determinant factors that affect the acceptance and use of e-library services in academic libraries. Hence, the researcher found it fit to adopt the model, since it has been used in the African context. According to Ayele and Sreenivasarao (2013), the UTAUT model has been empirically tested and proved that, it was appropriate for the study being conducted. They noted that it can predict the acceptance and use of e-resources in universities. Moreover, the path coefficients for all the independent constructs and dependent constructs were positive. Hence, they indicated or demonstrated a positive inclination of end-users towards the acceptance and usage of e-resources.

Attuquayefio and Addo (2014) carried a study where they focused on contrasting and combining results from different studies using the UTAUT and its extensions, in the hope of identifying patterns among studied results, sources of discrepancy among those results, or other existing relationships that may come to light in the context of these studies. Their studies were prepared basically deriving from e-databases, namely: Emerald, ScienceDirect and EBSCOhost databases. The review evidently showed that variables that need to be applied to determine users' acceptance or adoption of technology varied. The effect of exogenous variables EE, PE, SI on endogenous variable BI were not consistent across countries. While in some studies the effect of effort expecting on BI was significant and strong and the effects of the other variables were insignificant, in other studies performance expectancy or social influence (Cheng *et al.*, 2011) significantly influenced BI.

A comparative study in Nigeria conducted by Oye *et al.*, (2012), established how students accept and use ICTs at two different universities. The study suggested PE is most influential predictor of students' at Lagos State University (LASU) while EE is the most influential predictor of students of Adamawa State University (ADSU) intention to accept ICT. It is therefore prudent for researchers who want to engage the UTAUT model or its extension as a

research model in future studies to carefully choose the right combination of variables and data analysis method that would yield excellent results (Attuquayefio and Addo, 2014).

In addition, the following Table 2.3 provides a summarised detailed list of research conducted under different settings, context, and subject of study (some of which have been mentioned above). For each study, it provides the title of the research paper, authors, year of publication, sample size, location of the study, statistical analysis conducted, objectives of the study and the results of the study.

Table 2.3: Summary of application of UTAUT in education context

Topic	Author/s	Sample size, Location & Model	Statistical Techniques	Objectives	Results
ICT literacy among university academicians: a case of Nigerian Public University	Oye, N.D., Iahad, N. and Rahim, N. (2012a)	100 Nigeria UTAUT + Anxiety+SE + TUT	Regression Analysis	To verify the influence of the four constructs of UTAUT (PE, EE, SI & FC) and other variables outside UTAUT like anxiety, self-efficacy, & attitudes towards use of technology on the BI of the academicians towards the acceptance and usage of ICT for teaching & learning	PE & ATUT are the most influential predictors of academic staff acceptance & use of ICT, computer anxiety which is related to fear of (ICT), has positive influence on BI of the academic staff. Study confirmed the validity of the UTAUT model in the field context of a developing country's educational system.
A comparative study of acceptance use of ICT among university academic staff of ADSU & LASU: Nigeria	Oye, N.D., Iahad, N. and Rahim, N. (2012b).	100 Nigeria UTAUT + Anxiety + SE + ATUT	Regression Analysis	UTAUT model was verified to understand the behavioural intention of ADSU & LASU academic staff to accept and use ICT in their workplace.	PE is most influential predictor of intention in LASU. EE is most influential predictor of intention in ADSU. ATUT influence BI of both ADSU & LASU. Study confirms that UTAUT model predict successful acceptance of ICT usage in both universities.

Library mobile applications in university libraries	Chiao-Chen Chang (2013)	363 Taiwan UTAUT + TTF	Measurement model analysis (Reliability & validity) SEM	To integrate UTAUT with task technology fit to explain users' BI of using library mobile applications in university libraries	PE, EE & FC determine users' BI of using library mobile applications. Moderating effect of TTF fit is also significant.
Students' acceptance of mobile learning for higher education in Saudi Arabia	Ayman, B.N. (2013).	80 Saudi Arabia UTAUT	Principal Axis Varimax rotations Cronbach's alpha coefficients Pearson product-moment correlation	To examine the possibility of acceptance in mobile learning & study main factors that affect using m-learning that focus on higher education students	SI & FC predicts attitude. PE & EE influence BI attitude intention to use.

<p>Predicting secondary school teachers' acceptance and use of a Digital Learning Environment (DLE) cross-sectional study</p>	<p>Bram, P., Devolde, P., Tondeur, J., Van Braak, J., Duyck, W. and Duyck, P. (2011)</p>	<p>72 Belgium UTAUT</p>	<p>Cronbach's alpha Descriptive statistics Least squares regression Path analysis Fit-measures: norm v2 RMSEA, GFI and AGFI</p>	<p>Examined factors which predict secondary school teachers' acceptance and use of a DLE.</p>	<p>The main predictors of DLE acceptance are PE and SI by superiors to use the DLE. EE and FC are of minor importance. UB predicted by attitude and BI.</p>
<p>An empirical study on determinants of Web-based Question-Answer Services adoption (WBQAS)</p>	<p>Deng, S., Liu, Y. and Qi, Y. (2011)</p>	<p>169 China UTAUT</p>	<p>Cronbach's Alpha CR AVE</p>	<p>To identify the driving factors of WBQAS adoption</p>	<p>PE and EE are significant predictors of the BI to use WBQAS. BI and FC significantly influences the actual use of WBQAS. SI has no significant impact on the BI to use the service.</p>

<p>An application of the UTAUT model for understanding student perceptions using course management software</p>	<p>Maldonado, U.P.T., Khan, G. F., Moon, J. and Rho, J.J. (2011).</p>	<p>47 Peru UTAUT</p>	<p>Partial Least square techniques</p>	<p>To describe student perceptions of using course management software application such as blackboard in higher education.</p>	<p>EE and SI influence BI.</p>
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Source: Attuquayefio and Addo (2014)

The results reviewed do not portray any clear pattern of the predictions although majority of the results were consistent with the original postulations of UTAUT by Venkatesh and Bala (2008). The effects of exogenous variables EE, PE, SI on BI are not consistent across countries, within country, and unit of studies, while in some studies, the effect of EE on BI is significant and strong, and the effects of the other variables are insignificant. In other studies performance or social influence significantly influence BI (Cheng *et al.*, 2011). The study carried out by Chiao-Chen (2013) had all the exogenous variables significantly predicting behavioural intention. In general, these studies confirm the efficiency and robustness of UTAUT model to predict acceptance and use of a technology, thus the motivation for its use for the present study. Among these studies, UTAUT has become the latest and most powerful theory to predict and explain an information systems usage intention (Venkatesh *et al.*, 2003).

2.8 Summary of the chapter

The chapter provided an introduction to the conceptual framework for the study. The concept of a model was also described. The models from which the UTAUT was derived were explained. Reasons why UTAUT, as a model for the present study was used, were described. The UTAUT's main variables were explained and the research questions were mapped to the main constructs of the model namely: performance expectancy, effort expectancy, and the social influence and facilitating conditions were described. The chapter critically evaluated several existing studies which adopted the model. The UTAUT studies were carried out within the context of IT and the discussion included several studies where the UTAUT was applied in the context of education, especially in academic libraries in developed and developing countries. The following chapter will review related literature.

CHAPTER THREE: LITERATURE REVIEW

3.0 Introduction

A review of literature is aimed at contributing to a clearer understanding of the nature and its meaning of the problem that has been identified. In general, a literature review serves to put the researcher's efforts into perspective, situating the topic in a larger knowledge pool. According to Grinnell and Unrau (2005: 46), a literature review creates a foundation, based on existing related knowledge. There are two types of literature; the conceptual literature which is mostly concerned with concepts and theories; and the empirical literature which discusses the related concepts under the study (Kothari 2004: 12). In this study, both types of literature were reviewed to avoid any discrepancy in the literature, and the researcher found it fit to discuss some of the concepts since they provide a clear understanding of the problem being investigated. The researcher reviewed literature, by focusing on a developed countries which provided an international perspective. Literature from the developing regional countries was reviewed, finally the literature context in Lesotho was reviewed. The literature review, firstly scanned library consortia concepts, the importance and key issues relating to consortium; types of e-resources; access to and use of e-resources. The literature review attempted to establish the relationship between the research questions and variables of the model in an attempt to address the problems for the study using the UTAUT.

3.1 Library consortia concepts and key issues

The main driving force for collaboration among libraries especially academic libraries, has been the increase in the number of publications and rise in the cost of publications as well as the decline in library budgets. The increase in student enrolment in higher education and increasing demands for library services and collections were other factors given from the 1980's onwards for collaborative efforts (Moghaddam and Talawar, 2009). The main objective of library consortia is to control and reduce information costs, to improve resource sharing, to develop a network information environment, for example, via campus systems, campus networks and the internet and to share licensing issues among libraries. A consortium is able to speak with one voice to vendors, policy-makers and funders. Shared resources and jointly

planned activities enable member libraries to provide more services, more effectively. Through smart negotiations and joint purchasing agreements, library consortia can significantly reduce the costs of commercial e-resources and achieve better terms and conditions of use, thereby maximizing value for money (eIFL, 2014).

According to Bedi and Sharma (2008), access to resources is now considered more important than collection building. The consortium facilitates libraries obtaining the benefits of wider access to e-resources at an affordable cost and at the best terms of licenses. A consortium is in a better position to resolve problems of managing, organising and archiving of e-resources (Bedi and Sharma, 2008). The phenomenon of information explosion has posed several problems for libraries. The advantages of consortia may be summarised as follows:

- Collections and collaborating on collection development to avoid duplication;
- Opportunities for skilled staff expertise;
- Reduced costs by obtaining group purchased prices;
- Electronic access for users of remote catalogue searching; and
- Developed skills and interaction with a vast majority of people from other libraries (Bedi and Sharma, 2008).

Therefore, the overall advantage is to negotiate joint purchases such as equipment, software, books, and licensed e-databases and to share resources.

A review of the literature showed that library consortia is not a new concept. The main driving forces for collaboration among libraries especially academic libraries, has been the increase in numbers of publications and the rise in the cost of publications as well as the decline in library budgets. The increase in student enrolment in higher education and increasing demands for library services and collections were other factors given from the 1980's onwards for collaborative efforts (Moghaddam and Talawar, 2009). An International Coalition of Library Consortia (ICOLC) citing early examples from the late 1960's include the development of the Ohio College Libraries Centre (OCLC) as a regional computer system for 54 Ohio college libraries to share their resources and to reduce costs. OhioLINK is a consortium of 84 college and university libraries in Ohio. The academic institutions represented by these libraries range from Ohio State, with almost 50,000 students, to two and four year colleges with 360 students

(Tenopir, 2003). Over time, the growth of new consortiums were formed; Ohio Libraries Network (OHIONET), a state consortia with 300 member libraries ranging from academic, public, special, school and other libraries. The Virtual Library of Virginia (VIVA) is a consortia of 39 state-funded and 28 private colleges and universities. The Association of Southeast Research Libraries (ASERL) which has 37 research and eight (8) state library members in the South-Eastern US (ICOLC, 2014). Colorado Alliance of Research Libraries (CARL); Illinois Digital Academic Library (IDAL); Maryland's Service of the Maryland Public Library Community (SAILOR); Georgia Library Learning Online (GALILEO); Pennsylvania Academic Library Consortium, Inc. (PALCI); and Portland-Area Library Consortium (PORTALS) are other examples of library consortia in the US. The Birmingham Libraries Cooperative Mechanisation Project (BLCMP) in the United Kingdom (UK); Consortium of Academic Libraries in Manchester (CALIM) (Alvite and Barrionuevo, 2011) are examples of academic library consortia in the UK. Also in Europe is the Combined Higher Education Software Team (CHEST) with 750 member libraries, the Danish Electronic Research Library (DEF) with 242 academic, public, and special member libraries and The National Electronic Library of Finland (FinELib) with 97 academic, public, and special member libraries (ICOLC, 2014).

Rao (2001) reported on the status of the existing library and information networks in India. Major initiatives regarding consortia were: Tata Institute of Fundamental Research Libraries Consortium (TIFRLC); Indian Statistical Institute (ISI) Library consortia; Forum for Research Sharing in Astronomy and Astrophysics (FORSA) consortia; Digital Library Consortium (DLC) under UGC InfoNET. Ashoor (2000) suggested few guidelines for the Arabian Gulf regions and concluded that libraries in the region should enter into partnership to establish a consortium. Giordano (2002) traces the history of ICTs in Italian libraries with reference to library networks and digital cooperation initiatives. In New Zealand, the Committee of New Zealand University Library Acquisitions Consortium (CONZULAC) was developed to gain maximum value from expenditure on monograph resources, to achieve operating efficiencies and to improve levels of service (Fordyce, 2004).

In Bangladesh, in 1998, there were networking attempts to form a consortium by the Bangladesh National Scientific and Library Information Network (BANSLINK). The project

was initiated by the Bangladesh National Scientific Technical and Documentation Centre (BANSDOC). It ventured to connect libraries across the country by setting up a network with 15 libraries of which six (6) were out of Dhaka, and nine (9) in Dhaka via dial up links. The initiative fell apart due to administrative re-organisation at the top and subsequent lack of appreciation (Islam and Mezbah-ul-Islam, 2005). The University Grants Commission (UGC) in Bangladesh reported that there were 21 public universities and 54 private universities libraries (UGC, 2006). Bangladesh, like many other countries in the developing world is undergoing a phase of rapid expansion in higher education.

Nfila and Darko-Ampem (2002) reviewed developments in academic library consortia literature from the 1960s through 2000 and reported that the current trend is sharing integrated library systems and computer databases, collection development, purchasing of e-journals, and staff development. Their report posits that consortium have been effective at extending resources and improving service to users and per-unit costs and are now expanding the role of consortia to shared technologies and more formal agreements (Nfila and Darko-Ampem, 2002).

In India, like other developing countries, library consortium has a positive impact on teaching, learning and development. Ghosh *et al.*, (2006) in their analysis of the Indian Library Consortium (ILC), posited that Indian libraries, in general, were passing through a crucial period of advancement where automation and networking have become quite well developed in India's special and academic libraries though such facilities implementation lags far behind in the public libraries. Bozimo (2011) reported on the formation of the Nigerian University Libraries Consortium (NULIB). The major challenge facing its sustainability is funding. Bozimo (2011) recommended proactive strategies for sourcing funds and implementing Open Access initiatives.

According to Kinengyere (2007), university libraries in Uganda realised the need for cooperation in a workshop held at Makerere University, Faculty of Forestry from August 28 to 29, 2000. The theme of the workshop was 'Library cooperation for effective provision of information in Uganda and beyond'. Members, drawn from ten public and licensed private higher institutions resolved to set up a Consortium of the Uganda University Libraries (CUUL)

to handle the matter. A task force committee was formed to write a CUUL constitution and a CUUL Memorandum of Cooperation. During the 2nd general meeting held at the Uganda Christian University, Mukono, on January 24, 2001, members elected an executive committee that would pave the way forward for the CUUL. Eligible members are all university libraries in Uganda of both public and licensed private universities, plus other licensed degree awarding institutions. Library consortia in other countries of Africa consists of; Nigerian University and Information Consortium (NULC); Malawi Library and Information Consortium (MALICO); Zambia Library Consortium (ZALICO); Consortium for Tanzania Universities and Research Libraries (COTUL); Kenya Libraries and Information Consortium (KLISC); Consortium of Academic and Research Libraries in Ghana (CARLIGH); Botswana Libraries Consortium; and the Consortium of Ethiopian Academic and Research Libraries (CEARL). This in an indication that academic institutions, research, public, national and non-governmental organisations in Africa are collaborating to advocate for the formulation of different policies for the access to, use and sharing of resources.

According to Thomas and Fourie (2006) in South Africa, library cooperation was carried out on an *ad hoc* basis prior to 1975. The Inter-University Library Committee (IULC) was founded by the Committee of University Principals (CUP). The aim was to investigate a more effective resource sharing among university libraries (Thomas and Fourie, 2006). A set of eight criteria for achieving this agreement among libraries wanting to cooperate were:

- Consensus regarding the process;
- A formal agreement in terms of the process;
- Formulating a policy through attracting and involving a number of institutions on a national level;
- A body of members with a controlling and coordinating function to promote and protect their interests;
- Voluntary participation in the cooperative infrastructure;
- Building contractual obligations in terms of the cooperation agreement;
- Consideration of examples of similar agreements from other countries when drawing up an agreement; and

- An infrastructure within which member libraries are able to participate in collection management on a national level, document delivery, selection, retrieval and resource allocation.

According to Thomas and Fourie (2006), academic library consortia of South Africa were established in parallel with the political, social, and economic transformation in the country. There was a pressure from the government to streamline library and educational efforts, grant makers indicated that proposals to fund learning institution projects, especially library systems, would be considered, on condition that they would work as a consortium and not as individual libraries. The following is a summary of both higher education and academic library consortia in South Africa (SA):

Table 3.1: Higher education consortia and academic library consortia of South Africa

Higher Education Consortium	Geographic coverage	Library Consortium Committee	Library Consortium formally established
Cape Higher Education Consortium (CHEC)	Western Cape Province	Cape Library Consortium (CALICO)	1992
Eastern Cape Higher Education Association (ACHEA)	Eastern Cape Province	South Eastern Alliance of Library Systems (SEALS)	1998
Eastern Seaboard Association of Tertiary Institutions (esATI)	KwaZulu-Natal Province	Eastern Seaboard Association of Libraries (esAL)	1997
Foundation of Tertiary Institutions of the Northern Metropolis (FOTIM)	Incorporates the provinces of Gauteng, North West and Limpopo	Gauteng and Environs Library Consortium (GAELIC)	1996
Free State Higher Education Consortium	Free State Province	Free State Library & Information Consortium (FRELICO)	1996/97

Source: Thomas and Fourie (2006)

Library consortia in SA are characterised by different organisational and governance structures depending on the governing boards and consortia objectives in various regions. In each case, the legal entity is the higher education consortium and the library consortium is a committee of the institutional parent body. The library consortia have no legal status. Each consortium strives to meet the needs of its region with particular focus on the academics, students, and researchers. Thomas and Fourie (2006:3) identified common objectives of each consortium and they include the following:

- “Promote formal relations between members to foster collaboration and networking;
- Support optimal access to information for members through regional and national cooperation;
- Promote collection building and resource sharing;
- Provide support for the implementation and management of common library systems; and
- Improve information literacy skills and share training resource and expertise”.

Academic libraries of LELICO are some of the higher education institutions in Lesotho. Higher Education in Lesotho is offered through public institutions established by Acts of Parliament or those existing as government departments and private institutions with the majority owned by the Christian Health Association of Lesotho (CHAL). There are thirteen (13) institutions recognised by Council on Higher Education (CHE) and Government of Lesotho, 61.5% are public while 38.5% are private (CHE Report 2010/11-2011/12). The determination of curricula and syllabi are the responsibility of the Ministry of Education. Within the education system, there are three levels namely: Primary, Secondary; and Tertiary Education. The third level of education is the category which the academic libraries of LELICO fall under. The nine institutions or libraries are the subject of this research. Each of the institutions offers various programmes and produces graduates that are qualified in various fields and at various levels of training (Kakoma and Mariti, 2008). The following is a brief summary of each institution which formed the units of analysis of the study:

3.1.1 National university of Lesotho

The university offers programmes ranging from certificate to PhD in various fields. The university is a growing institution striving to meet the needs of the nation, through producing competent and skilled graduates who can easily take up the call to assist in the development of Lesotho. The following are the available faculties at NUL: Faculty of Agriculture; Education; Health Sciences; Humanities; Law; Science and Technology; and Social Sciences. Kakoma and Mariti (2008) noted that the university also has two Documentation centres, Institute of Education (IE) and Institute of Southern African Studies (ISAS), though during transformation the latter was merged with the main library of the university. The university has two main

campuses, one campus is situated in the southern part of the country in Mohale's Hoek district and the other one is in the northern part of the country, in the Leribe district (NUL website, 2015)

3.1.2 Lesotho College of Education

The institution, formerly known as National Teachers Training College (NTTC) offers programmes that lead to three sub-degree qualifications. These qualifications are: the Certificate in Early Childhood Education; Diploma in Primary Education and the Diploma in Secondary Education. The college is now known as the Lesotho College of Education (LCE). (LCE website, 2015).

3.1.3 Lesotho Agricultural College

The Lesotho Agricultural College (LAC) has two campuses. The main one is situated in the capital town of Lesotho, in Maseru District and the other campus is in Leribe District, in the northern part of the country. The college offers sub-degree programmes; Certificate in Agricultural Mechanisation; Certificate in General Agriculture to a Diploma in General Agriculture; Forestry and Resource Conservation, and Home Economics (Malelu, 2015).

3.1.4 Lerotholi Polytechnic

Lerotholi Polytechnic (LP) has schools such as the Technician Training School; Commercial Training Institute, and the School of Built Environment. The institution offers technical and commercial programmes at sub-degree level, namely; Civil Engineering; Construction Engineering; Architectural & Building Technology; Electrical & Electronic Engineering; Water, Environment Engineering; Business Management; Building Technology, Carpentry & Joinery; Metal Work; and other technical courses (LP website, 2015).

3.1.5 National Health Training College

The College aims to respond to the demand for the increasingly complex skills required for addressing the needs of the population. The key objectives of the National Health Training College (NHTC) include the provision of professional education and training of health professionals so that they can render optimal health services in line with primary health care; ensuring and maintaining quality professional education through the application of research in all programmes as well as to maintain national, regional and international educational standards. The College offers sub-degree programmes in Health Sciences such as a Diploma in Midwifery; Diploma in General Nursing; Diploma in Clinical Nursing; Diploma in Anaesthetic Nursing; Diploma in Ophthalmic Nursing; Diploma in Pharmacy Technology; and Certificates in Nursing Assistance and Environmental Health (NHTC website, 2015).

3.1.6 Centre for Accounting Studies

According to the Centre for Accounting Studies (CAS), its mandate is to provide tuition leading to the attainment of a professional accounting qualification, for both private and public sectors. It provides examinations for the Lesotho Institute of Accountants programme in Licensed Accountant; Registered Accountant and Chartered Accountant. It also offers examinations for the Association Chartered Certified Accountants (ACCA) for the qualification of Technician Accountant; General Accountant, and Chartered Accountant (CAS website, 2015).

3.1.7 Lesotho Distance Teaching Centre

Lesotho Distance Teaching Centre (LDTC) is a department of the Ministry of Education. It has two main units: one dealing with literacy and post-literacy programmes, credit schemes, and the alternative primary school courses unit called the Basic Education Unit; and the second, Continuing Education Unit dealing with secondary education programmes. There are also support sections namely: Educational Broadcasting Research and Evaluation. Its objectives are to:

- Provide correspondence courses for private candidates studying for Junior Certificate (JC) and Cambridge Overseas School Certificate (COSC);
- Provide learning materials on practical topics for rural people;
- Act as a service agency for other organisations requesting the use of non-formal education techniques in their programmes, and
- Offer opportunities for out-of-school youth and adults to develop functional literacy and numeracy skills (Lesotho Government website, 2015).

3.1.8 Institute of Development Management

The Institute of Development Management (IDM) was established as a regional organisation in Botswana, Lesotho and Swaziland countries to help meet the management needs of the region through development activities including training, consultancy, research, and the establishment of a Management Resource Centre. Courses offered include; Business Management and Information Systems; Human Resource Management and Organisational Development; Public Health Management, and an Executive Development Programme (IDM website, 2015).

3.1.9 Lesotho Institute of Public Administration and Management

The Lesotho Institute of Public Administration and Management (LIPAM) falls under the Ministry of Public Service, which is committed to the provision of Human Resource (HR) services through the human resource legal framework and policies as well as monitoring and evaluation of their implementation for quality service delivery. For over 28 years, LIPAM has endeavoured to satisfy its clients through tailor-made courses and services. LIPAM intend to keep up with the changing challenges of education by using a consolidated mode of teaching, research and consultancy (Ministry of Public Service website, 2015). The following section provides an overview of LELICO.

3.2 The Lesotho Library Consortium

The Lesotho Council of Higher Education Report (CHE, 2010/11-2011/12) stated that the importance of libraries cannot be overemphasised as they provide the necessary information to lecturers and students to achieve their teaching, learning and research needs. It further stated that it is encouraging note to that 83.3% of libraries had internet connectivity half of which had access to Open Educational Resources (OERs).

Though there is limited published and unpublished literature on LELICO as a consortium, earlier, Taole (2008: 39) noted that the consortium is a collaborative initiative of some Lesotho libraries seeking to enhance resource sharing using ICTs. It was founded in March 2003, with the assistance of OSISA which was cognisant of the need to enhance resource sharing among libraries in Lesotho. The purpose of this consortium is to provide information and documentation services among members by harnessing and sharing national and international resources through efficient utilisation of ICTs (Taole, 2008: 39-40). The objectives of LELICO as outlined were to:

- Develop and improve cooperation among members
- Serve as a coordination unit among member state and institutions, organisations and agencies, state and funding sources on those matters related to the improvement of services to members;
- Work towards a coordinated policy of technical information growth and development of efficient systems, rapid communication among the membership, shared resources, cooperative and coordinated purchasing, subscriptions and exploration of other areas of cooperation; and
- Cooperate with other libraries, research institutions and organisations within and outside the country to further the purpose of the consortium. LELICO has nine (9) academic libraries; seven (7) special libraries; two (2) public libraries and one (1) research library.

LELICO is a legally registered independent organization, under the management of a board and committees. Type of members include academic libraries of colleges and a university library with its branches namely: NUL; LCE; LP; LAC; LDTC; NHTC; LIPAM; IDM; and

CAS, a research library, the Agricultural Research Library (ARL); a national library with four branches serving as public libraries namely Lesotho National Library Service (LNLS) and special libraries in government departments, inter-governmental organizations, governmental organizations and non-governmental organizations namely: Lesotho Highlands Development Authority (LHDA); Lesotho Planned Parenthood Association (LPPA); Transformation Resource Centre (TRC); National Assembly Library (NA); Palace of Justice Library (PJ); and the Central Bank of Lesotho (CBL) (eIFL, 2014).

Moshoeshoe-Chadzingwa (2009) notes, the National Library of Lesotho, a government-run institute is a member of the consortium. LELICO receives relatively satisfactory support from the ministry to pay for subscriptions to e-databases for member libraries. The Ministry's annual budget allocating for LELICO is commendable, and serves as a facilitator for the use of shared digital information by libraries in Lesotho. There have been milestones that mark the progress towards e-resources access to and use which include:

- Training library personnel, not only to influence decisions but also to manage the appropriate digital dispensation;
- Institutional adoption of appropriate policies and norms on the development of digital libraries are integrated with print;
- Training library clients through IL programmes and other means for use and access of e-resources; and
- Mounting a Diploma course on Library and Information Studies (LIS), for more workforces that may also meet emerging demands in the digital era (Moshoeshoe-Chadzingwa, 2009).

The eIFL works with libraries in developing and transition countries to enable access to knowledge for education, learning, research and sustainable community development. LELICO has been very active in activities such as OA Week which is an International event, which is celebrated every year in the month of October. In 2013, LELICO celebrated International OA week with a series of workshops which were hosted from October 22 to 23, with the theme 'Advancing faculty-driven open access policies and practices among the faculties'. Since the celebrations commenced eight years ago, LELICO has been active with the aim of enhancing effectiveness of the consortium in sharing of e-resources.

OA week is a global event now entering its ninth year. This year's theme (20 to 26 October) was 'Generation Open'. The theme was supposed to highlight the importance of students and early career researchers as advocates for change in the short-term through institutional and governmental policy, and as the future of the academy upon which ultimate success of the OA movement depends. The theme also explored how changes in scholarly publishing affect scholars and researchers at different stages of their careers.

3.3 Key issues facing consortia

The most common issues facing consortia in higher education institutions is lack of infrastructure, finances as well as consortia membership. Thomas (2005) noted that consortia are required to deal with changing membership needs, including new or revised services and research support, for example, opening libraries to provide a twenty-four hour customer service support. Academic libraries are experiencing staff shortages and some consortia members face serious challenges with regard to skills development and training as well as capacity building. Consortia members are also pressed by both library management and decision-makers in the parent institution to justify the continued costs of consortia membership fees.

Another critical factor is that consortia have to renew their efforts to ensure sustainability, and rely less on the parent higher education consortium as a main source of revenue. The traditional roles such as resource sharing and collaboration for mutual benefit are no longer sufficient justification for consortia. They need to expand their roles, for example, central storage services, grant writing proposals, training services, and benchmarking (Thomas, 2005). The next section will describe in detail the types of e-resources.

3.4 Type of electronic resources

According to Dhanavandan and Tamizhchelvan (2012), e-resources are defined as resources which require computer access or any electronic product that delivers a collection of data, be it text referring to full-text databases, electronic journals, image collections, other multi-media (audio/visual) products and numerical (statistical) graphical or time-based as a commercially

available title that has been published with an aim to be marketed. These may be delivered on CD-ROMs, on tape, and via internet. Johnson *et al.*, (2012) argued that e-resources are those materials that require computer access, whether through personal computers, mainframe, or handheld mobile devices. They may be accessed remotely via the internet or locally. The following are the most frequently encountered types of e-resources:

3.4.1 Electronic journals (e-journals)

According to Johnson *et al.* (2012), e-journals are journals provided in a digital format for access via an internet browser, a computer or other electronic device. However, Lee (2002: 128) defined e-journal as “an electronic resource published as a serial, often duplicating a journal that already exists in print form, but also occasionally being born digital”. Journals, both print and electronic present the reader with a collection of articles under a recognised title. This in turn presents the reader with information on the expected quality of the article linked to the reputation of the publishing house, the peer-reviewing scheme and so on (Morris, 2000). E-journals offer many advantages. Maxymuk (2004) outlined some of the advantages:

- They take up no physical space on limited shelving;
- They are accessible at any time;
- They can be accessed from almost any workstation that can connect remotely to the institution’s network;
- They can be searched and browsed;
- They can be printed on demand, and
- They often can be downloaded as electronic files.

Liew *et al.*, (2000) argued that the main advantage of e-journals over their print counterparts is that they are interactive, or at least offer an element of interactivity. While they do not take up shelving space, they do require a computer network infrastructure that has cost space implications. They require extensive and ongoing catalogue work as well as monitoring of complicated and ever-shifting licensing issues. Remote user access can be confusing and sometimes necessitates assistance (Maxymuk, 2004). Some of the e-journals databases are, the African Journals Online (AJO) which contains articles in scholarly journals published in

Africa; and Directory of Open Access Journals (DOAJ) which contains open access to journals in many disciplines that can be browsed or searched (DOAJ, 2015)

3.4.2 Electronic books (e-books)

According to Johnson *et al.* (2012), e-books are books that are provided in a digital format for checkout or use via an internet browser, a computer, or another electronic device like an e-book Reader. Dinkelman and Stacy-Bates (2007) defined e-book as any piece of electronic text regardless of size or composition (a digital object), but excluding journal publications, made available electronically (or optically) for any device (handheld or desk-bound) that includes a screen. Lee (2002: 43) pointed out that the market for e-books is very new, but at the same time seems to be in constant change.

Falk (2003) reported the rapid growth and use of e-books in schools, colleges and universities in developing countries. E-books have become an important part of the learning environment in tertiary institutions. Their importance continues to grow, and the number of academic libraries supporting digital collections grows with it. One area that is well recognised as benefiting from e-books is distance learning. Online education makes higher education more affordable and accessible, the number of students enrolling for online education programmes is constantly increasing. Students can complete or advance their education while they work (Minčić-Obradović, 2011: 19).

The reading of e-books via a standard web browser seems to be in keeping with the general moves for online delivery. The web interface allows the user to read the text, but also opens up possibilities of linking to other resources, cross-text searching, and utilisation of dictionaries and so on. Questia is one example of companies that offer web access to e-books. Some of the advantages are:

- Access anytime, anywhere. Academics and students do not have to come to the library to check something; they can do it at their own convenience. Academic staff are frequently away from their offices or travelling internationally and want to be able to access collections at times that suit them;

- Full-text searches. E-books offer full-text searches with other search capabilities and more comprehensive retrieval of information, and
- Enriched text. Functionalities of electronic text that are useful include the ability to change font sizes and typefaces. E-books allow non-permanent highlighting and annotation (Minčić-Obradović, 2011: 19-21).

Ashcroft and Watt (2004) also mentioned the potential advantages of e-books including access, speedy publications, space-saving and lower costs. Questia is one example of a company that offers web access to e-books. Though accessing and using e-books has advantages, there are disadvantages as well. The following are some of the disadvantages as outlined by Minčić-Obradović, (2011: 22-23).

- Difficulties with reading on screen. Many people still find it difficult to read on screen;
- Technical requirements. Some books available as e-books cannot be read on particular e-book readers because they are not supplied in a readable format, and
- Compatibility with citation software. Academic libraries usually support a particular citation software package, and this may not be compatible with some e-book collections.

3.4.3 Full-text databases

According to Johnson *et al.* (2012), full-text databases are defined as a collection of data in a server or computer for easy access format that provide full-text document instead of just a citation typically in PDF or HTML. Full-text databases became common around 1990 when computer storage technology made them economic and technologically possible. Electronic databases form the basis of most of IRS available today. Chowdhury (2004: 14) noted that e-databases are:

- Large discipline-oriented databases;
- Interdisciplinary databases with coverage based on key or core journals;
- They are cross-disciplinary;
- They are smaller, more specialised databases serving a particular technology or application, and

- Databases cover a specific type of publication.

Chowdhury (2004:14) identified major properties of an e-database, namely:

- It is integrated with provisions for different applications;
- It eliminates or reduces data duplication;
- It enhances data independence by permitting application programs to be insensitive to changes in the database;
- It permits shared access;
- It permits finer granularity, and
- It provides facilities for centralised control of accessing and security control functions.

According to Chowdhury (2004: 15), there are two main classes: an extension of the classical bibliographical databases into full-text databases which include citations, references and abstracts of articles of research papers; catalogue databases include a catalogue, for example, of a library or a group of libraries in a network; and referral databases, for example, which offers references to information such as addresses, names, or institutions and information systems. Source databases may be numeric which contains numerical data including statistics and survey data; and text-numeric databases containing a combination of both text and numerical data such as a company's annual report; and internet based full-text databases which are based on search engines such as Google, Google Scholar, and so on.

Examples of the full-text databases are Health InterNetwork Access to Research Initiative (HINARI) which consists of health disciplines; Access to Global Online Resources in Agriculture (AGORA) database which provides environmental and agricultural disciplines; EmeraldInsight which provides a wide range of management, library and information management journal; ScienceDirect; Ebscohost, a multidisciplinary database which provides access to many databases including communication, mass media business, religion and philosophy and other disciplines; and LexisNexis which provides access to full-text glossaries, legislation, procedures of South African Legal services.

3.4.4 Compact disc-read only memory (CD-ROM) databases

A CD-ROM is an e-resource format that contains up to 650-900 Mega-Bytes (MB) of information on a single-sided, single-layer optical disc (Johnson *et al.*, 2012). It is a CD that can be read by a computer with an optical drive. The 'ROM' part of the term means the data on the disc is 'read-only', or cannot be altered or erased. Because of this feature and their large capacity, CD-ROMs are a great media format for retail software. CD-ROMs share the same technology as audio CDs, but they are formatted differently, allowing them to store many types of data (Johnson *et al.*, 2012).

Afolabi (2007) pointed that CD-ROM databases allow users access to relevant databases without robust internet connectivity in libraries. They are therefore, more cost effective than online databases as information can be accessed off-line without telecommunication fees. CD-ROM databases are of immense value over print if the system is networked, as clients at their access points or terminals could access information without coming to the library. New modes of teaching, learning and accessing information have emerged as a result of the internet and WWW. They further noted that CD-ROM databases are important tools for identifying the bibliographic details of potential useful documents and to ensure easy access to large volumes of literature for research. Majid and Tan (2002) emphasised that technological advancements have opened new horizons for information creation, duplication, storage, access, distribution and presentation. The pace at which information sources are being produced and converted into electronic form is tremendous. Digitisation of information is resulting in access to volumes of information. It is important to find out how this information is utilised in the academic libraries by its clients.

3.4.5 Online public access catalogues (OPACs)

Online public access catalogue includes electronic bibliographic database that describes books, videotapes, periodicals and so on, in a particular library. OPAC evolved from a printed source, the library card catalogue. Library catalogues were pieces of furniture that contain numerous small drawers containing records of a particular item in the library. Information about each item in a database is called a record. Elements of an individual record are called fields. Fields

can be used as points of access when searching a database. A record in a periodical database would include information about a periodical article (author, source, date, title, and so on) (ICOLC, 2014). The most common OPAC fields are: year, title, author, subject, series, table of contents, journal title, barcode, International Standard Serial Number (ISSN) and International Standard Book Number (ISBN). Most library software systems now include web-based interfaces to OPACs. Library users find it easier to learn and use OPACs from different library systems, since they only have to know how to use one universal access client, the web browser. Web-based OPACs also make it easier for users to access e-resources from anywhere without going to the physical library. Different libraries use different web-based OPACs such as UCT libraries using ALEPH; UKZN libraries uses WorldCat; and the University of Botswana Library (UBL) uses *Medupe*, NUL Library uses WebPAC PRO.

3.4.6 Electronic mail (e-mail)

Johnson *et al.*, (2012) defines e-mail as a method of exchanging digital messages from an author to one or more recipients. Modern e-mail operates across the internet or other computer networks. E-mail servers accept, forward, deliver and store messages. Neither the users nor their computers are required to be online simultaneously; they need to connect only briefly, typically to a mail server, for as long as it takes to send messages. E-mail uses technology to communicate a digital message over the internet. Users use e-mails differently, based on how they think about it. There are many software platforms available to send and receive; popular ones include: Gmail, Hotmail, Webmail, Yahoo, Outlook and many others. The ‘at’ sign (@), is part of every Simple Mail Transfer Protocol (SMTP) e-mail address.

E-mail offers a way to communicate effectively with academics, library staff and users. Jackson *et al.*, (2007) argued that e-mail Listserv technology supporting a web form provides a way for academic staff and users to communicate messages about problems with e-resources to the appropriate users and subject librarians. Other uses of e-mail to support e-resources management communications are individual e-mail messages about federated search tools, e-mail from users, and general e-mail address that staff provides to vendors for communication to multiple individuals in e-resources management (Rupp, 2007). In general, e-mails facilitate

access to and use of e-resources and is one of the ICTs which academic libraries have to put in place.

3.4.7 Internet

The Russian Federation defines an internet as an international conglomeration of interconnected telecommunication networks which provides for the interaction of connected information systems and their users, by carrying their traffic using a single system of numbering, naming, addressing, identification, protocols and procedures that is defined by internet standards (Russian Federation, 2012). Johnson *et al.*, (2012) defines an internet as the worldwide communication network originally developed by the US Department of Defence and extended by the National Science Foundation (NSF) to be a distributed system with no single point of failure. Examples of WWW browser software are Microsoft's internet Explorer, Mozilla Firefox, Google Chrome, Opera and others. There are also social networking websites such as Facebook, Twitter and Myspace (Chen, 2000). Internet is the most facilitating and the most powerful tool in promoting access to and use of e-resources. Makori (2015) argued that the internet provides an excellent opportunity for postgraduate students to benefit from online communities for publishing theses and dissertations, leading to the creation and dissemination of knowledge. Despite the availability of e-resources and their benefits to education, their effective uses in Africa are being hampered by varying factors. Studies have revealed that these factors include: lack of adequate infrastructure, low bandwidth, lack of searching skills, poor funding of universities, high cost of information technology equipment, high rate of foreign exchange and poor telecommunication infrastructures (Okiki and Asiru, 2011). All these challenges hamper access and use of e-resources in academic libraries. Some of the problems include:

3.5 Problems with electronic resources

Although the advantages are outweighing the perceived problems or concerns as use increases and more resources are available, users still express some concerns about the disadvantages of e-resources library collections (Tenopir, 2003). E-resources require higher level skills to manage than traditional formats. Efficient and effective communication between departments

is essential since there are many academic librarians engaged in selecting, managing, and acquiring e-resources. Open access and other scholarly communication models are evolving and will have an impact, but their future is not yet clear. Users desire the most direct path to a resource. Portability and convenience are gaining importance. Finally, technology will continue to evolve (Duncan, 2007). Minčić-Obradović (2011: 23) argued that printed books remain readable for centuries, but changing technologies and less durable electronic storage media require for example, e-resources like e-books to be regularly copied to new carriers. They equally require users to keep up with technologies, to have the latest versions of software and hardware. Earlier, Chen (2000) noted, though the internet can theoretically be accessed by anyone at any time and place, in practice it does not mean that any e-resources can be used instantly and smoothly. Inability to access remote servers is frequently due to the slow response from limited network bandwidth and complicated routing tables and maps.

The most common complaint found in many studies is the discomfort of reading from the screen or poor quality (Palmer and Sandler, 2003; and Sathe *et al.*, 2002). Readers prefer PDF format for printing, although the HTML format is better for skimming, while others prefer to print out articles for reading and do most of their reading from paper printouts (King and Montgomery, 2002; Cherry and Duff 2002). In citing the main reasons for preferring print over e-journals, Vanderbilt University Medical faculty academics and students said that print is an easier to read format, of better graphic quality, easier to browse, and easier to access (Sathe, *et al.*, 2002). Access to adequate technology may still be a problem for some. Students at the University of Michigan requested that procedural or technological barriers to access be removed (Tenopir, 2003). According to the University of Georgetown (UG, 2015), some database licenses are restricted to a limited number of simultaneous, or concurrent users. Few databases require username and password to use them. For example, when EBSCOhost e-books are used or accessed, they sometimes stop. But if users are not aware that it is better to avoid this instance by downloading the book onto a computer or portable device for uninterrupted reading, their intention to use the system may be affected. When a user downloads excess amounts of materials in a short space of time from e-database or e-journals, the file might be missing or suspended. Other problems include restrictions in the proxy server to prevent excessive downloading by robots.

These restrictions are necessary because of licence agreement with vendors (UG, 2015) In a study of computer engineering undergraduate students in Nanyang Technological University in Singapore, researchers discovered that more than one-third of the respondents had never accessed computer engineering databases available through the library and of those, half had never heard of them and at the University of Tennessee reported that they knew about the web and major search engines such as Google, but unless a library resource is specifically named (and required) in a class, they are unaware of its usefulness (Tenopir, 2009). Although French research scientists were using e-journals more often, librarians still needed to promote the resources because scientists hesitate to use electronic sources when they feel they have insufficient knowledge of them (Mahe *et al.*, 2000).

The distinction between the ‘article’ and the ‘journal’ in full-text databases was unclear to faculty members and undergraduates surveyed in other studies (Mahe *et al.*, 2000). Although Columbia University researchers found that students clearly understood the difference between e-databases and websites (Tenopir, 2009). In focus groups at the University of Tennessee, Tenopir (2003) found that students understand that information found on the web is different from resources provided by the library, but many were not fully aware of what resources the library offered. It was therefore important that users needed to be equipped with skills such as information literacy skills, information retrieval skills, computer skills as a strategy to promote usage especially among students in academic libraries. The section below discusses previous studies carried out on access to and use of e-resources in developed and developing countries.

3.6 Access to and use of electronic resources

Access will be as good as the resources which can be afforded with number of computers and existence of network systems, the ability to work with tools, and the network infrastructure that supports rapid and convenient connections (Sivasubramaniyan and Batcha, 2012b). Furthermore, the ability to use e-resources efficiently depends on the basis of computer skills, knowledge of what is available and how to use it, and the ability to define a research problem. Academic faculties, apart from the work of teaching and research, must know how to access information. Computer literate faculty academics may feel more comfortable using e-resources and thus gain more from using them. The attainment of the above skills and knowledge depends

on many factors, such as their disciplines, academic status and ranks, access (hardware and location) to e-resources and training (Sivasubramaniyan and Batcha, 2012b). Such factors will be discussed later in the chapter.

According to the Research Information Network (RIN, 2011), publishers began to provide online access to articles in scholarly journals just over a decade ago. Numerous studies have shown how much researchers have welcomed the enhanced and easy access to unprecedented number of journals. But until recently, there has been little detailed evidence about how researchers have changed their behaviour in response to this revolution in access, about how they make use of online journals, or about the benefits that flow from such use. Electronic full-text access journal article searches require the use of complex command line languages and were often undertaken by library intermediaries. These were followed by form-filling and time delays while inter-library loan requests were fulfilled. Online searching, browsing, and access have changed that world and researchers' practices fundamentally (RIN, 2011).

Various studies have been carried out on the use of e-resources by students, faculty academic and research staff of institutions of higher learning. Several studies have been conducted to assess the acceptance and use of e-resources by library users. These studies employ various methods for data collection, such as observation, experiments, surveys, interviews and transaction log analysis. Questionnaire surveys are the most popular data gathering instrument for such studies (Tenopir, 2009). These studies are similar to the one embarked on the researcher, in that the present study adopted the same data gathering instruments which are the self-administered questionnaires and interview schedule. Similarity also lies with the subject matter, which is the use of e-resources, such as databases, the internet and the studies were conducted in academic libraries.

Most of the studies have reported high usage of internet resources (de Vicente *et al.*, 2004; Falk, 2003). Some of the reasons attributed to high usage were freely available access, the ease of use, and its currency. On the other hand, online databases have not been equally patronized by users (Majid and Tao, 2002; Ibrahim, 2004). Some reasons attributed to low patronage of online databases included lack of awareness to e-resources, lack of time to access and too many

passwords to remember. Studies on usage of other e-resources such as library OPACs, e-books, and subject gateway projects have revealed differences in use. Falk (2003) reported on the rapid growth and use of e-books in schools, colleges and universities. Ashcroft and Watts (2004) also mentioned the potential advantages of e-books including easier access, speed of publication, space-saving and lower costs. They also highlighted some change implications for e-books in terms of collection development, marketing and evaluation, user education, technological and communication skills. The integrated access to all e-resources is also an important issue discussed by Kennedy (2004) and Cohen and Calsada (2003). With the proliferation of these resources, especially for libraries with large subscriptions, Cohen and Calsada (2003) raised issues such as the management of website lists and the provision of a unified search interface for the library's catalogue.

Togia and Tsigilis (2009) conducted a study at the Aristotle University of Thessaloniki which is the largest university in Greece. At the time of the study, the university library offered access to a wide range of e-resources, including over 19,000 e-journals of nearly all major publishers, approximately 400 e-books and over 80 bibliographic databases. The vast majority of e-journals and a significant number of databases and e-books were available through the Hellenic Academic Libraries Consortium (Heal-Link), while the rest were the university's subscriptions (Togia and Tsigilis, 2009). When conducting the study, Togia and Tsigilis (2009) found that the vast majority of the participants used Internet resources. It is quite interesting, that nearly half of the respondents (49.1%), had never used the Educational Resources Information Centre (ERIC), a fundamental resource of education literature. Only 6.8% became familiar with e-resources by attending library training programmes. The main problem associated with the non-use of resources was lack of adequate searching skills. The above findings suggest limited use of resources by graduate students, mainly due to the absence of basic skills. Despite the steady growth in e-resources offered to the academic community in Greece, libraries had not been engaged in research on the topic to the same extent as other countries.

Renwick (2005) asserts that the library plays a leading role in faculty academic-library relationships and in instructional services such as orientation and training in use of the library resources. If efficient and effective use is to be made of library's e-resources, then user training will have to increase in both intensity and coverage. It is important to remember that the ability

of library staff to keep up-to-date is necessary, and, therefore, ongoing training for library staff is crucial as well. In the Caribbean, a study was undertaken at the University of the West Indies (UWI) which examined the knowledge and use of electronic information resources by medical sciences faculty academics. The objective was to determine the faculty's academics knowledge of e-resources, access to a computer and use of e-resources available at the Medical Science Library (MSL). The survey considered computer literacy, computer access and location, knowledge and use of e-resources and training needs (Renwick, 2005). Overall, it was found that faculty academics had a high awareness of the e-resources made available by the MSL but low use of MSL specific resources supporting the suggested problem of under-utilisation. Soodeen (2007) looked at the strategies being employed to enhance access to e-resources, specifically focusing on the issues of appropriate infrastructure and provision of details on the interface design. The methodology used for the study included review of relevant documentation and interviews with participants in collection development and access provision activities, as well as subject specialist librarians. Evaluation of the end user web interface was also undertaken. The results of this study showed that despite working with limited resources, this developing country, the Caribbean, academic library was moving in the right direction as far as managing its digital resources was concerned.

Madhusudham (2010) found that in India very few attempts have been made so far to study extensively the state of the use of e-resources by the university libraries and their impact or influence on academic research. The Kurukshetra University has now expanded its library services by providing e-resources to meet the academic community's expectations. It is very relevant and essential to know how research scholars are making use of e-resources for their research work (Madhusudham, 2010). In India, students and academic faculties are aware of e-resources and the internet (Kumar and Reddy, 2014), although the majority of the academic community still uses print. Many of the students and academic faculties learned about electronic information sources either by trial and error or through the advice of friends. In addition, various constraints are experienced in searching for information using these resources (Sridevi *et al.*, 2009) Dhanavandan and Tamizhchelvan (2012) carried a study identifying the availability of e-resource facilities and the mode of access in engineering institutions in Tamilnadu, focusing on library professionals. The study found that more libraries subscribed to e-journals and e-books and few libraries had online databases and CD-ROM database collection. Also, most libraries had internet facilities on their premises. The majority of the

institutions libraries had OPACs. However, the libraries were in the process of developing web-based OPAC, subject gateways and websites. Madhusudhan (2010) carried out a study at Kurukshetra University to determine user's skills in handling e-resources and the purpose of their use. Focus groups were conducted with research scholars of Doctor of Philosophy and Master of Philosophy (PhD and MPhil) from different departments. The research scholars who participated in this survey were aware of e-resources and the majority of them used these resources in support of their research and were thrilled at using these sources. Many research scholars learned about the e-resources from their teachers, friends or colleagues. This shows that electronic information sources will continue to be necessary components of the academic community.

Within the African context, similar studies were carried out. Ojedokun (2001) conducted a study at the University of Botswana. The focus was on internet usage by students. It revealed lack of searching skills amongst the students. In Nigeria, Ukachi (2015) conducted a study to determine the relationship existing between undergraduate students' information literacy skills and their use of e-resources at the university libraries in Nigeria. The study adopted the descriptive design. Questionnaire and face-to-face interview schedules were used for data collection. The findings revealed that e-resources are not adequately utilised by undergraduate students, because they did not possess adequate information literacy skills for optimal use of e-resources. The results corroborate Emereole and Ogugua (2007) findings which revealed that there was low patronage of library services, especially in the area of use of e-resources. This could be attributed to either minimal knowledge of basic searching skills or retrieval skills as it has been found that the students were not formally taught the use of e-resources and information literacy. The study has established various types of e-resources available in libraries under the study in Nigeria. Mulla (2011) conducted a study on the use of e-resources by faculty members at the Hazrat Kwaja Khuthubuddin Bakhtiar Kaki (HKBK) College of Engineering, Nigeria. The study revealed that 30% of the respondents felt that they lack IT knowledge to effectively utilise the services, 31.7% reported lack of training, while 20% stated that limited access to computers was a problem. Lack of IT knowledge implied that this lack of information literacy skills could have a negative relationship with their use of e-resources.

The scenario in the developing nations of Africa is different from some academic libraries in other nations as many African students have yet to commence effective utilisation of e-resources or any other resources accessed via the use of computers (Ukachi, 2015). This was evident from the outcome of the study conducted by Edem and Ofre (2010). The study adopted a descriptive survey design and the random sampling technique was used to administer 200 copies of a questionnaire to undergraduate students who used the university during April, 2009. The study revealed that 57.1% of the students responded that they use the internet occasionally and 12% bi-weekly, while 63.2% read printed materials on a daily basis. The implication is that the respondents read printed information resources more often and also for a longer period of time than they used the internet and other e-resources. Issues which hindered the use of internet and e-resources include: inadequate computing and internet access facilities in university libraries, provision of user-friendly interfaces or services and effective user education programmes.

Anunobi (2006) investigated the proficiency and impediments to the use of the internet through the students of Federal University of Technology, Owerri, Nigeria. The objectives of the study were to find out how proficient students were, in the use of the internet, and identify factors constituting impediments to its adequate use. The descriptive survey design was adopted for the study and a questionnaire was used as an instrument for data collection. The study found that the use of the internet was hampered by a low level of skill in its use. A similar study was conducted by Ojokoh and Asaolu (2005) at the same university, in a different campus. The study explored internet access and usage by undergraduate students. The descriptive survey design was adopted to investigate the adequacy of access to the internet for students and general usage, and problems encountered by students in their use of the internet. The findings revealed inadequate access points within the university campus. The study also established that students acknowledged the benefits of internet for academic studies, but lacked adequate searching skills to enable them to maximise their use of e-resources. A study carried out by Salaam and Adegbore (2010) discovered that search engines were essential e-resources for students of private Universities in Ogun State. Adeniji *et al.*, (2015) investigated the level of awareness of e-resources and utilisation by librarians of the Olabisi Onabanjo University, Nigeria. A Questionnaire was administered to the sixteen (16) professional librarians of the university. Findings revealed that, the majority of the respondents attested to the availability of internet and e-mail facilities as the most e-resources use by librarians. The study revealed that there

were challenges against usage of e-resources as: recurrent power outages with (38%), limited bandwidth (25%), insufficient funds (19%), inability to download information (12%), and network problems (06%). Furthermore, e-resources were used mainly for the purpose of in-house official duty and for information services for users. Some studies were carried out in Ghana, Uganda, Malawi, Kenya and South Africa.

Gakibayo *et al.*, (2013) carried out a similar study in Uganda in academic and research institutions. The study examined the effect IL had on usage of e-resources in these institutions. It focused on innovations at Makerere University Library and other collaborating research institutions in Uganda. Gakibayo *et al.*, (2013) addressed the availability of e-resources, relevance and proposed strategies to promote usage by students. In the case of Lesotho, it is clear that studies regarding e-resources access to and use compared to that of other African countries is limited. This is a major concern especially for researchers, policymakers and other stakeholders in the country. This study is an attempt to fill this gap.

In Ghana, Dadzie (2005) focused on determining the level of use, effectiveness of the library's communication tools for information research. Ashesi University is a private tertiary institution in Ghana. Though it has state-of-the-art information technology systems, the library is instrumental in introducing the community to e-resources through orientation sessions, e-mail communication, newsletters and library services brochures. The study conducted by Dadzie (2005) wanted to establish the extent to which the online databases as well as other e-resources were utilized by the university community. Findings showed that most respondents (85%) indicated that they used the internet to access information as opposed to 10% using the library's monographs. It was also revealed that 51% indicated that they used search engines, while 14% indicated that they just browsed and 13% used Meta search engines. Only 7% indicated that they used the scholarly databases that the library subscribed to. Mawindo (2005) evaluated students' use of print and electronic resources at the University of Malawi, College of Medicine. An interview schedule and questionnaires were used to gather information. The study findings showed that students used both print and e-resources. However, print resources were more heavily used. Makori (2015) carried out a study investigating the micro factors influencing the use of electronic information resources among postgraduate students in institutions of higher learning in Kenya. The study concluded that, e-resources are extremely

important in the success of research, teaching, learning, academic administration and resource support in any academic library, and factors leading to non-utilisation must be addressed by all stakeholders.

In South Africa, similar studies have been carried out. Kheswa (2010) attempted to establish how often students use the internet, what they used it for, what internet services students use the most and why. The study further investigated what information services were relevant and important for students, and whether students had the necessary skills to use the internet and, problems encountered while using the internet. The population of the study was undergraduate third-year students of the Faculty of Humanities, Development and Social Sciences at the University of KwaZulu-Natal, Pietermaritzburg (UKZNP). The study used an interview schedule to obtain qualitative data and questionnaires to gather quantitative data. The findings showed that a majority of students used the internet on campus with less than half of them using it off-campus. Challenges included limited number of computers in LANs, slow internet connections and restricted access to certain sites and lack of training on how to use the internet. Mushi (2010) evaluated the use of e-databases by postgraduate students and academic staff for teaching and learning at UKZNP. The study used the survey questionnaire method for data collection. The findings indicated that a majority of academic staff and postgraduate students used ICTs for teaching and learning. Furthermore, the study identified various ICT hardware and software which were available at UKZNP for teaching and learning. The most encountered problems were insufficient number of computers, slow network connections and poor support from technical staff. Soyizwapi (2005) focused on the use of e-databases by postgraduate students in the Faculty of Science and Agriculture at UKZNP. The survey instrument was a self-administered questionnaire. The study sought to establish if postgraduate students used e-databases and to identify problems postgraduates encountered and whether they were aware of the availability of such resources. The study found that students did use and became aware of the availability of e-databases, through library orientation programmes and through other students. The study concluded that there was a need for training the on use of databases and a need for improving access for all campuses as well as off-campus users. A study by Hadebe (2010) attempted to establish which e-databases were used by Masters Students of the Faculty of Humanities, Development and Social Sciences, UKZNP, how frequently they were used, and problems encountered by the students. The instruments that the researcher employed for data collection were questionnaires for quantitative method and a focus group was used as a

qualitative method of data collection. Earlier, a study examining end-user instruction and access to electronic and full-text bibliographic information resources by postgraduate management studies students at the E.G. Malherbe Library UKZN Durban, was carried out by Jagarnath (2004). The research found that students were generally inexperienced in the use of e-databases. The study also found that subject librarians play an important role in supporting the need for end-user instruction on the use of e-databases. End-users were not confident searching a completely new database in which no prior training was provided.

These studies are similar to the present study, in that the present study adopted the same data gathering instruments which were the self-administered questionnaires and semi-structured interview schedules. Similarity also lies in the subject matter, which is use of e-resources, such as e-databases, the internet and the studies were conducted in academic libraries. It is important to note that most of the results from the above studies carried out revealed that e-resources are not efficiently and effectively accessed and used. Sivasubramaniyan and Batcha (2012b) argued that academic libraries play a very important role to users in extending instructional services such as orientation and training in use of library resources. If efficient and effective use is to be made of library's e-resources, then users training will have to increase in both intensity and coverage. It is important to remember that the ability of library staff to keep up to date is necessary, and therefore, training for them is vital as well. The following section will discuss systems used to facilitate access and use of e-resources

3.7 Systems to facilitate access to and use of electronic resources

A review of literature showed that ICT applications have been used from elementary through to secondary to tertiary level. The higher educational institutions around the globe have increasingly adopted ICTs as tools for teaching, curriculum development, staff development, and student learning (Kumpulainen, 2007; Usluel and Bas 2008). ICTs offer opportunities for enhancing strategic learning (Lopez-Nicolas and Soto-Acosta, 2010).

ICT can be defined as the totality of the electronic means to collect, store, process and present information to the end-users in support of their activities, and consists of computer systems,

data communication systems, knowledge systems, office systems and consumer electronics (Schipper and Haan, 2005). Whereas, Olatoye (2011) refers to ICT as a totality of methods and tools that are used in gathering, storing, processing and communicating information. These include internet services provision, telecommunications equipment and services, media and broadcasting and other related information and communication activities. Modern ICT products include e-mail, voice mail, fax, electronic bulletin boards, cellular phones, video conferencing among others (Olatoye, 2011). ICTs have no doubt improved the quality of life in the modern world. They are used by academics and non-academics in carrying out their daily activities to enhance efficiency and increase productivity.

Okiki and Asiru (2011) asserted that, e-resources present a number of challenges, especially technical issues that need to be considered to ensure resources are compatible with existing library hardware and software and that the library has the capability to provide and effectively maintain access to resources on an on-going and cost-effective basis. According to Tiwari and Sahoo (2013) the newly derivate technology that is called ICT has a tremendous impact on a library's operations, services, users and staff. In broad, the term ICT consists of all modern technical means used to store and handle information, its communication through computer and related hardware, communication networks technology and necessary software, and so on. ICT is significant to the libraries to achieve its goals for management of information, effective services and extension of boundaries from beyond the walls of the library.

Tiwari and Sahoo (2013) noted that ICTs presents an opportunity for libraries to provide value-added information services and access to a wide variety of digital-based information sources to their clients. Libraries are using modern ICTs to automate their core functions, implement efficient and effective library cooperation and resource sharing through networks. They use ICTs to implement Management Information Systems (MIS), develop Institution Repositories (IRs) of digital local content, and digital libraries. Libraries are also initiating ICT-based capacity building programmes for their staff and IL programmes for users. Rana (2011) however, pointed out that for most libraries use of ICTs is largely restricted to traditional library automation that is, replacing manual operations by computerised methods.

Moshoeshoe-Chadzingwa (2009) mentioned that liberalisation of the ICT market in Lesotho has allowed competition from various vendors, and ‘tele-density’ has risen by 28% in the last five years. These general developments may be attributed to International Telecommunication Union (ITU) policies and the World Summit on Information Society (WSIS) resolutions, through which an independent Telecommunication Authority that regulates the IT sector has emerged as Government-controlled state monopolies end. The impact has thus boosted availability of devices such as cell phones, Asymmetric Digital Subscriber Lines (ADSL) and gadgets for mobile internet connectivity that drive options for accessing and using internet and other available e-resources information. It is for these reasons that libraries need to collaborate, cooperate and partner in order to go digital to ensure effective access and use of these resources. According to Rana (2011), the following ICT systems are needed for libraries to be able to operate its operations and services to its clients effectively and efficiently:

3.7.1 Communication facilities

Communication facilities are the basic requirement of every organisation. In the age of ICT, a telephone, fax, e-mail and website are the very common tools for fast and smooth communication and dissemination of information.

3.7.2 Staff for systems management

It is expected that all academic libraries should have ICT experienced full-time librarians, full-time ICT or systems professionals to look after ICT activities and experts for proper use of ICTs in library activities.

3.7.3 Collection of information sources

Libraries should have collections of non-paper documents in the form of CD-ROMs, CDs, and DVDs, and should subscribe to online e-resources, especially databases, e-journals, and so on.

3.7.4 Library hardware

No ICT activity is possible without computer and associated ICT hardware such as: computers; printers; scanners; barcodes readers/printers; digital/web cameras; speakers; microphones; film projectors; micro fiche reader/film readers, photocopy machines and Closed Circuit Television (CCTV) cameras. Software plays a very important role in the success of ICTs in libraries. The different type of software tools like Operating Systems (OS) and networking software indicate the quality and performance of technology being used by the library. Efficient library application software reveals the effective operations and procedures of the library. Available software may include; OS or networking system such as Windows; Universal Network Information Exchange (UNIX) and Linus. Library applications software includes software such as; Innovative Interfaces Incorporated Library System (INNOPAC) and Computerised Documentation System-Integrated Set for Information Systems (CDS-ISIS) and others (Rana, 2011).

3.7.5 Library Software

Singh (2011) noted that the availability of suitable library software in a library makes an easy and comfortable journey for implementation of ICT activities in the library. Such availability of software depends on the criteria followed for the selection of library software. The criteria for selection may include factors such as; training facilities; user-friendliness; post installation support; using equivalent libraries; cost factor; and warrantee and updates.

3.7.6 Networking infrastructure and facilities

Networking is the backbone of all ICT activities in a library. Use of latest infrastructure technology for networking is always a good indication for development of the library. Local Area Network (LAN), intranet and internet facilitate the effective dissemination of information to library users. Library network may include: LAN; Campus Wide Network (CWN) or Wide Area Network (WAN); and others (Singh, 2011).

3.7.7 Computerised housekeeping operations

ICT housekeeping operations encompasses the areas of Acquisitions; Cataloguing; Circulations; Serials; and other operations such as online searching of databases and other e-resources such as OPACs. Innovative use of ICT in academic libraries is not widespread, it is in the developing stage. Academic libraries of LELICO need proper ICT infrastructure including hardware, software, and library staff to be trained properly. Every library has to go through ICT. (Singh, 2011). Though problems of hardware and software are very common in implementation of ICTs, the most common problem seems to be basic management of ICT infrastructure and operational staff. Therefore, full-time computer professionals should be available to look after all technical matters and problems related to ICT. However, libraries have expressed their concern for frequent changes in ICT being used in the library and information field. Such frequent changes lead to an increase in finance, continuous training of staff and up-grading of basic infrastructure available for ICT in libraries. With all these systems in place, academic libraries still face many challenges. The following section discusses challenges facing academic libraries.

3.8 Challenges facing academic libraries

Providing quality services in academic libraries is now a major issue among academic librarians. Users see the library more in terms of the provision of and access to quality service and not just a physical place. Technology and automation have also changed the way people perceive libraries. As a result, the role of libraries and librarians is also changing. There is a need for librarians to make sure that users know how to use library resources not only in the confines of the library building, but even when they access the resources remotely. Many students are now accessing library OPACs and e-resources remotely from their residences, computer labs, homes and some adult students use their computers at their workplaces.

3.8.1 Information explosion and e-resources complexities

Libraries have over numerous years played a central role in the lives of universities, in supporting learning, teaching and research. Since universities themselves vary considerably in nature, range and scale of their activities, it is not surprising that their libraries too come in many different shapes and sizes (RIN, 2010). With emphasis being placed on e-resources, and users being more interested in access rather than actual ownership, libraries are facing greater competition from many sources like bookstores and information from publishers and vendors who try to provide the same services that libraries provide. These competitors sometimes provide their services faster and more efficiently, while virtual libraries are easily available through the internet. Some students also seem to know more about other libraries than their own institute's library. Even with basic library instruction, many users find it difficult to comprehend and manipulate the many complexities of an information research. Emphasis on instruction and knowledge on how to use these resources can help to increase library usage and also to enable them to evaluate more effectively the resources they find while they do research. Instruction on how to critically evaluate both print and e-resources would also help users appreciate the multitude of sources currently available for research, and increase user satisfaction with academic libraries.

According to McNico (2005), library and information service involvement in institutional strategic planning is not a well-developed and embedded activity. Libraries no longer occupy the secure position which they did in the past and under these circumstances, it is vital that they actively demonstrate their contribution to institutional aims and outcomes. The lack of interest in outcomes assessment with the sector is worrying; there is a general view of libraries being an essential part of higher education and do not need to demonstrate how they contribute to institutional aims. This may leave libraries in a vulnerable position. While the amount of scholarly information is growing rapidly, academic libraries have to face the fact that researchers have on-going problems in finding the relevant information they are searching for. Using traditional OPACs, they often do not find electronic information such as e-books, or articles in e-journals. Google Scholar supplies too many hits without any relevance to the researcher's field of interest, because the metadata of electronic texts such as e-books or articles in e-journals have not been annotated by an information specialist. A significant example is the collection of a total of 250,000 digitized books available in German academic libraries through

the National Licenses Programme. The usability of such sizeable additional content depends heavily on the implementation of integrative search engines as well as on the efficient exploitation of the collection's content (Eckert *et al.*, 2009). Removal of fair use, non-disclosure of agreements and intellectual property rights are some of the challenges facing libraries. Failure to negotiate better terms when subscribing to e-resources may have severe implications for institutions.

Academic libraries need to consider institutional policies, have clear licensing review systems before the license is signed. However, Spalding and Wang (2006) argued that libraries around the world are facing rising costs and dwindling budgets due to technological advances and today's dynamic economic climate. As a result, marketing concepts are increasingly adopted within the library management. Managing an academic library is no longer a matter of receiving a budget at the beginning of the fiscal year and making sure that it is not overspent during the year. The challenge is to make strategic decisions concerning how libraries generate funding and where they will spend limited resources for staff, facilities and collections. LELICO academic libraries are no exception to these challenges, since they are also faced with similar issues.

According to RIN, (2010) libraries over the past decade have experienced unprecedented change. They have transformed their operations as they have responded to the opportunities of the digital revolution, and further challenges ahead. Like the rest of the sector, however, academic libraries are now facing a renewed and intensified period of financial stringency. Serials subscriptions have taken up increasing proportions of total library budgets, and leave little margin for anything else. Users, academics in particular, now expect to have immediate access to most e-journals in their area of specialisation and libraries find it difficult to meet their needs.

3.8.2 Lack of funding and budgetary constraints

Budgets are a critical part of the effective running of an institution. Linn (2007) noted on budget as a method of accomplishing many managerial tasks. A budget is not only a means of planning

for various revenue streams, a control mechanism for an administration to keep from spending too much, a procedure for controlling its units, a process to coordinate the many activities that an institution undertakes, and a way to communicate to all stakeholders a summarisation of the activities that the various units will undertake, but it is also a technique for setting the organisation's priorities by allocating scarce resources to those activities that officials deem to be the most important and rationing it to those areas deemed less vital (Linn, 2007).

RIN (2010) conducted a study on UK universities' net expenditure on libraries. Results showed that expenditure has grown significantly, but not nearly as fast as universities' overall income and expenditure. According to the Society of College, National and Universities Libraries (SCONUL) and Higher Statistics Agency (HESA), statistics show that expenditure on libraries has risen from a total of £ 322m (3% of total university expenditure) in 1997-1998 to £550m (2.1% of total university expenditure) in 2007-2008. Such figures may not show the full picture, since the structure of many university libraries, information and IT services have changed, with mergers and de-mergers over the last decade. Nevertheless, it is clear that many libraries have made considerable efficiency savings even as they have expanded the volume of range of their services. For example, they have exploited the opportunities offered by the digital provision of content; the total number of serial titles subscribed by UK university libraries nearly tripled in the decade up to 2007 to 2008, to nearly 1.5 million (RIN, 2010).

In the UK, SCONUL statistics show that book budgets have come under increasing pressure across the sector, however, as expenditure on journals has risen; and there are concerns across the world about the future for monographs. It may be that e-books will ease the problems that libraries in the UK, particularly for text-books and course materials. According to the JISC, a funded e-books observatory, librarians have expressed frustration that publishers' policies on pricing and accessibility are inhibiting take-up. Hence, there is a widespread view that libraries need to work together with publishers to promote innovative thinking on new models and routes to content. Library directors need the support of senior managers across the Higher Education (HE) sector, as well as from publishers and other information providers, in addressing the challenges as well as opportunities they encounter. Libraries and their directors have a critical role to play, but they cannot do it all by themselves. Leadership and partnership across the HE and information sectors is critical to sustaining academic libraries (RIN, 2010).

In 2007 to 2008, the number of UK library staff started to fall because of the current financial climate. The evidence from the global survey conducted by CIBER in 2009, showed that UK library directors are more likely than their US colleagues to contemplate cuts in staffing. Reductions in library staffing levels must therefore be based on an increased understanding of the relationship between activities, costs and impact, and combined with more effective performance management (RIN, 2010).

The greatest challenge facing libraries in Sub-Saharan Africa today is how to provide increased, effective, efficient and sustainable information services and access to a wide variety of information and knowledge resources in the face of reduced funding (Chisenga, 2006). Earlier, Simui and Kanyengo (2004) carried out a study at the University of Zambia and Copperbelt University. The study revealed that their library services deteriorated, because funds for procuring subscriptions were inadequate to purchase local materials for exchange programmes. Mapulanga (2012) observed that since 2001, the UK based International Network of Availability of Scientific Publications (INASP) through the Programme for the Enhancement of Research Information (PERI) has sponsored scientific and scholarly information through electronic means to libraries in Malawi.

Jambo (2009) argued that due to budgeting constraints, most of the libraries in University of Malawi Libraries (UMLs) reduced orders for printed resources, especially journals and shifted to e-resources subscribed to, through collective contribution by stakeholders. By then libraries in Malawi had formed MALICO as a coordinating entity for contributing funds for purchasing licenses from database owners and publishers through INASP/PERI initiative. The establishment of MALICO facilitated UML to shift away from book dominated libraries and adopted use of e-resources and services.

3.8.3 Lack of institutional policies

The American Library Association (ALA, 1987) earlier stated that collection development policies are defined as the scope of a library's existing collections, plan for the continuing development of resources, identify collection strengths, and outline the relationship between

selection philosophy and the institution's goals, general selection criteria, and intellectual freedom. A policy is meant to coordinate activities. It is meant to spell out the why's and how's of activities for which it is designed (Onoriode *et al.*, 2012). Strassner (2004: 516) defined policy as "a set of rules, and the usage to accomplish decisions". However, Bentley *et al.*, (2001: 724) argued, "policy are rules that governs some processes in business and which serve as the basis for decision-making". Consequently, ICT policy is meant to coordinate and govern the procurement, use, management and maintenance of ICTs as major information management tools in academic libraries (Onoriode *et al.*, 2012).

Most African countries have now recognised the need for an ICT policy. The policies need to be put in place to harness the maximum benefits from ICTs. According to Chisenga (2006), where there are information resources available within the institutions, the absence of appropriate information policies and strategies sometimes makes it very difficult for information professionals to know which resources should be shared or made available for access in digital format. Moshoeshoe-Chadzingwa (2009) pointed out that although Lesotho participated significantly in the meetings in preparation for ICT policies, prior to taking part in World Summit on Information Society (WSIS) in Tunisia in 2005, an ICT policy had been put in place, although it was subjected to revision and review later. The Government of Lesotho has adopted a national ICT policy that makes some references to the education sector. Since 2007, the NEPAD eSchools Demo Project in Lesotho has been a catalyst in focusing attention on the potential that ICTs hold for enhancing education in the country (Isaacs, 2007). According to Isaacs (2007) and the *World Factbook* (2012), Lesotho has a severely underdeveloped ICT infrastructure. Although Lesotho does not have an explicit independent national policy on ICTs in education, the government adopted a National ICT policy in 2005 in which are embedded considerable references to and implications for the education sector.

Lesotho also has an education strategy that includes the role of ICTs. The National ICT Policy highlights ICTs as tools to enable the country to achieve its development goals, as articulated in the Lesotho Vision 2020 policy document (Ministry of Development Planning, 2015) and the Poverty Reduction Strategy papers (World Bank, 2000; Tšoenyo and Olatokun, 2012). The provision of access to digital collections accessed via Internet and other electronic networks poses and present challenges to librarians. Digital-based information resources can be accessed

from anywhere via electronic networks, be copied, manipulated by editing modifying and repackaging or by deleting. The challenge is librarians, lecturers and researchers do not know how to deal with the situation. Libraries should have Copyright and Intellectual Property Rights policies to guide librarians and information users in accessing and using e-resources. These policies should conform to the national, regional and international laws governing such policies (Chisenga, 2006). These issues can be addressed with the careful development of an electronic information resources collection development policy.

3.8.4 Copyright and intellectual property rights

According to the World Intellectual Property Organisation (WIPO), intellectual property refers to creations of the mind and is divided into two categories: ‘industrial property’, which includes inventions (patents), trademarks, industrial designs, and geographic indications of source; and ‘copyright’, which includes literary and artistic works such as novels, poems, plays and computer programmes, films, musical works, artistic works such as drawings, paintings, photographs and sculptures, and architectural designs. Rights related to copyright include those of performing artists in their performances; producers and phonograms in their recordings; and those broadcasters in their radio and television programmes (WIPO, 2005). ICTs have transformed the way information is being generated, disseminated, preserved, archived, and made accessible. Information is increasingly being generated in digital format, and this raises more difficult and complex copyright issues than traditional printed document collections. A major concern among most authors, and not only in Africa, is that placing material in the open access archives precludes its later publication in scholarly journals.

There is a global legal system supporting the digital electronic market, which allows for the proper functioning of free market forces (Alemna and Cobblah, 2005). This can only happen if intellectual property rights are protected. Globalisation and digitisation have created special problems and strains on the traditional system of copyright. One of the strains is that national boundaries have become almost meaningless in the digital world. Another strain is the difficulty in recognising a work of authorship distributed on the internet. It is almost impossible for an individual nation to assert any kind of national control over the product or to protect the intellectual property rights that are represented by it. As a result of these problems, publishers

and other content originators are employing Digital Rights Management (DRM) to prevent the abuse of their intellectual property.

DRM is an extension of control on digital objects in cyberspace. Some of these publishers include Elsevier and Amazon.com (Alemna and Cobblah, 2005). DRM is employed to protect digital content (encryption), control specific operations of the content (for example, play, print, copy, save) and to limit the number of times a particular operation may be excised on the content (for example, view three times) (Davis and Lafferty, 2002). Nicholson (2007) observed that copyright laws have become an economic burden for educational institutions and libraries in Africa. In most African countries, there are few, if any, copyright exceptions for education and often the only way these communities can access information to further education is to disregard the copyright laws. The stricter the laws, the more infringements there tend to be. Alemna and Cobblah (2005) argued that in order for a consumer to gain access to a DRM controlled digital file, usage permissions must be obtained. These permissions are sometimes referred to as a key, permit or license. They may be obtained prior to receiving the content, or subsequent to receiving the content. The permit then becomes unique to the consumer's device and includes the authorised usage rights. Films, music, CDs, DVDs and e-resources are controlled by restrictive licenses, which mostly override copyright law. Copyright fees are included in expensive subscriptions for e-databases, which are payable mainly to foreign rights owners (Nicholson, 2007). It therefore noted that access to and use of e-resources in academic libraries is hampered by restrictive laws such as the copyright and intellectual property rights, whereas developing countries are dependent on advanced countries for the bulk of their research and educational material.

An initiative has been taken by the mother body of library associations, IFLA, by establishing the Freedom of Access to Information and Expression (FAIFE). FAIFE is an initiative that was established in 1997 in Copenhagen to support the basic human rights principles of Article 19, United Nations Universal Declaration of Human Rights, 1948 (Falconer, 2007). The Article states: Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interferences and to seek, receive and impart information and ideas through any media and regardless of frontiers (Universal Declaration of Human Rights, 2005). On the other hand, FAIFE states: freedom, prosperity and development of society depend on

education, as well as on unrestricted access to knowledge, thought, culture and information. This right to intellectual freedom is essential to the creation and development of a democratic society. The state of intellectual freedom in libraries is an important indication of the progress of democracy in a nation (IFLA, 2005).

FAIFE is vehicle for IFLA in promoting intellectual freedom on human rights. Examples of this initiative was undertaken in 2005. The Government of Tunisia was advised by FAIFE to remove its restrictive policies on access to information since the country was hosting the WSIS by then (Falconer, 2007). Byrne (2000) observed earlier in 1999, that the Government of Cuba opposed independent libraries, which were created by citizens of Cuba (primarily artists and intellectuals) who held and lent out various publications not available or legally accessible in Cuba. The latter, are among many examples which restrict people access to and use of resources.

3.8.5 Lack of information and communication infrastructure

Information technology has increased the capabilities of library services enormously, creating options for networking providing access to the vast stores of electronic information, for more sophisticated library housekeeping systems, and for greater bibliographic access (Hoskins 2002: 36). Though many libraries have embraced these systems, Chisenga (2006) noted that use of ICTs in libraries has not made the situation any better. The introduction and use of ICT facilities in libraries depends on adequate funding for hardware, software purchase and licence fees, maintenance contracts, upgrading of hardware and software systems, telecommunications and subscription costs to e-resources. Etobu (2011) argued that ICTs are part and parcel of the entire nutshell of the institution, as a learning resource to students and teaching aids to lecturers. Ayorinde and Oyegbami (2009) observed that ICT is the instrument of a social economic renaissance and if properly used, it could prevent a stem of national and international calamity. If properly used, it will assist growth and development of libraries in African higher institutions. Ikupolati (2009) noted that with a digital library, librarians have opportunities to connect to major libraries of the world. Through ICTs, libraries can access e-resources from other libraries through international cooperation which libraries have formed consortia. ICTs assist in overcoming barriers of space and time, thereby widening access to the needed

information. Though there are benefits in ICTs, there are challenges that hinder the effective utilisation of these technologies, such as: lack of skilled manpower, inadequate funding, poor maintenance of equipment, power and equipment failure, regulatory restriction of communication technologies, and expensive or unreliable technologies (Akinjide and Oyeboade, 2007).

Unfortunately, most libraries do not have budgets for ICTs. The lack of funds for ICT infrastructure is a major reason why in Africa, there is a heavy reliance on or quest for donor/external funding when implementing library ICT projects. Rosenberg (2006) study indicated that only 10 libraries purchased 100% of their e-resources from institutional as opposed to external funds, while 45 (73%) indicated that external support for the purchase of hardware and e-resources was crucial. Access to reliable and sustainable internet facilities is still not wide spread in the libraries because most libraries cannot afford to pay for adequate bandwidth.

The Eastern and Southern region lacks a fibre optic cable system. Consequently, the region relies exclusively on satellite links for voice and data transmission at about ten times the cost and a transmission speed of less than a quarter than those of fibre optic links (Morris, 2007). Southwood (2007) argued that the high cost of connectivity has prompted major infrastructure projects across the African continent by regional governments to enhance access and bridge the digital divide within the continent and between Africa and other continents. Some of the projects include: East African Submarine Cable System (EASSy); 'Carriers' project (SEACOM), and Kenyan Government's TEAM undersea fibre optic project. The aim of these projects were expected that consequently, they will reduce the region's dependency on satellite communications, and reduce the price of bandwidth.

Africa still lags in high-speed broadband mobile data connections and services were 'growing strongly in Africa' although the continent continues to lag behind the rest of the world in terms of high speed broadband connectivity (Matarayika, 2014). According to the Ovum Index, Africa has a Broadband Development Index score of 226 out of 1000 for 2014. It was ranked ahead of central and Southern Asia (219 out of 1000), but a long way behind the leading

regions, which were North America (633) and Western Europe (433). Africa's fixed broadband connectivity is still considered 'very low' compared to other major regions in the world. The fixed broadband household penetration rate on the continent was a lowly 52% at the end of the second quarter of 2014 (Mataranyika, 2014). Ovum has reported in its 2014 Broadband Development Index that South Africa, Nigeria, Kenya and Zimbabwe have 'the most' advanced broadband markets in the region, alongside Uganda. However, access to high speed broadband connectivity remains a challenge for most of the region.

According to Rosenberg (2006), most libraries do not have enough computers for use by library users to access the OPAC or other online e-resources. For example, 85% of the university libraries provided less than one computer for every 100 Full-Time Equivalent (FTE) students and 36% provided less than one computer for every 500 FTE students. In the same study, 14 (23%) libraries provided no data regarding availability of computers for public use. Owusu, (2002) study indicated that most times at the university library internet café, it took between 15 to 30 minutes to move from the domain name address; and sometimes it took fifteen minutes to open or send a letter or message.

Chisenga (2006) stated that due to the volatile nature of the ICT industry, libraries need to be more involved in monitoring technologies to improve library and information services. However, this is difficult for most library administrators because they do not have an ICT background, which is necessary if they are to have a clear understanding of the developments taking place in the ICT industry. Another challenge associated with the ICT technical infrastructure in most libraries is the lack of adequate ICT facilities. Lack of funding means that most libraries are not able to acquire adequate ICT facilities to enable them to provide an efficient and effective ICT-based information resources and library services to their users. Most libraries cannot get adequate bandwidth to enable them to provide fast access to online- based information services. In some libraries the internet connection is so slow that sometimes it is impossible to download and print documents from the internet (Ikupolati, 2009).

Moshoeshoe-Chadzingwa (2009) asserted that in Lesotho the increasing demand for services has forced authorities to find ways of increasing the bandwidth. At universities, pressure to

increase bandwidth has come not only from libraries but students, lecturers and researcher are effective advocates where an exponential increase in usage statistics indicates that e-resources are now a must. The Council on Higher Education of Lesotho reported that good infrastructure and adequate facilities are necessary for improving access to and quality of higher education across the globe. However, Higher Education Institutions (HEIs) in Lesotho face numerous challenges with respect to facilities and infrastructure in such areas as lecture rooms, science laboratories and libraries. The report further noted that there were not enough to accommodate the high number of students enrolled by the HEIs. Some ICTs are not functional, technologically inadequate, some are obsolete and not properly maintained and lack required consumables which make it difficult to carry out practicals where needed. Furthermore, libraries in some institutions lack electronic educational materials, computers and personnel to maintain them (CHE Report, 2010/11-2011-12).

3.8.6 Technological obsolescence

The *Oxford English Dictionary* (2015) defines obsolescence as the process whereby or state at which machinery, consumer goods, and others become obsolete as a result of technical advances and changes in demand. According to Grover and Grover (2015), obsolescence can come about suddenly, as a result of a change in technology or consumer demand, or more gradually over a long period of time until the advantages of replacing the object out-weigh the costs of doing so. It can happen to a new asset which has never actually been used for the purpose of which it has been constructed.

Wato (2003) expressed that developers of IT hardware and software seem to be competing frequently among themselves to introduce into the market new models and versions of their products. While this helps companies to make profits, since users have to pay for upgrades, it has not helped in the search for a stable digital archiving solution for e-resources. Technology obsolescence results from major changes in technical solutions that supersede or displace established technical solutions. Technology obsolescence occurs in storage media and storage devices when newer and better storage media displace older, established storage media, for example, nowadays the floppy disc is no longer in use, developers have created CDs and DVDs.

Technology obsolescence also occurs in operating systems and software applications as vendors introduce products with new functionalities (Dollar, 2000: 33).

Sutton (2004) noted that hardware and software subsystems have been widely used in sustainment-dominated systems that are expected to be well maintained over a period of 20 years or more. The criticality of the sustainment-dominated systems' availability causes maintenance costs oftentimes to exceed original procurement costs. Thus, the system needs cyclical upgrades during its lifespan (Jenab *et al*, 2014). However, Cattani and Souza (2003) argued that the necessity of an upgrade is determined by the technical or financial benefit resulting from the higher performance of the hardware/software, because obsolescence results in the early retirement of a system. Generally, the cost of maintenance and sustainability result to be more than the budget originally dedicated for operation and maintenance of the system, upgrading of the system can actually have financial benefits as well. However, the budget for sustaining the daily operation grows rapidly while the system's budget for upgrading and replacement decreases, the sustainability of the system falls into a death spiral (Singh and Sandborn, 2006).

Therefore, technology and automation require staff at all levels to adjust and adapt to the changing roles and responsibilities that are encountered (Hoskins, 2002: 36). Since technology standards are evolving so quickly, the type of storage media has to be kept up-to-date. While CD-ROMs might survive and store data for a hundred years (this is what some manufacturers claim, but it has not been proven), chances are that no drives capable of reading CD-ROMs will be available at that time, as new forms of storage media since have replaced the technology. New media for storing digital information rapidly replace older media and reading devices for these older media become no longer available. Indeed, technological obsolescence represents a far greater threat to information in digital form than the inherent physical fragility of many digital media (Wato, 2003).

As changes in technology continue to increase exponentially, the problem arises with what to do with e-resources that were created using old and now obsolete hardware and software. Unless action is taken now, there is no guarantee that the current computing environment and

its e-resources will be accessible and readable by future computing environments (Sejane, 2011: 50). The problem of compatibility of hardware and software can be costly, and the demands for training both academic faculties and library users are of great importance.

3.8.7 Human error and vandalism

Electronic information resources can be corrupted as an intended or unintended consequence of a computer virus infection. An individual can compromise any encryption and security technology with access to specialised expertise and high-performance computing facilities. Often, violations of system security are undetected until the damaged content or other evidence of the violation is discovered. Therefore, back-ups are essential since data can easily be deleted or corrupted with the push of a button (Ngulube, 2006).

3.8.8 Lack of information and communication technology skills

Davis and Lundstrom (2011) observed that academic libraries all over the world are adopting new technologies that require investment in staff development. While these advances are appropriate, libraries are facing budget constraints. Such constraints have forced library managers to face practical strategic difficulties in the designing of staff development programmes. These has prevented libraries from sending their employees for training, attending conferences, workshops and seminars (Mapulanga, 2014). Regardless of financial constraints, academic librarians need to learn new processes, methods and to catch up on new trends which will facilitate access to and use of e-resources.

Management of ICTs in organisations involves two levels: the strategic level which includes reviewing and putting in place the most appropriate ways to exploit existing ICTs, and sourcing and using new ICTs that are needed in the organisation; and the operation level which involves providing high quality, reliable ICT services to the organisation through capacity-building, development, implementation, application and by monitoring usage and effectiveness of systems. Both levels of ICT management require people with appropriate ICT skills, and these are largely absent in most libraries. Generally, there is a low level of technical knowledge of

ICTs among most library administrators and this makes it difficult for them to manage the facilities at the strategic level (Chisenga, 2009). Furthermore, it has been indicated that at the operational level, depending on the level of sophistication of available ICT infrastructure, a library may require database administrator, systems analysts, network administrators, software engineers, website designers and many others. These skills are never taught in library and information studies schools. Therefore, it is difficult for libraries to recruit individuals with ICT skills.

Earlier, Rosenberg (2006) indicated that 39 libraries (63%) indicated lack of retention of trained library staff as one of the main challenges they faced in providing access to and use of e-resources and other services. Okello-Obura and Kigongo-Bukenya (2011) noted that staff development in Uganda continues to face many problems such as lack of adequate education, absence of LIS educators, and lack of appreciation by policymakers of the role of libraries, poor standards of LIS programmes, inadequate technology infrastructure, and inadequate funding. Problems of staff training in Zimbabwe ranged from lack of technology transfer, information explosion, brain drain, and problems with collaboration and partnership, funding and research development (Chisita, 2009). It is highly recommended, therefore, that core training in library and information studies be complied with systems training so that there is a new crop of 'digital librarians' (Moshoeshoe-Chadzingwa, 2009).

During technology planning, managers tend to focus on the hardware and software and ignore staff and user training. Mutula (2008) is of the view that ICT and human resource are major problems in ICT planning for effective services in academic libraries. These problems appear. For ICTs to be implemented in academic libraries, general knowledge of ICT must be increased to allow planning and implementation of policy. ICT training and awareness must be carried out to increase the knowledge among librarians, users and to allow planning and implementation to be effective. It is therefore clear, that if policy is not in place, then, implementation of ICTs will not be effective, thereby affecting access to and use of e-resources. ICT skills and knowledge acquired from training will assist librarians in planning and implementation of ICTs in libraries. Mutula (2008) is of the view that local content for all media and creation of awareness about ICTs should be developed in order to enhance understanding of the use and potential of digital technologies. This will inform all stakeholders

about the ICT project as plans are made, thereby allowing them to have positive attitude towards the planned ICT implementation in academic libraries (Onoriode *et al.*, 2012).

RIN (2010) reported that there is a need for an appropriate balance between content and services. Unless libraries have staff with skills necessary to deliver the kinds of services that students and academics require, libraries will be unable to provide effective support for institutional missions, and as libraries face the need to develop new skills, the demand for old skills does not go away. Libraries are increasingly being asked to play an important role in the development of more effective arrangements for managing, curating, sharing and preserving data created or gathered by researchers. Such a role requires libraries to develop new skills and services, and their ability to do that is increasingly constrained in the current financial climate. Most libraries in the Sub-Saharan region have been mandated to collect and preserve all publications produced within a country. Most existing legal deposit laws only cover print-based materials. Yet there are so many documents being generated and distributed primarily in digital formats which are not being collected or deposited at the libraries. The situation in many countries is still not clear as to who is responsible for the long-term preservation of digital information resources and libraries appear not to be making a case for the preservation of these resources (Chisenga, 2006).

In 2008 to 2009, NUL designed a diploma programme in Library and Information Studies, specifically for the sub-region and Lesotho environment. The curriculum offered courses that were relevant for digital librarianship and, to enhance access to and use of e-resources. Students were trained through a host of theoretical and practical courses that covered, for example, computer appreciation, digital records management and e-databases and IL. The programme was designed to be a catalyst of change for libraries in schools, colleges, government ministries and numerous types of non-governmental organisations in Lesotho. This has been a major challenge for libraries in Lesotho to try and have new skills and well trained human resource developed locally (NUL Library Report, 2012).

3.8.9 Lack of electronic resources usage statistics

In the internet era, download counts and usage statistics of e-resources are considered as important indicators for library managers. Kapoor (2010) observed that initially, an important indicator for measuring the effectiveness of libraries was the lending statistics and number of visitors coming to the library during a specified period. Gradually, with the advent of photocopy machines and their use in the library, the amount of copying of articles became another tool for measuring the use of library resources. According to Tenopir (2009), usage is an implicit measure of the value of the library collections and services. Thus, use analysis and the subsequent data support the library management to:

- Benchmark the needs;
- Utilise the grants judiciously;
- Monitor the effectiveness and appropriateness of existing practices;
- Track changes and detect gaps in the existing systems or services to update them; and
- Design a perfect information support system that is based on the needs of the management and users (Suseela, 2011).

According to Jasco (2004), the Counting Online Usage of Networked Electronic Resources (COUNTER) is one of the many important measures of usage of networked resources across different publishers, products and has become a way for libraries as well as publishers to work together to set a reliable practice. COUNTER has great potential in helping libraries to gather data and compile reports on e-journal usage. The important components in usage data are:

- What is being used (content: full-text, abstracts, table of contents);
- Who is using it (user by Internet Protocols (IPs) or user Identification (ID));
- How is the database used (activity: explained sessions, searches, linking);
- When is the context being used (by period); and
- How will data be presented (format: HTML, PDF and so on) (Jasco, 2004).

Peters (2002) noted that, for libraries, e-resources usage statistics usually come from publishers, aggregators and vendors. Both librarians and publishers/vendors/aggregators can gain valuable information from these statistics. Funding agencies, library boards, and other

stakeholder groups are keenly interested on how e-resources are used. Presumably, they see in e-resources usage statistics a way to provide an output measure of their investment of resources into digital content. E-resource usage statistics could become the cornerstone of management information systems for library decision-makers. E-resource usage statistics could transform certain core functions of librarianship (for example, collection development and management).

Publishers also, are keenly interested in e-resource usage statistics. They want to know which resources and parts of resources are receiving the most use. Editors, contributing authors, and editorial boards are also interested in usage. Aggregators and vendors of e-resources usage statistics are increasingly interested in e-resource usage statistics, in part because reimbursement models to publishers, authors, and other copyright and intellectual property holders often include a component that depends on the amount of usage of that content. Two major web-based e-book library vendors, Questia media and e-library have reimbursement models of this nature (Peters, 2002).

Blecic *et al.*, (2001) suggested that libraries should collect usage statistics monthly throughout the year, rather than during shorter randomly selected data collection periods. Frequent ongoing data collection helps gauge the adoption and diffusion of the use of the e-resources throughout the service population. Suseela (2011) noted that usage log data provide necessary information to libraries to establish the usefulness of the databases, it can be taken as an authentic support for renewing, cancelling or upgrading e-resources. Similarly, it can be used to augment more funds to subscribe additional e-resources or upgrade the collections to the highly using disciplines.

Reliance on vendor-supplied e-resources usage statistics has several disadvantages. Some vendors may be reluctant to supply usage statistics, because they are fearful that low or uneven usage may cause libraries or consortia to demand changes in pricing terms, and scope of content when licence agreements come up for renewal. Vendor-supplied usage statistics usually are resource-centric, which may not best meet the needs of the library or consortium that wants to make use of this information. Definitions of key concepts and terms may be difficult to obtain

from vendors. Customised analysis may be prohibitively expensive or delivered too late to be useful (Peters, 2002).

3.8.10 Lack of electronic information searching skills

According to Adenkule *et al.*, (2007) one of the common barriers to the use of ICTs in the digital age is associated with IL. IL is an art that extends from knowing how to use computers and access information to critical reflection on the nature of information itself, its technical infrastructure and its social, cultural and philosophical context and impact. This digital age is characterised by enormous challenges as new innovations in ICTs are emerging. The skills to find, locate and use information from print sources, computer and other storage media must be acquired to be able to plan and implement ICT by librarians. To acquire these skills, librarians need an education which is ICT-based. This type of education will assist academic librarians in articulating the reasons why ICT must be deployed in their libraries (Onoriode *et al.*, 2012).

Access to related information is a key requirement for exploratory search. Modern search engines try to supplement their search results with additional sources of information for users to explore. These include related searches, similar pages, and others. These sources are often useful when search results do not contain the required information or when users want to inspect several documents on a subject (Efe *et al.*, 2011). Exploratory search is referred to any activity in which users inspect several documents and learn about the search topic while doing the search. Exploratory search often requires significant mental effort. During exploratory search, users may be engaged in knowledge acquisition, comprehension, interpretation, comparison and aggregation of concepts, ideas, and data (Efe *et al.*, 2011). Therefore, if a user lack searching skills, it means he or she will not be able to access and use e-resources. As Marchionini (2006) stated, a search starts with a precise query. A user may be forced to reformulate his or her query when the required query not found in the search results (Jansen *et al.*, 2007). Users often make mistakes in their choice of words due to misconceptions or cultural biases (Efe *et al.*, 2011). For example, a user may enter a search term 'football' to mean 'soccer'. Earlier, Jansen *et al.*, (2000) noted that determining the users' intent was difficult because users' queries are short, consisting of two to three words. Oyedapo and Ojo (2013) conducted a study on the use of e-resources in Obafemi Alowowo University, in Nigeria, where

they observed very low usage of e-resources. The major reason that contributed to low utilisation was limited searching skills.

3.8.11 Lack of awareness concepts

Fourie (2003) observed that timely access to appropriate, quality information is often associated with power, progress and prosperity. The need for people to keep up with the latest developments in their areas of interest has long been recognised. Similarly, the threat of information overload has been recognised. Asemi and Riyahiniya (2007) observed that awareness of the existing library e-resources was crucial in influencing the usage of the resources and maintained that when a user is aware of resources, it would usually lead to a greater use of e-resources. Msagati (2014) conducted a study, investigating awareness and use of scholarly e-journals by members of the academic staff of Dar es Salaam University College of Education in Tanzania, while Baro *et al.*, (2011) carried out a similar study at the Delta State University, both studies cited lack of awareness as the major challenge why e-resources were being utilised. Anaraki and Babalhavaeji (2013) found that the greatest obstacles to the use of e-resources were inadequate information about the existence of these databases and lack of training. Similarly, Rehman and Ramzy (2004: 150) commented: “while libraries purchase and install the latest, most technologically advanced computerised information systems and procure expensive resources, these may not be optimally used due to lack of awareness or lack of ability to use these resources among users”. Finally Okello-Obura and Magara (2008) supported this notion of under-utilisation and stated that the common obstacle in the use of e-journals in higher learning institutions was lack of awareness about the resources. It is evident from the above challenges that, academic libraries, especially systems librarians, subject librarians and other specialists have not fully embraced digital resources approaches, and therefore need to embrace them to effectively enhance access to and use of e-resources. The following are some of the strategies to enhance access to and use of e-resources.

3.9 Strategies to enhance access to and use of electronic resources

The following section discusses in detail, strategies that enhances access to and use of e-resources.

3.9.1 Information retrieval skills

E-resources are the foundation of provision of accurate and timely information for better educational outcomes. They assist in the retrieval of huge amounts of information for teaching, learning and research. Owing to the information explosion and the emergence of new technologies, information needed by students, the majority is found in e-resources in the academic libraries. According to Ekenna and Iyabo (2013), ICTs centres and computer laboratories have brought an alternative to facilitate access to scholarly information from around the world which enhances learning. In this era of competitive research and knowledge acquisition, university students now patronise their university libraries to retrieve accurate and current information from e-resources available in all subjects. However, the optimal use of e-resources by students may depend on their information retrieval skills. Wien (2000) defined an information retrieval skill as the ability to find information in such a way that non-relevant data are excluded while relevant information is found.

Information retrieval skills are crucial for retrieving information in this era of technology and that most of the information needed for research can be retrieved from e-resources. Ekenna and Iyabo (2013) observed that students' efforts to complement their work with e-resources may be limited due to lack of skills. Therefore, knowledge of skills necessary to selectively retrieve accurate, relevant and up-to-date information stored in documents instead of all the information that may not be relevant for their academic work. Therefore, skills acquisition is in fact very crucial to the use of e-resources because information in electronic forms can only be used if students possess the skill to retrieve the exact information needed for teaching, learning and research. Ozoemelem (2009) argued that students must acquire and practice the skills necessary to retrieve information from e-resources. To surmount the problem of retrieving information, students may require a combination of skills which include information retrieval, operational retrieval and strategic retrieval skills to make the process of retrieving a simple process.

According to Gui (2007), informational skills include those needed to navigate, select the appropriate information, evaluate the information and re-use information. These skills as well as informational retrieval entails being able to handle the changing contents of computer and information sources and knowing where and how to look for the resources. Gui (2007) further

described operational skills as the ability to operate computers, internet connection and their basic applications. For operational retrieval skills students need to learn to operate the computer and understand how the information systems are organised by learning the basic skills such as use of keyboard, mouse and others. Learning the standard software (word processing, databases and others) and network applications such as e-mail, internet and others are also required for retrieval of information. McGuigan (2001) is of the opinion that level of computing and internet experience gained by students prior to entering higher education might influence their readiness to library's e-resources. Student also need to have strategic skills for retrieving information from e-resources.

Strategic skills are the capacities to use computer and network sources as the means of achieving particular and general goals of improving one's position in society (Gui, 2007). For strategic retrieval skills, students need the ability to plan, create appropriate queries and search terms which would enable students to retrieve relevant information (Ekenna and Iyabo, 2013). Strategic retrieval skill is also significant in information retrieval. It assists in the improvement of search skills. Students' improvement in search skills could speed up the whole information search process and equally contribute to a more effective and comprehensive search (Chu and Law, 2008). Aina (2004: 365) explained that some search strategies such as, Boolean logic, truncation and proximity features are useful for retrieval of information.

Herring (2010) revealed that to effectively retrieve information students need to value and implement information skills effectively as this would have an effect on how they find and use information, concepts and ideas for their assignments. Kari (2004) stated that information skills is necessary for students so as to equip them with knowledge to cope with information. Furthermore, Kari (2004) posited that students require adequate knowledge of information skills. Ahmed and Cooke (2008) indicated that utilisation of e-resources and the improvement of information skills are important for end users.

Operational retrieval skill which is the ability to exhibit some level of competence in the use of computers and the network connections is very crucial for information retrieval. Therefore, students are expected to have frequent interactions with the systems' hardware and software to

enhance competences required for information retrieval (Ekenna and Iyabo, 2013). According to Mutshewa (2008), skill is improved through practice and frequent use of information retrieval system. There is a need for well-defined development programmes that could help users to be competent in the use of information retrieval system.

E-resources are beneficial for teaching, learning and research. However, lack of skill would probably inhibit students' retrieval of information from e-resources. Therefore, skill is necessary for retrieval of relevant and up-to-date information for students' work. Kari (2004) explained that skills required to use e-resources are higher than the one required for searching printed sources and that students need to master certain skills to exploit and use the growing range of e-resources. Undergraduates therefore, need skills such as informational retrieval, operational retrieval and strategic retrieval skills for speedy retrieval of the exact information needed from e-resources. Undergraduates equipped with these skills should be able to recognise, distinguish ways of addressing the gap and locating information stored in e-resources. Moreover, they should be able to perform literature searches, organise and communicate information retrieved, satisfactorily in their research work (Ekenna and Iyabo, 2013).

3.9.2 Information literacy skills

The term IL is the ability to define one's information needs and then to access, evaluate, process and use retrieved information strategically (ALA, 1989). Julien (2001) defined IL as the ability to make efficient and effective use of information sources. IL includes having skills to, not only access information, but also to ascertain its veracity, reliability, bias, timeliness, and context. IL is important in the contemporary environment of rapid technological change and proliferation of information sources. ICT advancements and the use of e-resources, especially the internet, promises to improve the flow of information to research and academic communities (Manda, 2005).

According to Idiodi (2005), IL skills acquisition is an aspect of IL and may be seen as the process of gaining the tools that assist the development of IL in an individual. Information

literacy implies the intellectual capabilities involved in using information, as distinct from the technical know-how required for using information technologies that hold or deliver data. Users with low information literacy skills may spend too much time retrieving information, owing to problems they may encounter when seeking information especially electronic information resources (Okiki and Mabawonku, 2013). To retrieve information in the open web, not only formal information skills are needed but substantial information skills. Thomas (2005: 65) observed that sophisticated computer skills do not automatically translate into skills in search and retrieving of information.

ALA (1989) observed that the concept and practice of IL has not gained ground at grass-root levels in developing countries. Okiki and Mabawonku (2013) conducted a study to investigate the influence of information literacy skills on research productivity of academic staff in Nigerian federal universities. The findings of the study revealed 61% of the respondents claimed that their institution libraries did not organise information literacy skill training. This could be considered to be too high. Out of the 39% reported that their libraries organised IL skill training, 26% stated that the training was done occasionally, 6.8% indicated that it was done annually; and 3.9% indicated that it was done quarterly. This result showed that most of the academic staff did not acquire information literacy skills through the training organised by their institution libraries.

In Uganda, libraries have realised the importance of IL programmes as a way to ensure maximum utilisation of their very costly e-resources. For users to know the available resources, awareness is very important and also the ability to access and utilise the resources. Access does not usually mean usability (Kinengyere, 2007). In 2005, Makerere University Library organised a training workshop on e-databases, such as HINARI and AGORA. Some of the exercises involved accessing relevant websites on the internet and others were conducted offline. The aim of the workshop was to provide researchers, policy-makers, educators, librarians and extension specialists with the tools to take advantage of this access to high-quality, relevant and timely information on agriculture and health. This contributed towards strengthening research and education in agriculture and health in Uganda, and encouraging cross-disciplinary collaboration. INASP organised training workshops which attracted all universities in Uganda. The programme focused on ICTs and e-resources management training;

delivering information; strengthening national research publications; research and development and monitoring and evaluation of e-resources usage. The workshop also focused on licensing and negotiation skills for librarians. Participants were drawn from several African countries such as Ghana, Uganda, Malawi, Kenya, Zimbabwe and the UK. These workshops were to ensure balance in the acquisition of the needed IL skills. The CUUL were represented by member institutions (Kinengyere, 2007).

In South Africa, institutions who offer LIS have declined in the last few years, mainly due to the merger of higher education institutions. *LIS Transformation Charter* of 2009, of the National Council for LIS identifies IL education as a priority for academic libraries. Though institutions and libraries are including IL training in their strategic mission statements, it is not always clear what, when, and how IL should be taught (Tiemensma, 2012). The Committee for Higher Education Libraries (CHELSA) conducted a survey in 2011. All of the libraries (100%) offer an IL training programme in their library. Components covered in the programme include: library orientation/basic library skills (95.2%), using the library online catalogue (100%), using e-databases (95.2%), using the internet (for example, Google Scholar) (90.5%), referencing and plagiarism (95.2%), and other components (47.6%) such as evaluating information, search strategies, identify keywords and information sources. The majority of respondents (85.7%) did not have the IL programme integrated in all curricula. Most of the IL training programmes (86.4%) were not accredited by the South African Qualifications Authority (SAQA) (Tiemensma, 2012). From this survey it was clear that IL training is a priority on the agenda of most higher education institutions in South Africa, although a number of issues need to be addressed. Challenges of information technology demand that students have essential IL skills, and the programme is on-going. Information technology developments have changed the needs of users, as well as the role of librarians. IL education is accepted as part of the academic librarians' mission and it needs a strong place in academic programmes and that the best facilitator of this learning is the librarian (Tiemensma, 2012).

LELICO has been dealing with issues such as awareness in e-resources usage holding workshops and library orientation programmes which are on-going in almost all member libraries. IL programmes, even when integrated into the curriculum, may focus almost exclusively on bibliographic tools and use of academic and professional literature. Therefore,

there is a need to focus on the challenges which are faced in being able to access these resources.

Kakoma and Mariti (2008) carried out a study on the role of Lesotho academic libraries. The focus was on libraries in attaining the Millennium Development Goals (MDGs). The tertiary institutions for the study were: NUL; LP; LCE; LAC; and NHTC which are all members of LELICO, although the focus was not on consortium members. Like academic libraries elsewhere in the world as indicated by Mehra and Srinivasan (2007), libraries of the five institutions, as catalysts for change, are there to support learning, teaching and research activities of their parent institutions. They support the three activities in as many ways: by acquiring relevant information resources; by making the materials available to the clients on a long-term or short-term basis and through having adequate opening hours. The academic governing body of the institution of learning normally determines opening hours and users have to be taught how to effectively use the various information resources. Kakoma and Mariti (2008) discussed that academic libraries of the above-mentioned institutions have introduced IL programmes, with the aim of equipping students with information-seeking skills to produce independent information seekers and users. To ensure that available resources are maximally utilised and more resources acquired, training programmes have been laid down and these included among others a consortium of libraries where a number of activities to promote utilisation were performed by LELICO. Jagarnath (2004: 33) pointed out that having access to the internet or to computers does not guarantee being able to search e-databases effectively, and therefore supports the need for library instruction on the use of e-databases.

As a way of putting appropriate strategies to enhance the effectiveness of LELICO for libraries to manage digital libraries within and around Lesotho, training has been carried out by libraries in cooperation with several partners as indicated in the following table, which shows a list of training activities on e-databases such as HINARI, AGORA, Institute of Physics (IOP), GREENSTONE, and other activities by academic libraries of LELICO.

Table 3.2: Training activities on online databases and other activities from 2006 to 2009

Date	Databases	Partners& Participants	Significance on access & use of e-resources
Oct. 2006	AGORA/HINARI	FAO/ITOCA Activists in the agriculture & health sector	Agric. & health digital libraries linked to relevant users.
Apr. 2007	OA/IRs	INASP Participants form Botswana, Swaziland & Republic of South Africa	Practice and lessons from the neighbouring countries.
Aug. 2008	Publishing Online	Publishers of academic journals in LS, BW, SD, & MU	Sensitise & coach on e-journals and self-archiving.
Dec. 2008	On LELICO	Coordinator's speech at Library Association AGM	The support of LELICO should come from all libraries
Apr. 2009	IOP Databases	IOP Lecturers, researchers & students in Lesotho	Subject approach in managing, accessing & using e-resources.
Aug. 2009	Information Literacy	INASP Lesotho academics, students, and librarians	Awareness of & impart skills on use of digital collections.

Source: Moshoeshe-Chadzingwa (2009)

Abbreviations: FAO: Food and Agricultural Organisation

AGM: Annual General Meeting

BW: Botswana

MU: Mauritius

SD: Swaziland

ITOCA: Information Training and Outreach Centre for Africa

LELICO academic libraries normally held IL training programmes on IL individually in their respective institutions for new students every academic year. Most of these programmes are on-going, that is throughout the year, where users make arrangements with subject librarians.

The training sessions are conducted in computer LANs, where the focus is mainly on empowering students and academic staff with skills on how to access available e-resources. The content normally includes amongst others: searching the internet and specific databases, information sources and professional citing and quotation and citing printed materials versus electronic publications. Other sessions are held to help users access and use the OPAC.

3.9.3 Institutional repositories and open access

Academic libraries are faced with a challenge in accessing research work done in their institutions. This poses a major challenge in supporting teaching, learning, research, and knowledge dissemination. Therefore, libraries have now realised that an alternative solution is to enhance the OA and IRs. According to Lamptey and Corletey, 2011: 106-107), OA and IRs for global information from a remote place are present day's requirement for academic libraries. The implementation of IRs has emerged as a new strategy that has allowed universities and research institutions in the developed world to apply serious control to accelerate changes taking place in scholarly communication.

The Budapest Open Access Initiative (BOAI, 2002) definition of OA: "By open access to literature we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full-texts of articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution and the only role for copyright in this domain, should be to give authors control over integrity of their work and right to be properly acknowledged and cited". OA scholarly literature is composed of free online copies of peer-reviewed journal articles and conference papers as well as technical reports, theses and working papers with no licensing restriction on their use by users. They can therefore, be used for research, teaching and other purposes thereby enhancing knowledge dissemination (Lamptey and Corletey, 2011: 106-107).

OA enables developing countries to have access to research output. However, this will assist academic and research libraries to satisfy the information needs of their users as cost of acquiring journals are outside their budget (Asamoah-Hassan, 2007). On the other hand, Johnson (2002) argued that OA movement and IRs could contribute significantly to economic growth by broadening the market for scholarly publications and research. A key part of the academic research process is publishing results. OA is seen by many as a way to increase the speed of scholarly communication. Both principles are presented in the IR which is an archive of the scholarly output of an institution. They provide an opportunity for staff to publish their research electronically. Digital repositories capture a range of material: working papers, conference papers, pre-and post-print journal articles, teaching materials, datasets, and other forms of scholarship that do not usually see formal publication. Possibly, their biggest value currently is their provision of digital theses (Minčić-Obradović, 2011: 41-43).

According to Moshoeshe-Chadzingwa (2009) OA and IRs enable libraries, especially in economic conditions to:

- Build-up their collections from their own local sources including lecturers research outputs;
- Gather experience of managing e-resources at local levels;
- Stimulate use of resources enriched with a combination of internal and external information; and
- Conveniently and readily meet information demands of both on-and off-campus
- Library clients who may access online resources all at the same time, without the need for the library to duplicate printed copies for all of the users or site libraries.

OA is recognised as an important factor in removing financial and other constraints that prevent researchers from developing countries to global knowledge (Bankier and Perciali, 2008) and is more diffuse in developing countries than in Western Europe and North America (Houghton and Sheehan, 2006). However, Garusing Arachchige (2009) noted that OA is not spread across all developing countries due mostly to the poor state initiatives and the anxiety or reluctance of publishers to reduce their income. But, it has been recorded that, already many initiatives adopted OA through volunteer efforts of researchers (Fang and Zhu, 2006) or through early interventions by the state.

Though IRs and OA has more benefits, there are challenges and problems as well. The main problems of the OA publications considered to the most researchers is the quality (Tsakonias and Papatheodorou, 2008) of articles submitted to OA archives/journals, the insurance of assessment procedures (peer review) to full OA new journals and the question is whether its business model could be sustainable. Some researchers proposed the adoption by editors or the sponsors the author-pays model, which will provide an alternative source of income in order to ensure the continuity and necessary traditional publishing process (Suber, 2008). Asamoah-Hassan (2009) argued that it is difficult convincing university management, researchers and academics that it is necessary to have IRs and get them to agree to plan and support it on a long-term basis. Funding to start and sustain the IRs, reliable and good internet connectivity are major issues and permissions for licensing and copyright issues. The copyright restrictions is an important factor discouraging authors to deposit in an OA archive (Oikonomou, 2011: 131). For developing countries, particularly where maintenance and integrity of scientific knowledge is treated more as a challenge, copyright restrictions is a further issue that requires education and information for librarians and all others involved in the research process (Kanyengo, 2009).

Advocacy for IRs and OA archives in Africa should be intensified, and this should target government policymakers, senior management in universities and research institutes, research scientists, and library and information professionals. Regardless of the above listed challenges, information professionals and academic librarians should see the benefits more than the challenges and seriously advocate for its establishment in their respective institutions. Moreover, knowledge of the information immensely helps in advocating for the establishment so therefore, one needs to be knowledgeable about IRs and OA first. Information professionals will have to make presentations at meetings and gatherings of academics and researchers featuring the benefits of IRs to them (Lamptey and Corletey, 2011: 107-110).

3.9.4 Wi-Fi hotspots

Wi-Fi is a facility allowing computers, smartphones, or other devices to connect to the internet or communicate with one another wirelessly within a particular area. It is increasingly becoming the preferred mode of internet connection all over the world. Jackson (2014) noted

that The Sandusky Library in Ohio, in the US, rolled out one service that patrons can access the internet twenty-four hours a day including e-books, audio-books and movies. The library has become one of the first in the US to offer portable internet hotspot devices. The service, allows any library patron to check out a portable hotspot device for two weeks that will provide wireless internet access. The devices pick up 4G cellular signals and convert them into wireless internet. Many devices can use Wi-Fi, for example, personal computers, video-game consoles, smartphones, some digital cameras, tablet computers and digital audio players. These can connect to a network resource such as the internet via a wireless network access point. Such an access point (or hotspot) has a range of about 20 meters indoors and a greater range outdoors (Jackson, 2014). Wi-Fi allows cheaper deployment of LANs, and spaces where cables cannot be run, such as outdoors and historical buildings.

The pace of broadband usage is fast rising in the Sub-Saharan Africa, with the number of mobile broadband connections set to top 950 million in the next five years (Matarayika, 2014). Matarayika (2014) noted that Wi-Fi internet vendors stand to benefit from the rise in mobile penetration in Sub-Saharan Africa despite massive investments being sunk into 3G and recently 4G. Heavy mobile traffic in urban centres across the region is likely to force internet consumers to switch to Wi-Fi internet accessibility. Furthermore, it has been observed that Sub-Saharan Africa countries such as South Africa, Nigeria and Kenya would be the front runners to capitalise on this.

In South Africa, most of the institutions and libraries have rolled out this service. For example, Wits University is using 'eduroam'. It is a secure global wireless service that enables students, researchers, academic and support staff to obtain secure and fast internet connectivity across participating organisations in 54 countries (Wits University website, 2014). At the University of Pretoria (UP), it has installed several levels of wireless technology over a period of time. The hardware consignment of the project arrived on the 23rd November 2012. Coverage has been provided to communal and departmental venues to meet specific operational needs.

Wi-Fi service is an excellent strategy to enhance access to and use of e-resources in providing learning and research. The advantage is that the service can be utilised anywhere, anytime,

without students visiting the LANs which sometimes are fully occupied, and in most of our African institutions, have fewer computers available for use.

3.10 Summary of the chapter

The chapter introduced the importance of literature review. Concepts, issues, and the importance of consortia were examined. The chapter examined types of e-resources, previous studies were identified regarding access to and use of these resources. The chapter further identified and examined systems to support and facilitate access to and use of e-resources. Furthermore, challenges facing academic libraries were reviewed; and lastly the chapter established strategies to enhance access to and use of e-resources. The following chapter will discuss the research methodology adopted by the study.

CHAPTER FOUR: RESEARCH METHODOLOGY

4.0 Introduction

The present study investigates access to and use of e-resources in the academic libraries of LELICO, to establish the type of e-resources used, how they were accessed; to establish the systems in place to facilitate access and use and, to establish how effective LELICO is, in enhancing access to and use of e-resources. Academic libraries are the primary source for supporting teaching, learning and research. Therefore, academic libraries have a responsibility of ensuring that access to and use of e-resources is facilitated to ensure that teaching and research effectively carried out. The research questions were formulated from the objectives of the study which were based on the purpose of the study.

The chapter describes the research methods which were chosen to investigate access to and use of e-resources in academic libraries of the LELICO. It is important to describe the methods used so as to ascertain the validity and reliability of the findings. Therefore, this chapter includes a discussion of the research design, data collection methods or instruments used to gather data; population of the study, how they were identified; procedures of how instrumentation was distributed to respondents to gather and process data; and statistical methods for analysing the data are also described. The chapter further describes the validity; reliability aspects and the ethical consideration when conducting the research. Lastly, the chapter explains how the research findings will be disseminated to the respondents and other stakeholders in general.

4.1 Research design

Designing a research project involves organising the collection and analysis of data to fulfil the purpose of the research, to provide the findings which are sought. Various types of research design is needed because it facilitates efficient implementation of various research operations, thereby making research as effective as possible, yielding maximum information with minimal expenditure of effort, time and money. A good design is often characterized by its flexibility,

appropriateness, efficiency and economy. Kothari (2004:31) listed components of a research design which include: the nature of the study, area of the study, the type of data required, sampling design, instrumentation, and data analysis technique. The current study used the survey design to gather data using questionnaires and semi-structured interviews. According to Powell and Connaway (2004: 83), the survey is a group of research methods commonly used to determine the present status of a given phenomenon. The basic assumption of most survey research is that, by carefully following certain scientific procedures, one can make inferences about a large group of elements by studying a relatively small number selected from the larger group. Connaway and Powell (2010:107) stated that the strength of survey design, if properly done, allows one to generalize from a smaller group from which the subgroup has been selected.

The design allowed for the collection of empirical data from the academic libraries and allowed data to be analysed statistically in order to describe the state in which access to and use of e-resources in these institutes was facilitated. The design is consistent with the post-positivism paradigm and mixed methods (Creswell, 2007:19). Both qualitative and quantitative methods were used. It permitted the researcher to summarize the characteristics of different groups to measure opinions towards access to and use of e-resources.

4.1.1 Methodological research approach

There are several approaches to research. According to Neuman (2000: 2), approaches involve the study of people; their beliefs, behaviour, interaction, institutions. The following beliefs which are normally called paradigms have a few approaches, of which the positivists, the post-positivist, constructivism, interpretative and critical are best known (de Vos *et al.*, 2011: 5). Creswell (2007: 20) also provided the main paradigms which are found in social science namely: post-positivism, social constructivism, participatory and pragmatism. The present study therefore falls within the social sciences as it investigates access to and use of e-resources in the academic libraries of LELICO. The current study adopted the post-positivist approach. Post-positivism is an open and flexible paradigm, it allows for the development of alternative research strategies that might be able to find information in the most unlikely and creative ways (Glicken 2003: 28). Researchers in this paradigm normally believe in multiple perspectives

from participants rather than a single reality (Creswell 2007: 20). Post-positivism provides the researcher with freedom to use more subjective measures of gathering information. The sample size might be small, while measuring instruments might be created by the researcher. All researchers should be able to explain and defend their research methodologies and make provision for replication of the study. If done correctly, post-positivist research offers social scientists the ability to do research on a small scale using very creative methodologies (Glicken 2003: 29).

The study adopted the post-positivist paradigm because it emphasized the research problem to be investigated. A paradigm is a fundamental model which mirrors an in-depth understanding of what people see and the way people comprehend the model (Babbie 2011: 32). Blaikie (2010: 20) argued that research paradigms were to some extent referred to as traditions or assumptions. The paradigm was used by stating the research questions, identifying the theory behind the problem, data collection, and analysis of results to be presented. Both qualitative and quantitative methods were used to investigate the problem, though the overall approach was the qualitative method. Post-positivism applies a combination of both quantitative and qualitative approaches (Nieuwenhuis 2010: 65). This paradigm allowed both methods to be used to collect data, which were collected from PVC, Directors and Rectors (see Appendix 4), University Librarian and Library Directors (see Appendix 6) and from the systems librarians, acquisitions librarians and subject librarians (see Appendix 2). It must be noted that the focus of the study was on access to and use of e-resources and, not the users' perceptions and attitudes. Therefore, the perspectives of the library users were not the focus of the study. Data was collected on types of e-resources, access to and use of such e-resources, systems to facilitate access to and use of e-resources, challenges facing academic libraries in this regard, and strategies that could be adopted to enhance and provide access to and use of e-resources in academic libraries.

Creswell (2003) noted that qualitative method which involves interviews, documentary and quantitative analysis involves the collection of numerical data using questionnaires. In terms of methodology, the researcher used both the approaches. Qualitative research requires careful thought at the outset; it demands mental agility, flexibility and alertness during data collection; it calls for advanced skills in data management and text driven creativity during the analysis

and write-up (Davies, 2007: 155). According to Gorman and Clayton (2005: 3) qualitative research is a process of enquiry that draws data from the context in which events occur, in an attempt to describe these occurrences, as a means of determining the process in which events are embedded and the perspectives of those participating in the events, using induction to derive possible explanations based on observed phenomena.

Quantitative research is designed to study variables that are measurable and give answers to questions about the relationships among variables that the researcher seeks to know (Creswell, 2009). According to Lodico *et al.*, (2006: 12) quantitative approach involves collecting numerical data that can be counted. Hence, the researcher adopted both approaches to complement each other. Nieuwenhuis (2010: 66) acknowledged that both qualitative and quantitative data yield a more complete data analysis. Onwuegbuzie and Leech (2006: 483) concurred that these two approaches complement each other.

Johnson and Onwuegbuzie (2004:17) and, de Vos *et al.*, (2011: 434) describe mixed methods research as “the class of research where the researcher mixes or combines quantitative and qualitative techniques, methods approaches, concepts or language into a single study”. In the same manner, Tashakkori and Teddlie (2003: 711) defined mixed methods research as “a type of research design in which qualitative and quantitative approaches were used in types of questions, research methods, data collection and analysis procedures, and/or inferences”. According to Fraenkel, Wallen and Hyuan (2012: 557), “mixed methods research design is concerned with the use of both qualitative and quantitative methods in a single study”. Bban (2008: 339) noted that mixed method research is “a combination of at least one qualitative and one quantitative component in a single research design, aiming to include the benefits of each method by combining them”. Ngulube (2010: 255) notes “mixed methods research design enables the researcher to utilize the strength of both approaches, qualitative and quantitative, “and thus increase the overall confidence in the findings of the study”.

The researcher in this regard distributed self-administered questionnaires to systems librarians, acquisition librarians, and subject librarians. Semi-structured interviews were conducted with the PVC, Directors and Rectors and University Librarian and Library Directors in each

institution to elicit qualitative data on e-resources access, use, technological infrastructure, challenges facing academic libraries in this regard and strategies to improve access to and use of e-resources.

4.2 Population of the study

According to Fraenkel, Wallen and Hyun (2012: 92), population is “a larger group of people, objects, or institutions that interest the researcher and from which the sample to be studied is drawn and findings of the study are generalised”. The population of the study was identified from the official website of the Electronic Information for Libraries (eIFL, 2014). Academic libraries that were used in this study were from the list of the nine (9) institutions that constitute LELICO. Subject librarians, systems librarians, and acquisition librarians were found to be personnel who are dealing with or connected with e-resources acquisition, access and use in general, and were found to be e-resources supervisors who were relevant respondents, and the University Librarian and Library Directors were the overseer of the management of academic libraries. The units of analysis of the study was comprised of nine (9) academic libraries within LELICO which included:

- National University of Lesotho (NUL);
- Lesotho College of Education (LCE);
- Lesotho Agricultural College (LAC)
- Lerotholi Polytechnic (LP);
- Centre of Accounting Studies (CAS);
- National Health Training College (NHTC);
- Lesotho Distance Teaching Centre (LDTC);
- Lesotho Institute of Public Administration and Management (LIPAM); and
- Institute of Development Management (IDM) (eIFL website, 2014).

In this study, the population was relatively small, therefore sampling was unnecessary. The entire population was studied. Powell and Connaway (2004: 93) noted that census is a count of all elements of a population, and the determination of the distribution of their characteristics. The following is a table showing a summary of the population studied:

Table 4.1: Population of the study

Institutions /Libraries	PVC	Director/Rector	University Librarian/Library Director	Acquisitions Librarians	Subject Librarians
NUL	1		1	2	16
LCE		1	1	2	4
LAC		1	1	1	4
LP		1	1	1	5
CAS		1	1	1	4
NHTC		1	1	1	5
LDTC		1	1	1	4
LIPAM		1	1	1	2
IDM		1	1	1	1
TOTAL	1	8	9	11	45
<u>GRAND TOTAL</u>	<u>74</u>				

(Source: Personal contacts and websites of respective institutes)

4.3 Data collection methods

There are various tools that can be used to collect data. These tools include questionnaires, interviews and observations. The researcher identified the tools which were suitable for the study and identified what was required to answer the research questions. Chinyemba (2002: 64) noted that an appropriate tool is one that can collect information economically, within the available time. The researcher used a literature search, which assisted in identifying the research methodologies; namely questionnaires and interview method.

4.3.1 Literature review and search

Fink (2005) defined literature review as a systematic, explicit, and reproducible method for identifying, evaluating, and synthesizing the existing body of completed and recorded work produced by researchers, scholars, and practitioners. A literature review involves identifying relevant literature or sources of relevant information (bibliographic access), physically accessing the most relevant literature (document delivery), reading and analysing these works and writing up the literature review. According to Grinnell and Unrau (2005: 46) literature review creates a foundation, based on existing related knowledge. Booth, Papaioannou and Sutton (2012: 1) mentioned that “without a literature review, you will not be able to understand your topic fully. You will not be able to identify what has already been researched and what remains to be explored, and you will deny yourself valuable insights into those methods that are or not appropriate for investigation of your topic.” Review of literature may help one to design his or her own research, to advance a theory against which, one might explore a specific hypothesis, to select tools, instruments or scales that are useful in conducting research and identify gaps which may signal unexplored topics or research questions. The purpose for a literature review is:

- To place each work in the context of how it contributes to an understanding of the subject under review;
- To describe how each work relates to others under consideration;
- To identify new ways to interpret, and shed light on gaps in, previous research;
- To identify and resolve conflicts across seemingly contractor previous studies;
- To identify what has been covered by previous scholars to prevent you needlessly duplicating their effort;
- To signpost the way forward for further research; and
- To locate your original work within the existing literature (Booth, Papaioannou and Sutton 2012: 7).

The review of literature in Chapter Three discussed the relevant literature from various sources such as standard reference materials, research dissertations, journals, books, conference papers, accessible e-databases, and the internet.

4.3.2 Interviews

Interviews play a vital role in information gathering. The objective of the interviews was to obtain information relating to the access to and use of e-resources and the challenges and strategies presented by e-resources and how these can be dealt with in the future. Interviews give the researcher the opportunity to know people quite intimately, and permits the researcher to understand respondents better, that is how they feel or think (Bless and Higson-Smith 2000: 107). There are a variety of interviews. The researcher selected the semi-structured interview schedule for the present study in order to achieve a high response rate, and to eliminate the constraint of time and to overcome the problem of misunderstandings and misinterpretations of words or questions. The following section will focus on structured, semi-structured and unstructured interviews.

4.3.2.1 Structured interviews

A structured interview is consistent with the format of a questionnaire. A variety of response systems or question type exists from which the researcher selects in goal-directed manner in order to obtain the desired information. In this format, a researcher reads questions to the respondent as they appear on the questionnaire and records the respondent's response on the questionnaire. Structured interviews are usually conducted with one respondent at a time. This type of data collection method has the advantage in that the researcher will more than likely have an improved response rate. Respondents are more likely to respond since they do not want to disappoint the researcher. The disadvantages are that this method is time consuming, and respondents may be reluctant to answer accurately in the presence of the interviewer or researcher (de Vos *et al.*, 2011: 186).

4.3.2.2 Semi-structured interviews

Semi-structured interviews are defined as those organized around areas of particular interest, while still allowing considerable flexibility in scope and depth (Dicicco-Bloom and Crabtree, 2006; Jarbandhan and Schutte, 2006: 678; and de Vos *et al.*, 2011: 348). Semi-structured

interviews generally last for a considerable amount of time and become intense and involved, depending on the particular topic. The current study adopted this interview type because of flexibility and scope in depth that could be applied to obtaining the necessary data to answer the research questions of the study.

According to Thomas (2009: 163), an unstructured interview is like a conversation. There is no predetermined format to the interview beyond general interest in the topic. The idea behind the unstructured interview is that interviewees should be allowed to set the agenda they determine for important issues to be covered. Unstructured interviews, also sometimes referred to as the in-depth interview, merely extends and formalises a conversation. At the root of unstructured interviewing is an interest in understanding the experience. It is focused and discursive, and allows the researcher and participant to explore an issue (de Vos *et al.*, 2011: 348).

4.3.3 Questionnaires

Babbie (2007: 246) defines a questionnaire as “a document containing questions and other types of items designed to solicit information appropriate for analysis”. The basic objective of a questionnaire is to obtain facts and opinions about a phenomenon from people who are informed on the particular issue. Questionnaires may be refined or validated during the research project they were designed for and may even become the basis of a future scale (de Vos *et al.*, 2011: 186). Different types of questionnaires can be identified, an overview of which is presented below.

4.3.3.1 Mailed questionnaire

A mailed questionnaire is, according to Grinnell and Unrau (2008: 288-291), a questionnaire which is sent by mail with the expectation that the respondent will read the instructions, answer the questions and then return it to the researcher. The important aspect here is that the respondent and the researcher are physically removed from one another, and the questionnaire is the only communication channel between them. The advantages of the mailed questionnaire

are that the costs are relatively low, the respondent enjoys a high degree of freedom in completing the questionnaire, and information can be obtained from a large number of respondents over a wide geographical area within a brief period of time. Mailed questionnaires also offer anonymity, and respondents can complete the questionnaire at a convenient time and can check personal records if necessary (de Vos *et al.*, 2011: 187). However, the mailed questionnaire also has certain limitations. The non-response rate may be very high, especially with regard to long questionnaires and unclear or open questions. Complex questionnaires requiring in-depth thought will also yield a low response rate. Some questions in mailed questionnaires are often left unanswered or are wrongly interpreted, and this is difficult to deal with it.

4.3.3.2 Telephonic questionnaires

With telephonic questionnaires, respondents are phoned by interviewers, who asks questions and record the answers. Although a telephonic questionnaire is categorized as a type of questionnaire, from a methodological point of view it is more a type of structured interview schedule, as a researcher asks the questions telephonically through a person-to-person interview (Maree and Pietersen (2007: 157). Advantages of a telephonic questionnaire enables researchers to gather data quickly, allowing immediate investigation of an event, rather than weeks after the fact when memories are stale. Though expensive, the telephone survey still costs less than field interviews. Finally, this method is convenient as the researcher can gather data from widely dispersed populations without leaving the office. A major limitation, however, is the cost of long-distance calls. Also, because not everyone has a telephone, bias can creep into the sampling because only households with telephones can be reached. Babbie (2007: 270) noted that telephone interviews should be used mainly for exploratory rather than in-depth research. Another potential problem for telephone interviewing is the prevalence of answering machines, and phone lines being tied up by faxes and Internet access.

4.3.3.3 Group-administered questionnaires

In a group-administered questionnaire, each respondent in the group completes the questionnaire, while the researcher is present to give certain instructions and clarify possible

uncertainties. The main advantage of this method is that a significant amount of time and cost is saved since the whole group of respondents completes the questionnaire at the same time, they are handled simultaneously and consequently also exposed simultaneously to the same stimulus. There are disadvantages to this method. Obtaining a suitable venue and a time slot which suits all respondents may create substantial problems. Some respondents may experience difficulties in understanding certain questions and instructions, but because they are too embarrassed to ask for clarification in the group, they may answer the questions arbitrarily, which can also affect the validity of the data (de Vos *et al.*, 2011: 189). This method is quite useful in studies at the workplace as it would be easier to arrange respondents in a group setting.

4.3.3.4 Electronic questionnaires

Grinnell and Unrau (2008: 298) proposed three types of electronic survey. The first one is the emailed survey in which the researcher sends an e-mail with an attached questionnaire for the respondent to complete. The second is the web-based survey that requires the respondent to complete the questionnaire online through a website. The third method concerns the use of computerised Interactive Voice Response (IVR) systems and relies upon automated telephone calls. Another type of electronic survey is the touch screen option where a respondent indicates choices by touching areas on the computer screen instead of having to use a keyboard or mouse. In essence, electronic surveys do away with paper-based questionnaires by entering the data directly into an electronic computerised database. An advantage of electronic questionnaires is that the data are directly entered into a database, mistakes are limited and the use of paper is eliminated. However, several electronic verification techniques exist that fulfil the verification role of paper questionnaires. Another advantage of using computers is that data can easily be collected from remote areas by using the internet, cell phone or 3G technologies (Grinnell and Unrau 2008: 300). A disadvantage is that illiterate respondents may be less familiar with using a computer and that many people still do not own computers or do not have access to the web. Grinnell and Unrau (2008: 300) argued that Web-based questionnaires may become so long and complicated that some computers may be unable to process complex questionnaires and they also require more complex programming skills. If a questionnaire is distributed electronically, it will only reach those who have access to and are comfortable with using e-mail and Web technology (Powell and Connaway 2004: 126).

4.3.3.5 Self-administered or individually administered questionnaires

Powell and Connaway (2004: 125), noted that self-administered questionnaires help to produce frank answers, because the respondents attempt to answer the questions without the researcher being present. The questionnaires are fixed, in that they tend to eliminate variation in the questioning process. Once the questions have been written in their final version and included in the questionnaire, their contents and organization will not change. Self-administered or individually administered questionnaires delivered by hand are completed by respondents in their own time and the researcher then collects them at a later stage. By handling questionnaires in this way much time is generally saved. Response rates are raised because of the personal contact on the one hand, and the fact that researchers merely distribute the questionnaires and do not bother the respondents at an inconvenient time. If respondents experience difficulties with the questionnaire, they can clarify the matter with the researcher on his or her return. Sometimes it may be feasible to leave the questionnaire in a mailbox or under a door, and to arrange by note that the respondent places the completed questionnaire where the researcher can fetch it. In such a case there is absolutely no personal contact, which may be either positive or negative (Powell and Connaway 2004: 126).

The hand-delivered questionnaire also has limitations. High costs and the fact that a smaller geographical area can be covered per occasion because researchers have to return to collect the completed questionnaires are important disadvantages. On occasion a researcher may find that the respondent has simply lost the questionnaire or did not complete it. In such cases the researcher must distribute a second questionnaire or complete it directly and personally in the presence of the respondent (de Vos *et al.*, 2011: 188).

De Vos *et al.*, (2011: 190) explained that there are no hard and fast rules for selecting the type of questionnaire, and each researcher must assess which will be suitable for the type of investigation and for the purpose of the research. The choice of method is often a matter of experience and factors such as time limitations, financial aspects and availability of people and infrastructure. They further explained that the structure and length of the questionnaire are also factors to consider. Questionnaires should be brief, including only those questions which are absolutely necessary to collect all the relevant information. It should be long enough to

incorporate all the questions so that a situation does not arise later where information is missing or where a concept is inadequately represented in the number of items in the measurement tool. It is important to work according to a principle of economy so that respondents can communicate as much information as possible in the briefest possible time (de Vos et al., 2011: 193). Grinnell and Unrau (2008: 300) argue that the main consideration influencing the choice of method concerns a calculated risk in terms of response rate. The following section provides an overview of the main research instruments used in the study.

The main data gathering tools which the researcher adopted were the self-administered questionnaire (see Appendix 2) and semi-structured interviews (see Appendices 4 and 6). The number of questionnaires distributed were fifty-six (56) and interviews held were administered to eighteen (18) people. A reason why the researcher adopted the self-administered questionnaire as the main instrument was that questionnaires are intended to facilitate communication, usually brief (Davies 2007: 82). The researcher wanted respondents to feel unintimidated, so that they can freely attend and answer questions without fear. Babbie and Mouton (2001: 261) noted that response rate of self-administered questionnaires allow the researcher to be able to achieve a higher response rate with a literate population which has a detectable address. Questionnaires tend to elicit responses that fit into broad categories, with little opportunity for respondents to express complex emotional feelings in response to impersonal questions (Burton and Bartlett 2009: 76).

The following type of questions which were included in the questionnaire and the interview schedule of the present study are discussed in this section: open-ended questions; closed-ended questions; dichotomous questions; and follow-up questions. The types of questions for the interview schedule were open-ended, while the questionnaire applied open-ended, closed-ended, dichotomous questions and follow-up questions. The following section describes each type of question.

4.3.3.5.1 Open-ended questions

Neuman (2006: 286-288) described that open-ended and closed-ended questions are used to collect data which is subjective and objective. Open-ended questions were used in the interview

schedule. Fitzgibbons (2003) noted that these type of questions have advantages of both being easier and faster for respondents to complete. Respondents were given an opportunity to raise issues that they thought were significant. According to Neuman (2006: 287), open-ended questions permit an unlimited number of possible answers, adequate answers to complex issues, and creativity, self-expression and richness of detail. The open-ended question has advantages when a variable is relatively unexplored or unknown to the researcher. In such, open-ended questions enable the researcher to explore the variable better and to obtain some idea of the spectrum of possible responses. Open-ended questions allow respondents to answer in detail and to qualify and clarify responses, and make space for unanticipated findings to be discovered. They reveal the respondent's logic, thinking process and frame of reference (Neuman, 2006: 287).

4.3.3.5.2 Closed-ended questions

Closed-ended questions provide for a set of responses from which the respondent has to choose one or more responses, for example, 'Other (Please specify :.....)' these questions offer the respondent the opportunity of selecting (according to instructions) one or more response choices from a number provided (Babbie and Mouton, 2001: 234). The closed-ended question is advantageous when a substantial amount of information about a subject exists and the response options are relatively well known (Maree and Pietersen, 2007: 161). Advantages of closed-ended questions are that respondents understand the meaning of the questions better, questions can be answered within the same framework, responses can consequently be compared better with one another, answers are easier to code and statistically analyse, response choices can clarify question meaning for respondents, there are fewer irrelevant and confused answers to questions, and replication is easier (Neuman, 2006: 286). The disadvantages of closed-ended questions are that they can suggest ideas that respondents would not otherwise have had; respondents may be frustrated because their desired answer is not a choice; misinterpretation of a question may go unnoticed; and they may force respondents to give simplistic responses to complex issues (Neuman 2006: 287).

4.3.3.5.3 Dichotomous questions

Dichotomous type of questions were included in the questionnaire. These types of questions have only two response possibilities, for example 'yes or no'. They are always followed by questions further exploring both response options (Powell, 1997: 94).

4.3.3.5.4 Follow-up questions

They are specifically applied to obtain more information about a response to a previous question. Grinnell and Unrau (2008: 284) advised that less-sensitive questions should always be asked first before moving on to more sensitive ones.

4.4 Procedure for data collection

The following section provides an overview of how the data collection processes were carried out.

4.4.1 Administering the questionnaires and interview schedules

Permission to conduct the study before data collection was sought from LELICO. LELICO gatekeeper's permission was granted (see Appendix 7). The researcher also asked for expressed gatekeeper permission from the University Librarian and Library Directors and Directors of the nine academic libraries where studies were conducted in order to distribute the questionnaires and to conduct interviews. There were no minors used in the study, therefore, no permission was sought from legal guardians or parents. The research had to comply with the ethical clearance checklist of UKZN.

The study employed the use of self-administered questionnaires to collect quantitative data from the systems librarians, acquisitions librarians, subject librarians and interview schedule to collect qualitative data from the, PVC, Directors and Rectors, University Librarian and

Library Directors. For the interview schedules, the researcher made appointments with the respondents to arrange time, place and date for interviews that were conducted by the researcher. An informed consent letter (see Appendix 1) and self-administered questionnaire (see Appendix 2) were distributed to all members of the population using the list of names and contact details from LELICO/eIFL website. The covering letter explained the purpose of the study and requested the respondents to complete the questionnaire within a stipulated date and time. Sections covered in the questionnaire included: background information of the respondents, e-resources access, e-resources use, systems in place to enhance access and use of e-resources, LELICO's effectiveness on access and usage of e-resources, challenges facing access to and use of e-resources, and strategies to enhance access to and use of e-resources. Data was collected from August to September 2015. All self-administered questionnaires were hand delivered. The questionnaire used two types of questions, namely; open-ended and closed questions. Respondents were given a chance to provide their own responses from the series which were suggested, Babbie and Mouton (2001: 234). Respondents were allowed four (4) weeks to complete the questionnaire. A reminder was sent to the recipients during the third week. A deadline was set for the respondents for collection by the researcher once they were filled. Respondents were reminded by e-mail and telephonically, and by using Short Message Service (SMS) before the due date for feedback and collection. This was done to avoid a low response rate. Of the fifty-six (56) copies administered, thirty-nine (39) were returned and all were found useful for analysis, resulting in a 69% response rate.

4.4.2 Administering the interview schedules

According to Punch (2009: 144), "interviewing is the most prominent data collection tool in qualitative research. It is a very good way of assessing people's perceptions, meanings, definitions of situations, and constructions of reality. It is also one of the most powerful ways we have of understanding others". Gorman and Clayton (2005: 125) asserted that, "the first advantage of interviewing is that it allows you to receive an immediate response to a question, unlike other forms of data collection (for example, postal surveys), which may result in significant delays in the data collection process. In addition, interviewing allows both parties to explore the meaning of questions posed and answers proffered, and to resolve any ambiguities". All interviews were conducted in their respective offices, at a time of their convenience. The interview sessions conducted by the researcher, began with a formal

introduction where the researcher firstly, stated the purpose of the interviews and the reasons why respondents were selected for interviews.

In this study, face-to-face interviews were conducted, and the advantage was that units of analysis of the study were all in the same district. This means, geographically, they were not widely dispersed, and that was an advantage when conducting the face-to-face interviews. A standard interview schedule was used for each respondent. In this case it was the nine Heads of institutions which formed part of the population for the study. The schedule had three sections namely: Institutional Library; Funding/Budgeting; and Institutional Repositories. The objectives of the questions were to ascertain the importance of e-resources in supporting teaching, learning and research; budget allocation for their libraries; and to find out if there were strategies in place to improve funding for e-resources. The types of questions for the respondents were open-ended questions.

Interview schedules with a copy of informed consent letters (see Appendices 3 and 5) were attached, so that they could participate in the interview. Four (4) interviews were conducted with PVC, Directors and Rectors were interviewed face-to-face using the first interview schedule (see Appendix 4). Leedy and Ormrod (2005: 184-185) acknowledged that face-to-face interviews “have the distinct advantages of enabling the researcher to establish rapport with the potential participants and therefore, gain their cooperation, thus such interviews yield the highest response rate”. This was done to obtain clarity in terms of their views regarding access to and use of e-resources in academic libraries of their institutions which they were leading. At the end of the interview, each respondent was given a chance to air his or her opinion and all the responses were summarised.

The second interview schedule (see Appendix 6) was administered to the five (5) University Librarian and Library Directors. The objectives of these interview questions were to ascertain the availability of e-resources collection development policy in respective libraries. Other questions explored in this schedule included initiatives and strategies to enhance access to and use of e-resources; training of library staff for innovation and effective management of e-resources was covered as well as; questions on systems in place to facilitate access of e-

resources and challenges facing libraries in terms of facilitating access and use. All the interviews were tape-recorded. The following section discusses how data was analysed within the present study.

4.5 Data analysis

There are two main forms of research data, such as number and words (Blaikie 2010: 161). Data analysis is “the process of making sense out of data” (Merriam 2009: 175). According to Gorman and Clayton (2005: 206) argued that “data analysis is the process of bringing order, structure and meaning to the mass of collected data”. Content analysis in qualitative enquiries classifies textual material by reducing it to more relevant, and manageable bits of data (Gorman and Clayton 2005: 213-214). According to Leedy and Ormrod (2005: 142), content analysis is considered a detailed and systematic description of the manifest content of communication to identify patterns or themes. For qualitative data, it was analysed by sorting and organised using thematic content analysis. Before data was analysed, it had to be cleaned in order to check its consistency and reliability, as well as for completeness. Recorded data were evaluated, and subjected to themes by coding and developing of data (Creswell, 2008). Qualitative and quantitative data were summarised before they were processed.

Closed-ended questions from the questionnaires were coded and converted into numerical codes. Coding refers to the process of organizing and logically interpreting research data (Kalof, Dan and Dietz 2008: 95). This was done to allow tabulation and to be tallied. Terre Blanche, Durrheim and Kelly (2006: 324) argued that coding means breaking up the data in analytically relevant ways. The open-ended questions were content-analysed before they were coded; and they were arranged into meaningful related parts or categories (Saunders, Lewis and Thornhill 2003: 380). As mentioned earlier, open-ended questions were content analysed to allow interpretation of responses, both in the interview schedule and the questionnaire. According to Ngulube (2010) quantitative analysis is a process of making meaning from the data collected and as such is essential to reveal the findings of the study Quantitative data was analysed using SPSS Version 20.0. SPSS is a computer software programme that provides an on-screen, self-help tutorial and, like most software programmes, it is relatively easy to use at a basic level (Davies 2007: 118). SPSS was utilised in order to find answers to the research

questions and to adequately communicate the research findings of the present study. Berg and Lune (2012: 355) argued that quantitative data analysis shows how researchers can create a series of tally sheets to determine specific frequencies of relevant categories, whilst qualitative data analysis shows how researchers can examine ideological mind sets, themes, topic, symbols, and similar phenomena, while grounding such examinations in data. Data was presented in the form of tables. The following chapter (which is Chapter Five) will present the results.

4.6 Validity and reliability of the research instruments

According to Powell and Connaway (2004: 43), research is considered to be valid when the conclusions are true and reliable when findings are repeatable. Therefore, reliability and validity are actually requirements for both the design and the measurement of research. Validity and reliability are two fundamental elements in the evaluation of a measurement instrument. Instruments can be conventional knowledge, skill or attitude tests, or survey questionnaires. Reliability is concerned with the ability of an instrument to measure consistently. Reliability occurs when an instrument measures the same outcomes. The reliability of a measurement procedure is thus the stability or consistency of the measurement (Salkind 2006: 106). The self-administered questionnaires were pre-tested before the actual survey was conducted. Reliability is concerned with the findings of the research and relates to the credibility of the findings (Mitchell and Jolley, 2001). Reliability refers to the consistency of the information one gets and validity refers to the accuracy of the information. To make sure that the instrument was adequately reliable as much as possible, the study adopted the approach used by Nsanzya (2003) who pre-tested the research instrument on academic staff and librarians at University of Natal, Pietermaritzburg (UNP) who were not part of the project.

According to Cohen, Manion and Morrison (2000: 394), pre-testing is highly recommended because this process allows for refining research instruments, so that the study can overcome ambiguities that would distract the respondents from answering correctly the research questions. The researcher pre-tested the instruments on the University Librarian and subject librarians at the UKZNP main library, who are not part of the academic libraries of LELICO. There were minor errors that were detected and few changes were attended to. These minor

errors were carefully attended to and corrected before the actual distribution of the final questionnaires and interviews were held. The comments from the pre-testing exercise to clarify the instrument were integrated to arrive at the final version. The Interview schedule was pre-tested on academic staff at the UKZNP campus. Questions were reworked and re-worded, to improve their clarity.

4.7 Ethical considerations

According to Babbie (2007: 27), the fundamental ethical rule of social research is that it must bring no harm to participants. De Vos *et al.* (2011: 129) defined ethics as a set of widely accepted moral principles that offer rules for, and behavioural expectations of most correct conduct towards experimental subjects and respondents, employers, sponsors, and other researchers, assistants and students. Barbour (2008: 66) argued that ethical considerations include paying attention to the way in which the research is presented to potential participants, the likely impact of taking part in research, the effect of sampling strategies, engaging with the researcher and dissemination sessions. In this case the researcher tried by all means to avoid any harm, and the violation of confidentiality or anonymity. Participants were informed prior to the research and completed an informed consent form. The research also complied with the Ethical Clearance Policy of the University of KwaZulu-Natal. An approved ethical clearance letter (see Appendix 8) from UKZN was also presented during the interview sessions. The following ethical issues were put into consideration.

4.7.1 Voluntary participation

Rubin and Babbie (2005: 71), indicated that participation should at all times be voluntary and no one should be forced to participate in a project. However, if the researcher does ask for participants' permission in the study, the results will be contaminated in the sense that participants will act differently if they know what is being studied. Some researchers say that participants should be told what is being studied without giving too much detail about the aim of the study (Babbie 2007: 26-27). Though participants are told that their participation is voluntary, they might still think they are obliged to participate. For instance, when students are asked to complete a questionnaire as part of their lecturer's research project and the principle

of voluntariness is fully explained, they might still think that non-participation in the project might affect their marks or might disadvantage them in one or another way (Babbie, 2007: 63). Nobody should be coerced into participating in a research project, because participation must always be voluntary (Neuman, 2003: 124).

4.7.2 Informed consent

Respect for persons requires that subjects be given the opportunity to choose what shall or shall not happen to them (Grinnel and Unrau 2008: 37). Obtaining informed consent implies that all possible or adequate information on the goal of the investigation; the expected duration of the participant's involvement; the procedures which will be followed during the investigation; the possible advantages, disadvantages and dangers to which respondents may be exposed; as well as the credibility of the researcher, be rendered to respondents (Royse, 2004: 52-54). Babbie (2007: 64) adds "voluntary participation and no harm to participants have to become formalized in the concept of informed consent". Hakim (2000: 143) notes that written informed consent should become a necessary condition rather than a luxury or an impediment.

A consent form acknowledging the purpose of the interview and questionnaire was designed (see Appendices 1, 3 and 5) and was filled by all the participants. Respondents were made aware that participation was voluntary and they were at liberty to withdraw from the project should they desire without any consequences. Both the researcher and the participant had to sign and provided their full names, and e-mail addresses. All data collected for this study (both the transcripts of notes and tape recorded data with permission) was stored in a locked filing cabinet and all electronic data was password protected at the UKZNP campus for a period of at least five (5) years in terms of UKZN Ethical Clearance Policy. Anonymity and confidentiality were ensured in this study. The codes used to represent informants were retained. Should a need arise to use the names of informants, their pseudonyms, not real names will be used to ensure that anonymity is maintained.

4.7.3 Dissemination of research findings

A research project must always be a learning experience for both participants and researchers. Debriefing sessions are an ideal time to complete the learning experience that began with agreeing to participate (de Vos, 2011: 122). Dissemination of research findings are sessions during which subjects get the opportunity, after the study, to work through their experience and its aftermath, and where they can have their questions answered and misconceptions removed (McBurney, 2001: 60). Regarding anonymity and confidentiality, participants were assured that codes were used to represent the informants. The population of the study was informed that workshops will be held for disseminating the findings of the study as mentioned earlier should a need arise to use the names of informants, their pseudonyms, not real names would be used to ensure that anonymity is maintained.

4.8 Evaluation of the research methodology

The purpose of the study was to investigate access to and use of e-resources in the academic libraries of LELICO. Survey research design was utilized. It was utilized because of its strengths in so far as it is economical and there is a rapid turn-around time in data collection (Creswell 2003: 154). As discussed earlier in the study, the study used a mixed methods approach that integrates and exploits the strength of both qualitative and quantitative approaches. The population of the study was clearly identified. Data collection instruments included a self-administered questionnaire and semi-structured interviews played a very important role in the study, in that data collected from these instruments were able to be compared. Validity and reliability of the study was maintained throughout the study by reminding and providing participants with clear instructions that participation was voluntary. Analysis of data for quantitative data was analysed using the latest version of SPSS, and was coded and cleaned for final analysis. Quantitative data was broken down into themes to enable analysis. The study considered all the above aspects of the research methodology as discussed earlier in the chapter to provide a framework for access to and use of e-resources in the academic libraries of LELICO.

4.9 Summary of the chapter

The chapter discussed the research methodology adopted by the study. The emphasis was on the research procedures as they are fundamental to gathering data to address the research questions. Methods and techniques that were used in investigating access to and use of e-resources in academic libraries of the LELICO were discussed. The survey research design was described as the main research procedure employed in the study. Different types of data collection instruments, its advantages and disadvantages were discussed. Instruments used in the study were discussed and the main principles of research presented. They include validity, reliability, and ethical considerations. The chapter concluded by discussing how the research findings will be disseminated to both respondents and stakeholders.

CHAPTER FIVE: PRESENTATION OF RESULTS

5.0 Introduction

The purpose of the study was to investigate access to and use of e-resources in the academic libraries of LELICO. As mentioned earlier, in Chapter Four, the study covered the academic libraries of LELICO namely: NUL, LP, LAC, LCE, IDM, NHTC, LDTC, LIPAM and CAS. The purpose of this chapter is to present the results and findings of respondents towards access to and use of e-resources.

The results of the study are presented below. These results are from the self-administered questionnaire, which was the main gathering tool for the study, and the two semi-structured interview schedules. The questionnaire included seven sections namely:

- Background information;
- E-resource access;
- E-resource use;
- Systems in place to enhance access and use;
- Effectiveness of LELICO in terms of access to and use of e-resources;
- Challenges facing access to and use of e-resources; and
- Strategies to enhance access to and use of e-resources.

The results from the other two gathering tools, namely; the semi-structured interview with the University Librarian and Library Directors are also presented. The interview schedule questions included e-resource collection development policy; initiatives available for enhanced access to and use of e-resources; budgetary issues; IRs; infrastructure facilities; and challenges with regard to access and use of e-resources. The second tool was the semi-structured interviews with the PVC, Directors and Rectors of the institutions. Questions were divided into three sections namely: institutional library; funding/budgeting; and IRs. Results are presented in the form of tables. The following section discusses the overall response rate.

5.1 Response rate

As discussed earlier, in Chapter Four, the total number of expected respondents was 74. From the 56 self-administered questionnaire copies distributed among the systems, acquisitions and subject librarians of the nine units of the population study only 39 (69.6%) were returned. For face-to-face interviews with the PVC, Directors and Rectors, four (44.4%) out of the nine participated in the study, whereas, for the nine University Librarian and Library Directors, only five (56%) were interviewed. The expected number of interviews were not met due to the busy schedule of interviewees, therefore, preventing the researcher from interviewing them. Multiple answers were allowed in other questions. Table 5.1 reveals the overall response for the study.

Table 5.1: Summary of response rate of respondents

N=74

Data collection tools	Expected respondents	Actual respondents	(%) response rate
Self-administered questionnaire for systems/acquisitions/subject librarians	56	39	69.6
Interview schedule for PVC/Directors/Rectors	9	4	44.4
Interview schedule for University Librarian/Library Directors	9	5	56
TOTAL	N=74	48	64.9

The overall response rate was calculated by: the number of total responses in percentages ($48/74 \times 100 = 64.9\%$). Similar studies to the present study were carried out with more or less the same response rates. They were a study carried out by Tahir *et al.*, (2010) which consisted of

90 potential respondents, where a self-administered questionnaire was personally distributed, only 62 (69%) responded giving the overall response rate. In another study, Deng (2010) studied patterns and trends in utilizing e-resources in a higher education environment. The response rate was 96.2%. Bennet and Buhler (2010) carried out a survey with the response rate of only 20% at the University of Florida focusing on engineering faculty's past and current practices in e-journal usage. A study carried out at the technological educational Institute of Thessaloniki, Greece, by Korolibi *et al.*, (2006) posted a 55% response rate when examining the use of e-resources.

The current study was underpinned on the post-positivist paradigm, where a self-administered questionnaire was used as the main data collection tool, and, two semi-structured interviews were used as additional data gathering tools. SPSS was used to process and analyse data from the quantitative data. Levesque (2007:47) argued that SPSS is a widely used program for statistical analysis, while quantitative data were organized and analysed using thematic content analysis to generate results for classifying, sorting and arranging the relationships in the data. The following section present results from the self-administered questionnaire.

5.2 Results from the self-administered questionnaire

The first section of the self-administered questionnaire provided background information about respondents.

5.2.1 Section A - Background information

The basic information which respondents were asked were; institution/library name; position or rank; gender and educational status. The main purpose of the information was to assist the researcher when analysing data, for identification and to avoid any confusion and mixing-up of results. The names of respondents were not mentioned in this study due to confidentiality. The information was also necessary to determine the representativeness of respondents from each institution.

5.2.1.1 Participants from each library

Respondents were required to provide a name of their institution or library name. Table 5.2 reflects the institutions.

Table 5.2: Units of the study

N=39

Institution	Frequency	Percentage
NUL	16	41
LP	6	15.3
LCE	4	10.3
NHTC	4	10.3
LAC	2	5.1
LDTC	2	5.1
LIPAM	2	5.1
CAS	2	5.1
IDM	1	2.6

Table 5.2 is an indication of the number of each respondents who actually participated in the research in the academic libraries of LELICO. The table shows that sixteen (41%) respondents were from NUL. There were six (15.3%) respondents from LP, followed by four (10.3%) from LCE and NHTC respectively. While two (5.1%) respondents were from LAC, LDTC, LIPAM and CAS respectively. Only one (2.6%) participated at IDM.

5.2.1.2 Position or rank of respondents

The background information wanted respondents to indicate which position they were holding in their academic libraries. The position or rank of respondents is reflected in Table 5.3.

Table 5.3: Position or rank of respondents

N=39

Position	Frequency	Percentage
Librarian	23	58.9
Assistant Librarian	9	23.1
Senior Librarian	5	12.8
Senior Library officer	2	5.1

Table 5.3 shows that twenty-three (58.9%) respondents were librarians. There were nine (23.1%) respondents who were assistant librarians, followed by five (12.8%) respondents who were senior librarians. Only two (5.1%) respondents were senior library officers.

5.2.1.3 Gender of respondents

The question wanted respondents to indicate their gender. Of all the respondents, a majority of 35 (90%), were females, while four (10%) were males. The results shows that academic libraries of LELICO were staffed predominantly by females.

5.2.1.4 Educational status

Respondents were asked to indicate their highest qualifications obtained to date. Educational status of respondents is reflected in Table 5.4.

Table 5.4: Educational status

N=39

Qualifications	Frequency	Percentage
Bachelor's degree	17	44
Master's degree	15	38.5
Postgrad Diploma	4	10.3
Diploma	3	7.6
PhD	0	0

The results revealed that seventeen (44%) respondents had a Bachelor's degree, followed by holders of Master's degree with fifteen (38.5%) respondents, while a Postgraduate Diploma was indicated by four (10.3%) respondents. Only three (7.6%) respondents were Diploma holders, and there were no PhD holders among the staff in the LELICO libraries.

The next section of the results of the questionnaire relates to e-resource access.

5.2.2 Section B – E-resource access

The next section deals with e-resource access in the LELICO academic libraries.

5.2.2.1 E-resources collection available

In question 2, a multiple response question, respondents were asked to indicate the type of e-resources that were available in their academic libraries. Table 5.5 reveals the results.

Table 5.5: E-resources available in libraries

N=39

E-resources	Frequency	Percentage
E-mail	39	100
Search engines	39	100
Websites	39	100
E-journals	39	100
OPAC	39	100
Full-text databases	35	90
CD-ROMs	30	76.9
Reference databases	28	71.7
IRs	15	38.5
E-images	0	0

*Multiple responses

Table 5.5 shows the results of the types of e-resources that were available in the academic libraries. All 39 (100%) respondents indicated that e-mail, search engines and websites and e-journals respectively were available in their libraries. The findings revealed that 35 (90%) respondents had full-text databases, followed by thirty (76.9%) respondents who indicated CD-ROMs. Reference databases were indicated by 28 (71.7%), while fifteen (38.5%) indicated IRs. E-images were not indicated by any of the respondents.

5.2.2.2 Awareness of e-resources

In question 3, a multiple response question, respondents were asked to determine how users became aware of e-resources in their academic libraries. Responses are reflected in Table 5.6.

Table 5.6: Awareness of e-resources**N=39**

E-resources awareness from	Frequency	Percentage
Library Orientation/instruction	39	100
Colleagues	39	100
Faculty Deans/Lecturers	27	69.2
Subject Librarians	15	38.5
Library guides	10	26
Library website	8	21
Library displays	5	12.8
Acquisition section	4	10.3
Institutions newsletter	3	7.6

*Multiple responses

All 39 (100%) respondents indicated that users become aware of e-resources through library orientation or instruction, and from colleagues respectively. Awareness of available e-resources was through faculty, deans or lecturers for twenty-seven (69.2%) respondents, followed by fifteen (38.5%) respondents who indicated that users became aware of the e-resources through subject librarians. Ten (26%) respondents indicated library guides, and eight (21%) respondents indicated the library website, while five (12.8%) said library displays. Four (10.3%) respondents also maintained that users become aware of e-resources through the acquisition section of the library. Only three (7.6%) indicated the institutions newsletter as a tool for e-resource awareness.

5.2.2.3 Most accessed e-resources

Question 4, a multiple response question, asked respondents to establish which types of e-resources were accessed most. E-resources accessed most are reflected in Table 5.7.

Table 5.7: E-resources accessed most

N=39

E-resource	Frequency	Percentage
E-mail	39	100
Search engines	36	92.3
Websites	30	76.9
OPAC	23	58.9
E-journals	12	30.8
Full-text databases	10	26
IRs	10	26
Reference databases	9	23
CD-ROMs	4	10.3
E-images	0	0

*Multiple responses

All 39 (100%) respondents maintained that e-mail was the most used e-resource, followed by 36 (92.3%) respondents who indicated search engines. Websites were indicated by 30 (76.9%) respondents, OPAC by 23 (58.9%) respondents, while 12 (30.8%) respondents indicated e-journals were the most used resources. Full-text databases and IRs were indicated by 10 (26%) respondents respectively as the most used e-resources. Only nine (23.1%) of the respondents

indicated reference databases as most used, followed by four (10.3%) respondents who indicated CD-ROMs.

5.2.2.4 Establishment of problems when accessing resources

Question 5 was asked to establish whether library users encountered problems when accessing e-resources. All 39 (100%) respondents maintained that users encountered problems when accessing the e-resources in their libraries.

5.2.2.5 Problems encountered

Question 6, a multiple response question, was a follow-up to question 5, where respondents were asked to identify the kind of problems users encountered when accessing e-resources in their libraries. Table 5.8 reflects the problems encountered.

Table 5.8: Problems encountered

N=39

Problems encountered	Frequency	Percentage
Slowness of downloads	39	100
Slow PCs	39	100
Vendor upgrades	39	100
Network downtime	34	87.2
Load shedding	27	69.2
Off-campus access problems	15	38.5

*Multiple responses

All 39 (100%) respondents indicated slowness of downloads, slow PCs and vendor upgrades respectively. Results revealed that 34 (87.2%) respondents indicated network downtime, followed by 27 (69.2%) respondents indicated load shedding as a problem encountered. Only fifteen (38.5%) indicated off-campus access was a problem for users. The next section presents results of the questionnaire on the e-resource use.

5.2.3 Section C – E-resources use

The section deals with e-resource use in the academic libraries.

5.2.3.1 Evaluation criteria of e-resources

Question 7, a multiple response question, was asked to determine what evaluation criteria for on-going subscriptions the academic libraries used. Table 5.9 shows the responses.

Table 5.9: Evaluation criteria for ongoing subscriptions

N=39

Evaluation criteria	Frequency	Percentage
User community demand	34	87.2
Online usage statistics by publisher	33	85
Content of subject matter	30	76.9
Online statistics by the library	15	38.5
Coverage	10	26

*Multiple responses

A majority of 34 (87.2%) respondents indicated user community demand, while 33 (85%) respondents indicated online usage statistics, thirty (76.9%) respondents indicated content of subject matter, while 15 (38.5%) respondents indicated online statistics. Only 10 (26%) respondents indicated coverage as an evaluation criteria for on-going subscriptions in their libraries.

5.2.3.2 Main use of e-resources

In question 8, a multiple response question, respondents were asked to indicate the main purpose for users using e-resources in their library. Table 5.10 shows the responses.

Table 5.10: Main use of e-resources

N=39

Main use e-resources	Frequency	Percentage
Communication	39	100
Assignments	39	100
Support teaching/learning activities	39	100
Professional research	39	100
Lecture requirements	36	92.3
Administrative purposes	30	76.9
Recreation	25	64.1

*Multiple responses

All 39 (100%) respondents indicated that the main use of e-resources was for communication; assignments; to support teaching and learning; and for professional research respectively. Thirty-six (92.3%) respondents indicated that e-resources were used for lecture requirements,

followed by 30 (76.9%) respondents who indicated that e-resources were used for administrative purposes. Only 25 (64.1%) respondents indicated that e-resources were used for recreational purposes.

5.2.3.3 Frequency of e-resources use

In question 9, respondents were asked to indicate how frequently e-resources were used in their academic libraries. Table 5.11 is an indication of how frequently e-resources were used in academic libraries.

Table 5.11: Frequency of e-resources use

N=39

Frequency of use	Frequency	Percentage
2-3 times a week	16	41
Daily	9	23.1
2-3 times a month	5	12.8
Once a week	5	12.8
Once a month	2	5.1
Don't know	2	5.1

The results revealed that less than half, sixteen (41%) respondents, indicated 2 to 3 times a week. This was followed by less than a third, nine (23.1%) respondents maintaining that e-resources were used on a daily basis, while a few, five (12.8%) indicated that frequency of use was 2 to 3 times a month and once a week, respectively. Two (5.1%) respondents said the e-resources were used once a month and another two (5.1%) did not know how often the e-resources were used in their libraries.

5.2.3.4 Level of use of e-resources

Question 10 wanted respondents to rate the level of usage of e-resources. A majority of thirty-four (87.2%) respondents maintained that usage was very low. Only five (12.8%) respondents indicated that the level of e-resources usage was low in their libraries. None of the respondents indicated that the usage level of e-resources was high or very high in their libraries.

5.2.3.5 Establishment of conditions for use of e-resources

Question 11 was asked to establish if there were conditions attached to use e-resources. All 39 (100%) respondents maintained that there were conditions attached to the use of e-resources.

A follow-up question, was asked for respondents to explain what such conditions of use were. The following explanations were indicated by all 39 (100%) respondents:

- A user needs to be a registered student or staff member at his or her institution and all access required a user login and password;
- Most e-resources would only be accessed on-campus;
- Users were not allowed to access pornographic sites; and
- Students or researchers from another institution had to provide proof of registration, or a confirmation letter from such an institution.

5.2.4 Section D – Systems in place to enhance access and use

The section presents results with regard to systems in place to enhance access to and use of e-resources in the LELICO libraries.

5.2.4.1 Library software systems

Question 12 asked respondents to indicate which library system their academic library used for their library operations. Table 5.12 shows the responses.

Table 5.12: Library software system

N=39

Library System	Frequency	Percentage
CDS-ISIS	20	51.3
WEBLIS	13	33.3
ITS	5	12.8
INNOPAC	1	2.6
Other	0	0

Of the 39 respondents, twenty (51.3%) maintained that CDS-ISIS was the library system used in their academic libraries, while Web-Based Library Integrated System (WEBLIS) was indicated by 13 (33.3%) respondents, followed by Integrated Tertiary Software (ITS) used by five (12.8%) respondents. Only one (2.6%) respondent used INNOPAC. This shows that the LELICO libraries did not use a common integrated library system, for better sharing, and access to information resources. If the system was not on the list, respondents were asked to indicate the system which they used. However, no other library systems were indicated in their libraries using the 'other' category.

5.2.4.2 Availability of library computer server

In Question 13, respondents were asked if their libraries had their own computer server. The results revealed that eighteen (46.2%) of the respondents maintained that there was a computer

server housed in their academic libraries, while 12 (30.8%) said they were not sure if they had a server in their libraries. Only nine (23.1%) said they did not have a computer server.

5.2.4.3 Strength of bandwidth

In question 14, respondents were asked to indicate the strength of their internet bandwidth in their academic libraries. Table 5.13 shows the results.

Table 5.13: Strength of bandwidth

N=39

Strength of bandwidth	Frequency	Percentage
Good	29	74.4
Poor	3	7.6
Very Poor	3	7.6
Don't know	3	7.6
Very good	1	2.6

According to 29 (74.4%) respondents, the strength of their bandwidth was good. Three (7.6%) respondents rated their bandwidth as poor. A further three (7.6%) indicated their bandwidth as very poor together with those who do not know the strength of their bandwidth respectively. Only one (2.6%) respondent rated their internet bandwidth strength as very good.

5.2.4.4 Availability of facilities to access and use e-resources

Question 15, a multiple response question, asked respondents to indicate what facilities were available in their library to access and use e-resources. Table 5.14 reflects the facilities.

Table 5.14: Facilities available to access and use e-resources

N=39

Facilities	Frequency	Percentage
Internet connectivity	39	100
Photocopying machines/ scanners	32	82.1
OPACs	30	76.9
Computer LAN/internet café	29	74.4
Hotspots/Wi-Fi	16	41

*Multiple responses

All 39 (100%) respondents indicated that internet connectivity was available in their academic libraries. This was followed by 32 (82.1%) who had photocopying machines or scanners, while OPACs were indicated by 30 (76.9%). Availability of a computer LAN or internet café facility was indicated by 29 (74.4%) respondents, while availability of Hotspots or Wi-Fi was only indicated by less than half, 16 (41%) of the respondents.

5.2.5 Section E – LELICO’s effectiveness in facilitating access and use of e-resources

The following section presents the results on the effectiveness of LELICO to facilitate access to and use of e-resources in the academic libraries.

5.2.5.1 Availability of guidelines

In question 16, respondents were asked to indicate if LELICO had guidelines in place that encouraged access to and use of e-resources. The results revealed that 28 (71.7%) respondents said there were no guidelines in place, while six (15.3%) respondents indicated that such

guidelines were available. Only five (12.8%) respondents said they did not know if such guidelines were available.

5.2.5.2 Skills development

Question 17 asked respondents to indicate if LELICO offered its members any skills development in e-resource access and use. Twenty-two (56.4%) respondents maintained that LELICO did not offer skills development in e-resources access and use, while twelve (30.8%) respondents indicated that the consortium offers skills development. Only five (12.8%) respondents did not know if LELICO offered such skills development.

5.2.5.3 Type of in-service training offered by LELICO

Question 18 was asked to determine what type of in-service training relating to e-resource access and use was conducted by LELICO. Table 5.15 reflects the types of in-service training offered by LELICO.

Table 5.15: Types of in-service training offered by LELICO

N=39

Training	Frequency	Percentage
Workshops	23	58.9
Seminars	12	30.8
Refresher courses	4	10.3

Twenty-three (58.9 %) respondents indicated that workshops were conducted by LELICO, a third of the respondents, 12 (30.8%) indicated seminars were offered. Only four (10.3%) respondents indicated refresher courses on e-resource access and use were offered by LELICO.

5.2.6 Section F – Challenges facing access to and use of e-resources

The following section presents results on challenges facing access to and use of e-resources in the LELICO libraries.

5.2.6.1 Barriers to access and use of e-resources

Question 19, a multiple response question, was asked to establish the barriers in access to and use of e-resources. Table 5.16 shows the results.

Table 5.16: Barriers in access to and use of e-resources

N=39

Barriers	Frequency	Percentage
Lack of searching skills	39	100
Shortage of staff	39	100
Lack of up-to-date equipment	39	100
Few computers	39	100
Slow internet connectivity	39	100
Virus attacks	32	82.1
Computer/network problems	32	82.1
Limited space for training	27	69.2

*Multiple responses

All 39 (100%) respondents indicated barriers such as lack of searching skills; shortage of staff; lack of up-to-date equipment; few computers; and slow internet connectivity respectively. Computer or network problems were indicated by 32 (82.1%) respondents and virus attacks respectively, while 27 (69.2%) respondents indicated limited space for training.

5.2.6.2 Challenges facing academic libraries with regard to e-resources

Question 20, a multiple response question, was asked to determine what challenges academic libraries face with regard to e-resources. Table 5.17 shows the results.

Table 5.17: Challenges facing academic libraries regarding e-resources

N=39

Challenges	Frequency	Percentage
Budget cuts	39	100
Inadequate searching skills	39	100
High cost of subscription fees	39	100
Lack of usage statistics	37	94.9
Loss of knowledgeable staff due to resignation or retirement	30	76.9

*Multiple responses

Challenges such as budget cuts; inadequate searching skills; and high cost of subscription fees were indicated by all 39 (100%) respondents respectively. The results further revealed that 37 (94.9%) respondents indicated lack of usage statistics, while 30 (76.9%) respondents indicated loss of knowledgeable staff due to resignation or retirement as challenges regarding e-resources in their libraries.

5.2.6.3 Difficulties in maintaining e-resource subscriptions

Question 21, a multiple response question, required respondents to indicate only difficulties their academic libraries encountered in maintaining e-resources subscriptions. All 39 (100%) respondents indicated budget cuts; price increases; and exchange rates as difficulties in maintaining e-resource subscriptions respectively. This shows that academic libraries were facing difficulties in and having no control over decisions made by vendors and restrictive limited budgets that made the decision-making process regarding maintaining e-resource subscriptions more difficult.

5.2.7 Section G – Strategies to enhance access and use of e-resources

This section presents responses on strategies to enhance access to and use of e-resources.

5.2.7.1 Strategies adopted

Question 22, a multiple response question, required respondents to identify strategies adopted in their academic libraries to enhance access to and use of e-resources. Table 5.18 reflects the results.

Table 5.18: Strategies adopted

N=39

Strategies	Frequency	Percentage
IL	39	100
Library orientation sessions	39	100
OA	30	76.9
IRs	23	58.9

*Multiple responses

All 39 (100%) respondents indicated that IL and library orientation sessions respectively were strategies adopted to facilitate access to and use of e-resources in their academic libraries. The results further showed that 30 (76.9%) respondents indicated OA, while 23 (58.9%) of the respondents indicated IRs.

5.2.7.2 Academic libraries involvement in managing IRs

Question 23 required respondents to indicate if their academic libraries were involved in the management of IRs since IRs facilitate access to and use of particularly e-journals. Of the 39 respondents, more than half, 23 (58.9%) indicated that their academic libraries were involved in managing their institutions IRs, while less than half, 16 (41%) said that their academic libraries were not involved in managing their institutions IRs.

5.2.7.3 Library's support of OA initiative

Question 24 required respondents to indicate if their academic libraries supported the OA initiative. Results revealed that 36 (92.3%) respondents maintained that their academic libraries supported the OA initiative. Only three (7.6 %) respondents indicated that their libraries did not support the OA initiative.

5.2.7.4 Initiatives in place to show support of OA

Question 25 required respondents to indicate if OA initiatives were in place, in their libraries. Thirty-six (92.3%) of the respondents indicated that OA initiatives were in place in their libraries, while three (7.6%) indicated that no OA initiatives were in place in their libraries.

In a follow-up question, the respondents who said OA initiatives were in place (36 or 92.3%) were further asked to explain how their academic libraries were involved in such OA initiatives. All 36 (92%) respondents explained with similar statements that:

- Seminars and other activities were held to educate the academic community about OA and IRs;

- The library had signed the Berlin Declaration;
- Exhibitions were held during OA week on access to and use of e-resource;
- The Library was involved in a project of digitizing archival materials for ease of access and use;
- There was an OA policy in place; and
- OA week celebrations and advocacy.

5.2.7.5 Capacity building

Question 26 wanted respondents to indicate if any kind of training, be it in the form of workshops or seminars were organised in the libraries to build the capacity of staff or students for enhanced access to and use of e-resources. According to 21 (53.8%) respondents, workshops and seminars were not conducted by their academic libraries for staff and students for the enhancement of access to and use of e-resources, while 18 (46.2%) respondents maintained their academic libraries conducted workshops and seminars for staff and students. This shows that most of the academic libraries were not involved in the enhancement of access to and use of e-resources by way of training for their users.

5.2.7.6 General comments with regard to access to and use of e-resources in academic libraries

Question 27 required respondents to generally comment, with regard to access to and use of e-resources in their academic libraries. The following responses were given by respondents:

- Need for academic libraries in Lesotho to have adequate staff that are skilled in e-resources access to and use (39 or 100%);
- Need for aggressive training programmes targeting users (39 or 100%);
- Lecturers should refer students to e-resources in order to improve usage (28 or 71.7%);

- E-resources promotional materials should be made available to users for awareness purposes (9 or 23.1%);
- Research policies should be in place to mandate academics to research and deposit their research materials to IRs (39 or 100%);
- Library users are very sceptical to use e-resources because of techno ‘phobia’ (27 or 69.2%);
- Librarians should engage in discussion forums on the topic with other information professionals to share their experiences and be able to share advice and tips, so as to encourage users (four or 10.3%);
- Training on access to and use of e-resources should start with library staff (39 or 100%);
- All library staff should be involved and be encouraged to attend if there is training either organised by the vendor, publisher or concerned library (39 or 100%);
- Advocacy required for OA, IRs and e-resources access to and use (five or 12.8%);
- At the beginning of each academic year, all first years should be organised into groups to attend demonstrations on how to access and use e-resources in the library (39 or 100%);
- There is a problem with limited bandwidth (34 or 87.2%);
- Efforts are in place to train and support users to appreciate e-resources (37 or 94.9%)
- Budget cuts towards acquisition of e-resources contribute to less subscriptions to much needed e-resources (39 or 100%);
- Academic libraries need to provide adequate facilities and basic training for access to and use of e-resources (36 or 92.3%); and
- Baseline for ongoing research needed to investigate factors which hinder access to and use, and establish which e-resources are used most (39 or 100%).

The following section presents results from the interviews held with the University Librarian and Library Directors.

5.3 Interview results

The next section presents the results for the interview conducted by the researcher with the interviewees, that is, the University Librarian and Library Directors.

5.3.1 Interview results with University Librarian and Library Directors

As mentioned earlier, five (56%) of the nine (100%) University Librarian and Library Directors were interviewed.

5.3.1.1 Job description

The first question wanted interviewees to elaborate briefly on what their job description entailed. All interviewees, provided the following:

- Provide leadership to ensure that the library excels in the provision of support for teaching, learning and research;
- Overseer to the overall administration, human resource management and budget for the library;
- Assure adequate academic library and research resources are available to meet faculty and student needs, within the assigned budget;
- Plan for collection growth and technological change;
- Maintain, enhance and improve library's integrated learning environment;
- Management and policy development for academic library services, collections and facilities; and

- Participate in the academic administration of the institution through committees such as Senate, Deans, Departmental Heads, and Academic Committees.

5.3.1.2 E-resource collection development policy

The second question wanted the University Librarian and Library Directors to indicate if there was an e-resource collection development policy in place in their academic libraries. The majority, which is four (80%) of the interviewees, said there was no policy in place. Interviewees further indicated that, the policy in place was a collection development policy for monographs. One (20%) interviewee said there is policy in place, though it had not been long since it was implemented.

5.3.1.3 E-resource section/department

The University Librarian and Library Directors were asked if their academic libraries had a section or department specifically that deals with e-resources. All five (100%) interviewees said there was no specific section. All interviewees explained that:

- E-resources were still the responsibility of the serials or periodicals section; and
- When it comes to purchasing and subscription of e-resources, the librarian in-charge of the serials section together with the systems librarian performs such tasks.

5.3.1.4 Budget

The University Librarian and Library Directors were asked if the current budget for their libraries was sufficient to subscribe to e-resources. All five (100%) said the current budget was insufficient. They explained their answer by providing the following:

- The budget was not sufficient to subscribe to the much needed e-resources by users because the allocation of budget was not specifically for e-resources only; they still needed to cater for monographs. Therefore, it was difficult to meet the much higher

demand of other e-resources needed by different academic faculties and departments;
and

- E-resources were always affected by the yearly budget cuts, fluctuation of inflation rates and other economic factors.

5.3.1.5 Decision-making process

The fifth question asked the University Librarian and Library Directors who was involved in decision-making with regard to subscription of e-resources. All five (100%) interviewees said they normally involved concerned stakeholders such as, faculties, departments and subject librarians. The interviewees provided the following explanations:

- Normally they invited faculties and departments to suggest which e-resources, for example, which databases were mostly needed for their different teaching, learning and research needs;
- Subject librarians normally were invited to faculty and departmental meetings, where they meet with lecturers. That is where they are provided with the e-resource needs of such faculties and departments; and
- Subject librarians also met with students, thus making them part of the decision-making processes with regard to subscriptions.

5.3.1.6 Strategies in place

The next question, which was the sixth, wanted the University Librarian and Library Directors to indicate if there were any strategies in place to enhance access to and use of e-resources in their academic libraries. All five (100%) interviewees said there were initiatives which had been implemented. Their explanations were provided as follows:

- There was an IRs where researchers publish their research work, past examination papers were also available for students to access and use online;

- Academic libraries celebrate OA week every year;
- During OA week, seminars are held for the academic community with regard to e-resources access and use;
- Exhibitions are held during OA week for online books, and hard copies;
- Students are encouraged to attend such celebrations and are given freebies and other gifts, the latter given after a question and answer session, to instil awareness;
- Library websites usually publish a list of new e-resources which are on-trial and those which the library subscribes to; and
- Libraries usually invite publishers and vendors to hold one or two day workshops, where teaching academic staff are invited with students to attend and engage with the publisher on specific e-resource products.

5.3.1.7 Infrastructure availability

The University Librarian and Library Directors were asked what type of infrastructure was available for access to and use of e-resources. All five (100%) mentioned that infrastructure available included computer LANs, personal computers, network points, internet connectivity, OPACs, and photocopying services for downloads.

5.3.1.8 Challenges with regard to e-resources access and use

The eighth question wanted the University Librarian and Library Directors to explain if there were challenges with regard to access to and use of e-resources. All five (100%) interviewees explained that:

- Budget cuts hindered subscription to relevant e-resources, which were in demand, thus the academic community loses interest in accessing and using the available e-resources;
- Without the physical e-resources infrastructure, staff and clients are barred from online information and training.

- Shortage of staff, especially professional academic librarians hinder effective and efficient access to and use of e-resources;
- Technological changes hinder access to and use of e-resources, especially for African countries, because they rely mostly on donors to purchase such equipment; and
- Some researchers are still sceptical to publish their research or deposit their research works to IRs for access and use.

5.3.1.9 General comments

The last question for the University Librarian and Library Directors was to comment on issues or concerns regarding access to and use of e-resources. All interviewees, five or (100%) explained that:

- Weak, inappropriate, and lack of e-collection development policies does not provide effective use of e-resources;
- Librarians and academics not collaborating fully with lecturers in the preparation of course materials and reading lists results in underutilization amongst researchers and students of e-resources;
- Lack of awareness of e-resources; and
- Researchers and students not using the most up-to-date research in their academic studies.

The following section presents results from the interviews conducted with the PVC, Directors and Rectors of the institutions.

5.3.2 Interview results with PVC, Directors and Rectors

The results from the PVC, Directors and Rectors are presented below.

5.3.2.1 Institutional library

Section A of the interview covered the importance of the institutions academic libraries.

5.3.2.2 Importance of e-resources

Interviewees were asked how they would rate the importance of their academic libraries. All four (100%) Interviewees explained that the library was very important in supporting teaching, learning and research for their respective institutions. One (25%) of the interviewees further explained that the library, especially an academic library, is the mother-body and the backbone of research support in any institution.

5.3.2.3 Learning, teaching and research needs

The PVC, Directors and Rectors were asked if they thought their libraries were fully resourced to meet the learning, teaching and research needs of their institution. Four (100%) of the interviewees pointed out that their libraries were not fully or sufficiently resourced to meet the teaching, learning and research needs of their institutions. The interviewees provided the following explanation:

- Budget cuts had been the main constraint for not fully resourcing their libraries;
- Price increases and exchange rates made it difficult for libraries to acquire e-journals which were in demand; and
- Few professionals or lack of qualified staff, librarians to acquire and market e-resources to academic faculties.

5.3.2.4 Funding and budgeting

Section B of the interview schedule was about funding and budgeting for the academic libraries.

5.3.2.5 Annual budget percentage

The PVC, Directors and Rectors were asked what percentage was allocated to the library from the institutional budget. All the interviewees said the budget fluctuates every year, but the average was 4%, and the percentages usually ranges between from 3 to 4% annually.

5.3.2.6 Budget increase

The PVC, Directors and Rectors explained why the annual budget always fluctuates. The following reasons were given:

- Faculties and libraries were both battling budget cuts due to financial constraints since management always thinks faculties should be given first priority, not realising that the library is the hub of the teaching, learning and research processes of any institution;
- One (25%) interviewee mentioned that library resources were expensive, especially e-resources, and they were being under-utilised; and
- All four (100%) thought that though there were budget cuts, libraries had been forced and learned to prioritise to purchase few monographs and subscribe to e-resources which seemed to be in demand by the academic community. All interviewees also explained that each year their institutions faced budget cuts because of economic problems, due to the weak strength of the local currency.

5.3.2.7 Strategies in place

The PVC, Directors and Rectors were asked if there were any strategies put in place to improve funding for e-resources for academic libraries. One (25%) mentioned that some international bodies such as INASP and eIFL allowed free access to some of the e-resources. One (25%) explained that their institutions supported their academic libraries by providing ICTs and other resources. One (25%) interviewee indicated that their library system had been purchased by its institution, thus facilitating the access to and use of e-resources in their library.

5.3.2.8 Institutional repositories

Section C of the interview schedule related to IRs.

5.3.2.9 OA support

All four (100%) of the interviewees explained that their institutions supported and contributed to OA, by involving and urging all stakeholders to participate in OA activities and by depositing for institutional publications to their IRs, which could be accessed and used for teaching, learning and research purposes.

5.3.2.10 General comments

Section D of the interview schedule asked the PVC, Directors and Rectors to provide general comments regarding access to and use of e-resources in their institutions. All four (100%) of the interviewees noted that:

- Library expenditure increased each year due to the strength of foreign currencies where most of the e-resources subscribed to were purchased in euros and US dollars;
- Libraries should advocate and facilitate for access to and use of e-resources by way of IRs and free content available via OA initiatives;
- There should be relevant e-resources collection development policies in place;
- Academic libraries needed qualified personnel; and
- Strategies in place should be implemented in order to increase access to and use of e-resources.

5.4 Summary of the chapter

Chapter Five presented the results for the present study. The results presented were from the main gathering tool, the self-administered questionnaire, with 39 respondents who completed and returned the questionnaire. Results presented were also from the two semi-structured interview schedules for PVC, Directors and Rectors with four respondents; and for the University Librarian and Library Directors with five respondents respectively. The two interview schedules were the additional gathering tools to support the findings from the main research tool. Issues mainly raised included lack of awareness of e-resources; budget cuts and lack of funding; lack of appropriate basic searching skills; slow internet connectivity; shortage of professional trained staff; and no adequate infrastructure facilities. Lack of unclear or no guidelines by LELICO and lack of relevant collection development policies in the libraries were the main factors that contributed to low usage and access of e-resources. The next chapter interprets the results of the present study.

CHAPTER SIX: INTERPRETATION AND DISCUSSION OF THE RESULTS

6.0 Introduction

Chapter Six interprets and discusses the results from the self-administered questionnaire and the findings from the two semi-structured interview schedules. The discussion draws the report back to the initial objectives of the study, that is, to investigate access to and use of e-resources in the academic libraries of the LELICO. The research questions underpinning the research problem, were earlier outlined in Chapter One. The discussion is mainly around the following research questions.

- How were e-resources in the LELICO academic libraries accessed?
- What systems were in place to facilitate access to and use of e-resources?
- What was the effectiveness of LELICO in influencing access to and use of e-resources?
- What challenges do libraries face in facilitating access to and use of e-resources?
- What strategies can be adopted to enhance access to and use of e-resources?

The linking of the research questions and the findings from the study is to provide a meaningful explanation of the research problem, thereby arriving at conclusions for the study. The findings are discussed with reference to previous studies mentioned in the literature review. The results from both instruments will be combined to generalise the findings. As mentioned earlier, the self-administered questionnaire was the main research tool, while the two semi-structured interviews were used as additional supplementary tools.

The following section interprets the results of the study, and the discussion follows the order of the research questions of the study.

6.1 How were-resources in the LELICO academic libraries accessed?

Based on the UTAUT model which was adopted for the present study, its variables PE and BU in which the first research question was mapped with, the results of the study showed that users of the academic libraries of LELICO believed in e-resources by first identifying and accepting that such resources were available in their libraries. As mentioned earlier in Chapter Three, PE

was defined by Venkatesh *et al.*, (2003) as the degree to which an individual believes that using the system will assist one to attain gains in job performance. Hence, the academic libraries of LELICO believed that having a collection of e-resources will bring something positive to its users, in order to encourage them to access and use e-resources for their teaching, learning and research purposes. Users in the academic libraries of LELICO believed that using the system through access to and use of e-resources will assist them in attaining their academic performance, and BU of users have found to be influenced by their intention to access e-resources and determined the user acceptance and use of such resources. It was evident that PE significantly influenced behaviour intention in access to and use of the available e-resources in the academic libraries of LELICO.

In line with the UTAUT model, the study aimed at revealing how the e-resources in the academic libraries were accessed and used. This was achieved by investigating the frequency of use that led to access to and use of e-resources in the academic libraries. Madhusudhan (2010) asserts that frequency of use of e-resources is the most important and basic aspect related to the appraisal of the usefulness of e-resources. The frequency of use of e-resources depends on the nature of the library's e-collection, maintenance and services. The results showed that frequency of use affected BU. The variable BU is affected by many factors such as conditions of use, lack of awareness and inadequate searching skills which are discussed later in the chapter. The findings of the present study are consistent with UTAUT, in which PE and BU interact with each other. For example, if every time one needs to access a database and always have to consult a subject librarian responsible to supply a password or required to pay-per-view, these conditions of use interact to create how well performance expectancy and intention to use affect behavioural use, thereby creating frequency of use of e-resources. Access to and use of e-resources in the academic libraries of LELICO have also been found to be influenced by the variable SI. Social influence variable is when an individual perceives important others believe one should use the system. It seemed that being in the library environment influences awareness of the resources available to users, thereby, affecting SI for users a need to access and use e-resources. The present results showed that awareness of the availability of e-resources in the academic libraries were from colleagues, thereby making influence from colleagues to other users to BU of the resources.

Respondents were asked to identify what type of e-resource collections were available in their libraries. Table 5.5 showed that many respondents in these academic libraries indicated that e-mail, search engines, websites and OPACs were the most popular and available e-resources which were indicated by 39 (100%) of the respondents respectively. Based on the findings, evidence suggested that respondents were aware of the available resources in their libraries. The literature review did establish that e-resources were identified as databases, books, journals, newspapers and magazines, theses, conference papers, government papers, research reports, scripts and monographs in print and electronic format (Deng, 2010). The issues of access and use are also pertinent for academic libraries involved in this research project. In terms of how these e-resources were being accessed in the LELICO libraries. Kwafor *et al.* (2014), argues that the availability of e-resources does not necessarily illicit utilisation. Table 5.6 revealed that 39 (100%) of the respondents indicated that users become aware of the e-resources available in their libraries through library orientations or instructions and from colleagues, respectively. Furthermore, findings indicated that users become aware of e-resources from faculty deans or lecturers (69.2%). However, results indicated significantly less awareness mechanism with subject librarians with fifteen (38.5%), library guides and library websites (21%) respectively.

One would expect that library websites and subject librarians would be the most referred channel or mode of awareness of a libraries resources. The results reflect that libraries were not doing enough to raise awareness. The results showed that libraries mostly depend on library instruction as, library guides are often handed out during library orientation sessions. Users normally accept them when they are given, but often do not pay much attention to the guides. The low percentage of 26% for library guides was a reflection that they were not an effective mechanism for e-resource awareness. Respondents also indicated that their institutions newsletter was the least considered tool with 7.6%. It should be noted that newsletters are published periodically, therefore, some users normally do not pay much attention to them, even though some receive them via their institutions e-mail account. Access to e-resources must be influenced by subject librarians who are committed to making sure that the library's resources are used. The findings also revealed that LELICO library websites were not accessed as expected, for example, they might not be user-friendly, outdated or due to subscriptions being terminated not accessible. LELICO libraries should therefore always update their library websites, and make sure that they are accessed.

Library websites are considered the mirror of any library and, should be the first channel of awareness of its e-resources. Library websites need to be designed in a way that they are user-friendly for access and use. The low percentage of awareness through library websites may indicate that users may not be aware that e-resources could be accessed from the LELICO library website, especially scholarly resources. According to Bowlby *et al.*, (2011) the criteria used to assess the effectiveness of websites design inspires users and the community to use, discover and adopt best practices in using the e-resources in the digital library era. The Association of Research Libraries (ARL, 2011) argued that library websites helps libraries better understand user perceptions of library service quality; collect and interpret library user feedback systematically overtime; provide libraries with comparable assessment information from peer institutions; identify best practices in library service and they enhance library staff members' analytical skills for interpreting and acting on data. For an academic research library website, the main content column should feature the primary search box for searching library content and should highlight the primary library services offered. The services to feature in the main content column can be determined by reviewing webpage analytics that indicate which links to library services are used most frequently (Lynch and Horton, 2009). Lack of awareness of e-resources results in under-utilisation of these resources. The literature review established that the awareness and quality of the available e-resources were the two important factors for the effective and efficient use of e-resources (Deng, 2010).

Table 5.6 revealed that library orientation or instruction was the most common mechanism of awareness of e-resources, which was indicated by all 39 respondents. One would have expected to see the OPAC being accessed the most, because it is the first step of learning how to locate information resources in the library. This means that, perhaps librarians were not doing enough to train users in accessing OPAC. The findings from the present study relating to the most accessed e-resources showed the most important libraries resources were not been utilised fully. User awareness and IL programmes have a key role to play in enhancing the use of e-resources (Singleton, 2010). It is generally believed or assumed that students must be information literate in their personal capacity to be successful. Whereas, Foster (2006) noted that not all students enter higher education with the necessary skills to be called information literate.

Table 5.7 revealed that e-mail was the most accessed e-resource, which was indicated by all 39 (100%) respondents. Generally, e-mails are used for communication. It is one of the best and most reliable methods of communication in all areas of the academic world. Lecturers and researchers communicate with students via e-mails. Academic libraries communicate with users via e-mails especially when there is a new product. Search engines were indicated by 92.3% of the respondents followed by websites which were indicated by 76.9% of the respondents. It was surprising that usage of OPAC was indicated by 58.9% of the respondents, which was lower than search engines which users search thus the study revealed that search engines were accessed more than the library OPAC user search engines to look for information resources. The results may indicate that users may be ignorant or lack skills to use the OPACs. E-journals were indicated by 30.8% of the respondents, which was less than half of the respondents. Based on the findings from this research, e-journals were under-utilised, considering that libraries subscribe to e-journals which are very costly. Low usage meant that users were either not aware of the existence of these e-journals or not aware that libraries subscribed to such resources. Full-text databases and IRs were indicated by 26% of the respondents, and reference databases were only indicated by 23% of the respondents. The results revealed that users preferred to access e-resources through search engines.

In Table 5.7, e-mail (100%) search engines (92.3%) and websites (76.9%) were found to be the most accessed e-resources and the library resources were not accessed as much as these resources. A high percentage of access to search engines and websites, therefore means that academic libraries need to inform researchers and lecturers of the high quality free internet resources and how to access them. Majid and Tan (2002) observed that students often use and prefer e-resources, such as a particular database which has been recommended by their lecturers or peers or libraries, it implies that users will use the database with which they are more familiar throughout IL tutorials. According to 26% of the respondents, access to e-resources such as full-text databases and IRs respectively, means that the LELICO libraries need to accelerate awareness campaigns, especially because the resources carry up-to date information for research purposes. From the above discussion it is easy to understand which e-resource was accessed most. Therefore, there is a need to draw the attention to appropriate technology infrastructure in academic libraries and a need to increase awareness of library e-resources and information generally.

E-resources, regardless of type, selected by academic libraries for its users should adhere to the selection criteria outlined in their collection development policies, to meet the research needs of a number of significant users and the community at large, to enrich library collections by improving access to information and to provide access and use of the available resources. User demand and feedback from subject librarians is a major criterion for ongoing subscriptions. Academic libraries provide the possible access to e-resources to the extent permitted by vendor agreements and funding limitations, where resources are of significant interest to other academic libraries, a consortium, in this case LELICO would make effort to share both access and funding.

As seen in Table 5.9, most of the respondents (87.2%) evaluate ongoing subscriptions of e-resources by user community demand. Furthermore, findings revealed that libraries depend on online usage statistics provided by the publisher (85%), followed by content of subject matter (76.9%). Results also revealed that libraries evaluate usage criteria by depending on online statistics which was indicated by 38.5% of the respondents. Only 26% of the respondents indicated coverage as a means of evaluating usage. One could argue that the academic libraries of LELICO should evaluate ongoing subscriptions by coverage as their top most, but the results showed that it was the least used means of evaluation. The findings were significant given that more than half depended on the community demanded, on publisher followed by the subject matter. Though, at times the interest of libraries and publishers may not be in harmony, for example, publishers would give undue emphasis on those figures which justify continuing or attracting more subscriptions. If usage is low, the publisher may not give true or actual statistics, fearing the subscription will be cancelled (Duy and Vaughan, 2003).

With regard to online usage statistics (38.5%), one would argue that librarians have depended more on publisher statistics, thereby given the possibility of the false statistics, hence lower number of respondents who indicated the latter. Mabe (2006) argues that facilitating access to e-resources has created new tasks for librarians. Even relatively simple tasks, such as checking in journal issues to ensure a subscription is being fulfilled properly by the publisher, are more complex since the library has to go online and check that access to each of the issues of each journal it subscribes to has been enabled. Also, the increasing popularity of bulk purchasing and consortia arrangements means that the act of purchasing is much more complex. Instead

of single decisions to subscribe to titles, a library is faced with negotiating and implementing licensing agreements for access to a range of titles with differing conditions of access and cost (Hoskins, 2010: 268). Duy and Vaughan's (2003) study also found that in some instances publishers do not give administrative username and passwords which prevents library staff from accessing the actual usage statistics themselves. E-resources that do not require subscriptions and licensing agreements may be added to the collection, provided they support the curriculum and research needs of users, for example DOAJ. It is therefore very important for academic libraries of LELICO to consider ease of access and use of e-resources when choosing them, and to consider the open access policies and user friendliness, full-text content, and ability to search across multiple databases through one interface.

E-resources have become a major part of the academic library's collection, in the fulfilment of its role of teaching, learning, research and services to the community. As seen in Table 5.10, a major finding of the study was that all 39 respondents had indicated that the main use of e-resources in their libraries were for communication, assignments, to support teaching and learning activities, and for professional research, respectively. Other uses were for lecture requirements (92.3%), administrative purposes (76.9%) and for recreation (64.1%). Use of e-resources for communication purposes relates to Table 5.7 where e-mail was indicated by all 39 respondents, followed by search engines (92.3%) and websites (76.9%). So one would argue that the latter were used for supporting teaching and learning activities. As indicated earlier e-journals (30.8%) were not the most accessed e-resource. It is therefore, imperative for the libraries of LELICO to fulfil its core function of facilitating teaching, learning and research by providing its users with access to e-journals with up to date information. However, Kwafoa *et al.*, (2014) establishes clearly that faculty members depend highly on online e-resources not only for the purpose of research, but also to support their teaching.

A study conducted by Tenopir and King (2007) has supported the view that, a principal reason for using e-resources in the US and Australian universities was for research with more than 50%. Deng (2010) supported the view that users have various purposes for use of e-resources, which include amongst others gathering information on a specific topic, gaining general information, obtaining answers to specific questions, completing assignments, reviewing literature, writing essays and making decisions. Dolo-Ndlwana (2013) observe that currently

users are dependent on the availability of e-resources for meeting many of their academic needs. However, Shukla and Mishra (2011) argue that a majority of research scholars use e-resources for publishing articles to keep up-to-date and for finding information in their area of specialisation. Dhanavandan *et al.*, (2012) identified how e-resources were utilised by academic library users and specific trends that can be seen among faculties and students. The findings established that most of the students were spending time in the library and using e-resources. Of the 47 or 41.5% respondents, it was indicated that they used e-resources for study purposes and 9.8% of the respondents indicated use for research where the 20.4% of users indicated use for updating knowledge. Therefore the findings of the current study are similar to these where e-resources are used to support teaching, learning and research.

As shown in Table 5.11, it was revealed that in terms of the frequency of use of e-resources less than half (41%) of the respondents indicated that the 2 to 3 times a week e-resources were accessed followed by less than a third, (23.1%) maintaining that e-resources were used on a daily basis, while 12.8% indicated 2 to 3 times a month and once a week, respectively. Only 5.1% of the respondents indicated once a month and did not know how often the e-resources were used in their libraries respectively. Frequency of use of the e-resources indicates how and to what extent they were being used. Based on the findings, it can be assumed that there may be factors hindering the frequent use of e-resources in the LELICO libraries. For example, lack of awareness, fewer computers, lack of searching skills, and lack of appropriate technology infrastructure in libraries, therefore, may affect users' frequent use of e-resources. Statistics related to how many times searches were made, number of sessions, counts of full-text downloads, and so on, would reveal what resources are being used to what extent, and which were not (Tripathi and Jeevan, 2013). Statistics on frequency of use of e-resources can help library staff to make informed decisions regarding renewals and appropriate budget allocations. The results showed that a majority of 87.2% respondents maintained that usage was very low while a further 12.8% respondents indicated that usage was low in their libraries. Bashorun *et al.*, (2011) study also indicated that frequency of use of e-resources was low in the libraries they studied. Among reasons mentioned were lack of time because time required was to focus on teaching; lack of awareness of e-resources provided by the library; power outages; ineffective communication channels; slow network and inadequate ICTs; lack of training skills for all categories of academic staff and lack of adequate power supply. The literature review

did establish that Gakibayo *et al.*, (2013) study related to students assessed utilisation of e-resources, found that the frequency of use of e-resources needed to be increased.

A major finding of the study was that all 39 respondents had indicated that there were conditions attached to the use of e-resources. Usually, the terms and conditions for using these resources are set out in e-resource licence agreements with each publisher for use by authorised users. The academic libraries of LELICO have the responsibility of ensuring that users do not breach the terms and conditions specified in the licence agreements. It should be noted that licences vary from publisher to publisher. The results revealed that all 39 respondents provided explanations regarding the conditions in their libraries to be able to access and use e-resources. Users needed to be registered students or staff members in their institutions and all access required a login and password; users were not allowed to access pornographic sites, and some e-resources can only be accessed on-campus. Generally, conditions permitted by publishers include:

- Viewing, downloading, copying, printing and saving a copy of search results;
- Viewing, downloading, copying, printing and saving individual articles;
- Using e-resources for scholarly, educational or scientific research, teaching, private study;
- Sending a copy of an article to another authorized user (that is, current faculty, students or staff); and
- Posting the URL to the publisher's version of the article on a class website (publisher links will allow only authorized users access) (Berkeley University of California, 2016).

Conditions usually not permitted include:

- Systematic downloading or printing of entire journal issues or volumes, or large portions of other e-resources is not permitted;
- Using e-resources for commercial gain is not permitted (that is, reselling, redistributing or republishing licensed content);
- Transmitting, disseminating or otherwise making online content available to unauthorized users (that is, sending to mailing lists or electronic bulletin boards) is not permitted; and

- Posting the publisher's version or PDF of an article to an open class website is not permitted (instead, post the URL to the article which will allow only authorised users' access).

Breaches of contractual arrangements with publishers could result in the suspension of access to the resources for the entire academic community. It is therefore, imperative for academic libraries of LELICO to set out very clear guidelines and policies on condition of use of e-resources in their libraries, for example, users should abide by copyright conditions and make copies for fair use, which means copies can be used for teaching, learning and research purposes.

6.2. What systems were in place to facilitate access to and use of e-resources?

The second research question was linked to the UTAUT model, with variables FCs and PU. As mentioned earlier in Chapter Two, these two variables were defined as the degree to which an individual believes that an organisational and technical infrastructure exists to support use of the system (Venkatesh *et al.*, 2003). In line with the systems availability in the academic libraries of LELICO to facilitate access to and use of e-resources, systems such as library system software, computer server, strength of bandwidth, internet and Wi-Fi connectivity, scanners and printing machines were established. The findings of the present study suggest that FCs seemed recognised and were available in some of the academic libraries. Internet connectivity as one of the FCs was found to be available in all the academic libraries surveyed. It is in this case that in order for e-resources to be accessed and used, academic libraries need to perceive its usefulness. Technological infrastructure such as a good user-friendly library system software, computers, fast speed of bandwidth and other machinery need to be in place. Bedi and Sharma (2008), in the literature review noted that consortia are imperative in terms of improving libraries in Africa. They further noted that libraries all over the world are forming alliances for the purpose of addressing the common needs arising from developments in IT, especially the fast internet broadband, to facilitate access to and use of e-resources. The most facilitating condition with regard to systems is the speed of internet that could facilitate a greater number of users in the academic libraries to download large data files within a short period of time.

As shown in Table 5.12, CDS-ISIS was the most common library software system used in the LELICO libraries, by more than half, (51.3%) while 33.3% of the libraries used WEBLIS, followed by ITS which was used by 12.8% of the libraries. INNOPAC was only used by 2.6%, CDS-ISIS was the most common because of the fact that it is free-of-charge. The software was developed by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) for developing countries. Abboy and Hoskins (2008) in explaining CDS-ISIS, notes that, it is mostly used in special and academic libraries in developing African countries such as Lesotho and found that more than 50% of special libraries used the software while 33% of the academic libraries used the software. Thus the present study results revealed that because of CDS-ISIS cost-effectiveness, most academic libraries still use it. INNOPAC and other software were not commonly used because academic libraries do not have funds to purchase them, specifically because they are commercial software. Connaway and Dickey (2010) argues that library systems need to look and function more like search engines (for example, Google) and popular web services (for example, Amazon.com), as these are familiar to users who are comfortable and confident in using them.

Library systems provides a very comprehensive solution to the whole process of ordering books, cataloguing of books, circulation of books, accessing the OPAC and other library services. Library systems track books which are in the library or with users, and they save time for academic librarians. Through its robust technology, all data of books in the collection of the library are maintained through a centralised catalogued database. Systems provides SMS alerts and e-mail facilities to book and pay fines. Academic libraries of LELICO should strive to use the same library system, which can be accessible from anywhere and anytime, since they share resources through the consortium. This would ensure advantages such as shared copy cataloguing, cooperative resource sharing and the development of a critical centralised of all the LELICO academic libraries holdings. Through cooperation and resource sharing, library consortia in developing countries can provide first-class services to their users who become world-class researchers (eIFL, 2015).

In terms of libraries having their own computer server, results revealed that less than half, 46.2% maintained that there was a computer server housed in their academic libraries, 30.8% were not sure if they had a server and only 23.1% did not have a computer server housed in

their libraries. Johnson *et al.*, (2012: 30) define a server as “a computer with a large amount of storage space linked to other computers either through an internal computer network or the internet. It may serve systems on a LAN or WAN over the internet”. Academic libraries often procure proxy servers. A proxy server acts as a filter for client information requests, in which access data are stored on a separate server. Proxy servers are often used to authenticate off-site users prior to granting access to licensed e-resources. It is of concern that 30.8% of respondents said they were not sure if their libraries housed its own server. This showed lack of technical understanding of the library system. This is where systems librarians should integrate task and responsibilities to train library staff in the various technical tools acquired by the library. Gall and Hirst (2010) argue that the role of systems librarian is to install, upgrade and troubleshoot both hardware and software, and offer training to all library staff. Therefore, support for e-resources requires expertise in technical issues.

Since academic libraries procure lots of computers for users to be able to access and use e-resources, it is important that its hardware is sufficient to support the demands of the server. Christensson (2014) argues that a web server that runs lots of web scripts in real time should have a fast processor and enough RAM to handle the ‘load’ without slowing down so that users could access websites or e-resources at the same time or when downloading articles. A file server should have one or more fast hard drives that can read and write data quickly. Regardless of the type of server, a fast network connection is critical, since all data flows through a connection.

However, in terms of the strength of bandwidth, Table 5.13 showed 74.4% rated their libraries bandwidth as good. Three (7.6%) of the respondents indicated the bandwidth as poor, very poor and together with those who did not know respectively. Only one (2.6%) rated the strength of bandwidth as very good. This would suggest that more than half the libraries considered their bandwidth good enough to influence access to and use of e-resources effectively. Bandwidth influences and affects the use of e-resources. It is therefore important that academic libraries influence their respective institutions to increase bandwidth. Users want to access and use e-resources in the quickest possible time, especially when downloading documents and articles from e-journals, databases and so on. If bandwidth is poor, users lose interest and

become reluctant users and tend to create a negative attitude towards access to and use of libraries e-resources.

In terms of what facilities were available in their libraries, Table 5.14 revealed that all libraries (100%) had internet connectivity, while 76.9% had OPAC. Photocopying/scanner or printing machines were indicated by 82.1% and a computer LAN/internet café by 74.4%. Only 41% had Wi-Fi hotspots. This would suggest that less than half the libraries were still behind in accelerating internet connectivity to create hotspots, where students can access the internet anywhere within their campuses, thereby promoting access to e-resources using their own laptops. Wi-Fi would encourage users to find and navigate freely available content from e-journals or databases, which were not restricted to the physical library. However, in terms of photocopying and printing machines, users can download and make extra copies and read in their own convenient time, without reading from the computer screen, more especially some people prefer reading from printed documents. Availability of facilities to access and use e-resources is very crucial. Hotspots encourage users to work together and share information and they also encourage users to work together on assignments, thus promoting access to e-resources available via the libraries website. Although a few academic libraries of LELICO have Wi-Fi connectivity, more institutions of higher learning are striving to make the facility available to the learning community, therefore, LELICO is expected to attempt to find solutions to improve the Wi-Fi connectivity.

More and more companies around the world are now introducing Wi-Fi facilities within and around their business premises to attract more customers. For example, in South Africa, Cape Town, the City Mayor, Patricia de Lille (2016) has inaugurated such a service within the public transport business, with the company called Myciti. Internet access is also a key part of strategies to build opportunity cities where connect residents can connect to resources and economic opportunities. The above is a typical, well throughout strategy to attract passengers to use a resource. The second example is the roll-out of Wi-Fi in Soweto. Mahlangu and Nkwali (2016) explain that the City of Johannesburg has contracted a broadband service provider to roll-out the service in some of the parks in Soweto. The aim is to make internet available to everyone, regardless of their background. Therefore, institutions need to assist their academic libraries to make Wi-Fi open to their users. To facilitate access to and use of the libraries e-

resources the academic libraries should ensure that the said e-resources are available outside of opening hours, anytime for users to access them.

6.3 What was the effectiveness of LELICO in influencing access to and use of e-resources?

The present study wanted to establish the effectiveness of LELICO in influencing access to and use of e-resources in academic member libraries. In line with the UTAUT model, the variables mapped to the third research question were the FC, SI and IU. The study investigated if LELICO academic libraries had guidelines and policies in place to facilitate access to and use of e-resources. Behaviour, use of e-resources, access to is facilitated by policies and guidelines. As indicated earlier in Chapter Two, availability of library collection development policies and guidelines facilitate and encourage usage, as more e-resources are accessible from their lecture rooms or from their residences, SI is influenced thereby IU is affected more.

In line with the adopted model, the present study investigated activities that develop one's skill to have IU the e-resources. UTAUT variables mapped to the research question perceive skills development as a facilitating condition to be able to access and use e-resources effectively. The skills development included IL skills, information retrieval skills, and computer skills. Most of the libraries indicated that LELICO has not been doing enough to offer such skills, though some libraries indicated that their libraries did offer skills development through workshops, seminars and in-service training. The results corroborate the findings of the semi-structured interviews where the interviewees confirmed that such skill activities were offered in their libraries. From the literature review (see Table 3.2) Moshoeshoe-Chadzingwa (2009) indicated some of the training programmes offered by LELICO. It was further indicated that programmes which were ongoing to facilitate access to and use and to enhance intention to use the resources were ongoing, such as IL training programmes which were held throughout the year in the respective institutions of the academic libraries of LELICO. Facilitating conditions to access to and use of e-resources were the basic searching skills, computer skills and information retrieval skills. UTAUT model therefore, established that skills development facilitate IU the resources which is influenced by SU. Social influence is the degree to which an individual

perceives important others believe one should use the new system. Therefore, skills offered through IL influence SU and IU.

In terms of the academic libraries having guidelines which encouraged access to and use of resources 71.7% of the respondents said there were no guidelines in place while 15.3% said guidelines were there in place, 12.8% of the respondents said they did not know if guidelines were in place. The findings were consistent with responses of the University Librarian and Library Directors (80%), who said there were no collection development policies for e-resources in their libraries. One (20%) interviewee said there was a policy in place, though it had recently been implemented. All Interviewees said the only collection development policy in place was for monographs. The findings suggest that LELICO libraries have not done enough, in terms of developing policies to facilitate access to and use of e-resources. It could be argued that LELICO members did not regard the use of policies/guidelines as important, due to lack of awareness. The 12.8% who did not know if guidelines or policies existed, is an indication of lack of awareness. LELICO should be able to assist its academic libraries to outline and implement guidelines and policies to build substantial collections of e-resources and continue to increase access to and use of various e-resources. Haas (2000:74) argues that a valuable network that is helping academic libraries use their scarce resources more effectively is the library consortium. Guidelines provide a policy that guides for selection and acquisition of e-resources as well as the provision of access. Furthermore, guidelines assist in determining funding for e-resources. When guidelines are in place, and librarians are aware of their existence, it would facilitate the acquisition of e-resources and other learning materials.

Guidelines should be always reviewed to meet access and use of e-resources to users and have proven valuable tools for collection development and management in academic libraries. It is particularly important for LELICO to always consult with heads of academic libraries, to be able to review and outline how well a resource meets specific criteria and can provide further insight regarding the resources overall quality. It is therefore, very crucial for LELICO to assist with guidelines review occasionally to strive towards the more effective use of collection of their e-resources. LELICO should provide direction by clearly outlining guidelines in its policy statements for member libraries.

With regard to skills development, more than half, 71.7% of the respondent said LELICO did not offer any form of skills development while 15.3% of those who said skills development had been offered by LELICO while 12.8% did not know if LELICO offered any skills development. The findings suggest that libraries needed to train staff and students to promote access to and use of e-resources. Gakibayo *et al.*, (2013) argued that there is a need to equip end-users with skills such as information literacy skills, information retrieval skills, computer skills among others as a strategy to promote e-resources usage especially among academic libraries for effective utilisation of e-resources. This view is supported by Dolo-Ndlwana (2013: 23) who argues that information retrieval skills have a major impact on the users' ability to use e-resources. The skills required to effectively find information in e-resources are very important because, without such skills, users of the library are not able to use e-resources effectively.

Table 5.15 indicated the type of in-services training conducted by LELICO. Workshops were indicated by more than half (58.9%) while less than half, 30.8% indicated seminars while 10.3% of the respondents indicated refresher courses. These findings were supplemented by the interviews with University Librarian and Library Directors, which revealed that some respondents had access to training on varying types of in-service training depending on the institution. Libraries usually invite publishers and vendors to hold one to two day workshops, where teaching academic staff are invited with students to attend and engage with the publisher on specific e-resource products. Gall and Hirst (2010: 57-58) argue that training programmes often accompany the establishment of a core competency programme. Khan and Siddiqui (2014) argue that academic libraries are operating in a quickly transforming environment, therefore, they should keep abreast of technological advancements to maintain the quality of the services they provide. The results suggest that LELICO needs to play a pivotal role in training its members through workshops and seminars in effective use of e-resources. The consortium can draw expertise that exists within its ranks all staff including junior staff, para-professionals and non-professional staff must be included in such training. The staff would then in turn train their library users.

6.4 What challenges do libraries face in facilitating access to and use of e-resources?

The fourth research question, ‘what challenges do libraries face in facilitating access to and use of e-resources?’ was mapped with the variables FC, EE, and IU of the UTAUT model. Challenges facing the academic libraries were revealed as: lack of searching skills, shortage of staff, lack of up-to-date equipment, few computers and slow internet connectivity. The challenges were indicated by all the academic libraries of LELICO. Inadequacy of facilities for use affect FC to access the resources, for example slow internet connectivity or poor bandwidth lead to poor utilisation of the resources. Other academic libraries indicated computer or network problems and virus attacks. If computers are always vulnerable to virus attacks, they affect EE and FC to have IU the system to access the desired resources for learning purposes. To be connected to the internet does not guarantee access to and use of e-resources. To be able to achieve EE, the academic libraries need to provide adequate infrastructure such as computers and other up-to-date equipment to facilitate access to and use of e-resources. The internet should be able to facilitate EE through FCs such as computers and up-to-date equipment, thereby encouraging IU the resources. Based on the UTAUT model, FC, EE and IU are the variables and key factors to access of e-resources. If the challenges mentioned earlier in the section exist, users tend to accept that accessing e-resources is a complex task and thus lead to low usage of e-resources.

A major finding of the study from Table 5.16 was that all 39 respondents had indicated lack of searching skills, shortage of staff, lack of up-to-date equipment, few computers and slow internet connectivity as barriers libraries experience in facilitating access to and use of e-resources. Computer or network problems and virus attacks were indicated by 82.1% of the respondents respectively. Only one respondent indicated limited spacing for training as a barrier. Agaba *et al.*, (2005) notes that inadequacy of facilities for use is the biggest problem users faced, leading to congestion. Therefore, poor facilities contribute to low usage of e-resources because users require adequate learning environment to access and use e-resources. The findings reveal that users of academic libraries of LELICO were faced with challenges that impact the access to and use of e-resources. All these academic libraries will have to ensure that they minimise these barriers. Shija (2009) viewed lack of internet skills, poor infrastructure and slow speed or low bandwidth or connectivity as the major reasons for the low patronage of e-resources. This clearly shows that to elicit patronage there is also the need not only to

increase awareness but also to improve on the existing ICT infrastructure to facilitate access to and use of e-resources and increased bandwidths as mentioned earlier should be sought so as to provide faster access that will save much of the research scholars' time and be a source of motivation to use e-resources. A user's efficacy is facilitated by possessing appropriate skills with a conducive learning environment (Dolo-Ndlwana, 2013: 18). Therefore as mentioned earlier training of users to access and use e-resources will increase awareness and use of such resources.

One major challenge was lack of searching skills. Reffat (2003) argue that skilled staff know the information storage, format, accessibility and usability that contribute to its value. Therefore, the challenge of lack of searching skills, may have been contributed by a shortage of staff who cannot afford to attend to academic community by imparting skills needed for retrieving the information resources. Best acquired searching skills promote and contribute to FCs to access and use e-resources. Academic library staff are considered skilled information managers, especially when it comes to classification, searching and preservation. Therefore, lack of skilled staff and lack of searching skills hinders one initiative to take the effort expected (EE) of him or her to have intention to use (IU) the e-resources. Required skills to facilitate access to and use of e-resources therefore, needs technical expertise to be able to overcome challenges such as network problems, virus attacks and other technical problems. The UTAUT variables therefore guide the academic libraries of LELICO to install network computer web-based systems that will have an influence to FC, EE and IU.

Table 5.17 indicated the challenges that the academic libraries were facing. A major finding of the study was that all 39 respondents had indicated budget cuts, inadequate searching skills and high cost of subscription fees. While, lack of usage statistics (94.9%) and (76.9 %) was also indicated by respondents loss of knowledgeable staff due to retirement or staff members resigning. The evidence suggests that these challenges have been experienced by almost each academic library. Furthermore, findings reveal that exchange rates and price increases made it difficult for academic libraries, since they had no control over decisions made by vendors and restrictive limited budgets, thereby making the decision-making process regarding e-resource subscriptions more difficult. The view is supported by Singleton (2010) who argues that the ongoing economic meltdown or recession will impact consortia and their libraries. The extreme

fluctuations in the exchange rate of local currencies with dollars, pounds and euros are further aggravating the situation especially in the case of developing countries.

The University Librarian and Library Directors were of the view that budgets allocated to libraries by their institutions were not sufficient enough to subscribe to the much needed e-resources needed by users, and e-resources were always affected by yearly budget cuts, fluctuation of inflation and other economic factors. When a country is faced with economic problems that necessitate budget cuts, libraries are faced with inadequate funding. Library management are always left no choice but to reduce spending on the purchase of or subscription to e-resources, which are mostly need by faculties. ICT equipment and other infrastructure are also affected. Thus, promotion of access to and use of e-resources is directly affected (Jemo, 2008). Lack of funding and budget cuts directly affect technical support and full participation of the academic library users to accept and take effort (EE) to use the system or accept IT because of few computers, slow internet connectivity and other network problems. The results also revealed that slow internet connectivity results in slowness when downloading articles and getting the current information at the quickest time possible is their main priority. Therefore, PE is influenced negatively, thereby having an implication to access and use of e-resources. Madhusudhan (2010) noted that research scholars looked for the fastest way that would lead to satisfactory results when doing research, saving them time and effort in their busy research schedule.

6.5 What strategies can be adopted to enhance access to and use of e-resources?

The findings of the present study showed that OA, IRs, IL and library orientation sessions were dominant strategies adopted by the academic libraries of LELICO for access to and use of e-resources. Earl (2001) argues that an organisation's knowledge strategy is considered a key component of its business strategy. It is further realised that strategies provide direction in determining how IT can enable support knowledge work in the organisation (Davenport *et al.*, 2002). It is therefore realised that the academic libraries of LELICO need to adopt strategies that would facilitate and enhance access to and use of e-resources. Without strategies in place, access to and use of e-resources will not be fully utilised.

Based on the UTAUT model, the fifth research question, ‘what strategies can be adopted to enhance access to and use of e-resources?’ was linked with the variables FC, EE and IU. Information literacy and library orientation sessions have been found to be the most strategies adopted in the academic libraries. Skills and knowledge attained from IL and library orientation sessions are the FCs to IU the system and such skills encourages one to make the effort to access and use e-resources. As discussed earlier in Chapter Two, EE refers to the easiness that an individual thinks of when using the system (Venkatesh *et al.*, 2003). The results of the present study showed that all the academic libraries of LELICO have adopted and were involved in IL and library orientation sessions. IL skills provide FCs to users of the academic libraries to facilitate access to and use of e-resources, and EE is to help them to attain IU information technology infrastructure with ease to conduct online searching. Therefore, users of the academic libraries of LELICO are expected to obtain the significant rewards, thus effectively improving their teaching, learning and research goals.

In line with the present model adopted, the results further revealed that OA and IRs were among the strategies adopted in some of the academic libraries of LELICO. The two strategies were also linked to the variables, FC, EE and IU. Venkatesh *et al.*, (2003) believes that whether the design of the information system can allow users to easily use or accept IT, the variables FC, EE and IU determine the factors of easiness to use the system. In order to access and use OA and IRs, the academic libraries need to provide its users with skills, awareness campaigns and skilled staff to supervise the process which will influence and increase access to and use of e-resources. Open access resources and IRs are seen as facilitating conditions because they are always open and most of the databases or e-journals do not require passwords or rather no conditions in accessing them, thereby influencing EE and IU to such resources.

Table 5.18 indicated strategies adopted in the academic libraries to facilitate access to and use of e-resources. Based on the findings, all 39 respondents indicated IL and library orientation sessions, OA was indicated by 76.9% and IRs by 58.9% of the respondents. In order to obtain a broad overview of the current position with regard to strategies adoption, all five (100%) University Librarian and Library Directors said there were initiatives which had been implemented. Their explanations were as follows:

- There was an institutional repository where researchers publish their research work, past examination papers were also available on the information repository for students to access and use online;
- Academic libraries celebrate OA week every year;
- During OA week, seminars regarding e-resources access and use are held for the academic community;
- Exhibitions are held during OA week for online books, and hard copies; and
- Students are encouraged to attend such celebrations and are given freebies and other gifts, the latter given after question and answer session, and to instil e-resource awareness.

Furthermore, all five (100%) interviewees said they normally involved and invited stakeholders such as, faculties, various departments to suggest which e-resources, for example, which databases were mostly needed for their different teaching, learning and research needs. Subject librarians normally were invited to faculty and departmental meetings, where they meet with lecturers. It is at these meetings that the subject librarians are provided with the e-resource needs of such faculties and departments. The evidence suggests that there has been some progress in the academic libraries where they were involved in IL and library orientation sessions. On the other hand, all four (100%) of the PVC, Directors and Rectors explained that their institutions supported and contributed to OA, by involving and urging all stakeholders to participate in OA activities and by depositing institutional publications to their IRs, which could be accessed and used for teaching, learning and research purposes. Results further revealed that more than half of the respondents (58.9%) indicated that their libraries were involved in managing their institutions IRs. Only 41% said their libraries were not involved in managing their IRs. However, results suggest OA and IRs are a new phenomenon, and that they have not been fully initiated and utilised as such initiatives. As a result of these strategies, academic librarians who consider the work of research and scholarship as an essential necessity in any academic setting, need to go out and market OA and IRs to the research community for better quality of work.

The literature suggests that the progress of IRs has not been as great as was originally envisaged (Connell, 2011; Cryer and Collins, 2011; MacDonald, 2011 and St. Jean *et al.*, 2011) and they cited a number of reasons for this:

- Lack of understanding and commitment of faculty members regarding participation in the initiative;
- Various challenges associated with the understanding and management of copyright issues by faculty members and the repository management team; and
- Lack of a continuous stream to support the development, management and preservation of content.

These points are important in terms of the current findings as less than half the libraries were involved in managing their IRs were not the most used e-resources in the libraries.

According to O'Connor (2009) IL has provided a framework for libraries educational mission for nearly 25 years and information literacy has dominated library literature since early 1950's when it was first conceptualised. Furthermore, Adeleke and Olorunsola (2010) argue that IL is not new, but a simple repackaging of libraries educational roles in response to being omitted from the national discourse on educational reform. They further outline what the literature review has revealed in terms of IL:

- There is no rigidity in methods of teaching IL in libraries;
- One of the major roles of librarians is to provide instructional programmes for users that enable them to use information resources effectively;
- Users are expected to learn specific skills that will enable them to conduct online searching, to select appropriate search terminology, and to construct logical search strategies;
- It is established that there are challenges facing IL in academic libraries the world over;
- There is need to re-train librarians in modern literacy so that they can use these skills in their day-to-day operations in the libraries as well as in educating both faculty and students; and
- It has been proven that library associations have a role to play in IL training of academic librarians.

Overall, it is the basic requirement to gain the ability to recognise a need for information and how it may be addressed, in this case, knowledge of appropriate kinds of e-resources, and how best to select the appropriate sources for different tasks. Information literacy is one of the essential strategies and a good start to enhance access to and use of e-resources. Therefore LELICO's role is to ensure that IL training for academic libraries who in turn will train their users to access and use all available e-resources in the libraries. However, the results found that 71.7% of the respondents indicated that LELICO did not offer any skills development programmes for the libraries.

6.6 Summary of the chapter

Chapter Six had five sections which attempted to answer the research questions. The chapter focused on research questions which were mapped with the main constructs or variables of the UTAUT model adopted for the study and on the important and key areas of access and use of electronic information resources. The sections in the chapter provided current and projected trends in areas ranging from, e-resources access and use, systems in place to enhance access to and use, effectiveness of LELICO to facilitate access and use of e-resources, challenges and barriers facing libraries and strategies adopted and needed to enhance and promote e-resources access and to increase usage. Academic libraries of LELICO, as a result of inadequate searching skills, budget cuts, high cost of subscription fees, lack of infrastructure equipment support and network problems, and lack of usage statistics, have not managed to efficiently meet the needs of its users with regard to access and use of e-resources. Some academic libraries have not adopted or initiated IRs and OA initiatives which provide and promote free access to all the scholarly and research information. The next chapter provides summary, conclusions and recommendations of the study to help improve the current situation on access to and use of e-resources in the LELICO libraries.

CHAPTER SEVEN: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

7.0 Introduction

The purpose of the study was to investigate access to and use of electronic information resources in the academic libraries of LELICO. The previous chapter discussed and explained the findings of the study that related to access to and use of e-resources, systems in place to enhance access and use, effectiveness of LELICO in terms of access and use of e-resources, challenges facing access to and use of e-resources, and strategies to enhance access to and use of e-resources in the academic libraries. The framework of the chapter is organised by the research questions of the study. The chapter presented summary of the previous chapters, summary of the findings, and recommendations for future research. The following section presents a summary of the chapters.

7.1 Summary of chapters

Chapter One (Introducing the study) covered the background to the study, the research problem, historical background of LELICO, purpose of the study, objectives of the study, research questions, justification of the study, limitations and delimitations of the study, definition of key terms, historical background to e-resources, concept of e-resources, and academic libraries and library consortia, respectively. Other topics covered include, overall theoretical approach of the study, methodology of the study, conceptual framework, structure of the study, ethical considerations, and a summary of the chapter.

Chapter Two (Conceptual framework) covered the concept of a model adopted for the study, background to the UTAUT model, reasons for adopting UTAUT, main variables or constructs of UTAUT were mapped with the research questions. The application of UTAUT to information systems and application in an academic setting were discussed and a summary of the chapter was presented.

Chapter Three (Literature review) discussed library consortia concepts and key issues in access and use of e-resources in the international, regional and the local context. Key issues facing consortia were presented, type of e-resources, problems with e-resources access to and use of e-resources in developed and under-developed and developing countries, systems to facilitate access to and use of e-resources, challenges facing academic libraries, strategies to enhance access to and use of e-resources, and finally, a summary of the chapter.

Chapter Four (Research methodology) described the research design, population of the study, data collection methods, and their advantages and disadvantages. The chapter covered procedures for data collection, data analysis, validity and reliability of the research instruments, ethical considerations, evaluation of the research methodology and summary of the chapter.

Chapter Five (Presentation of results) presents results of the study from the data collection instruments, that is, the self-administered questionnaire and the two semi-structured interviews. Data was presented in the form of tables and the qualitative data was transformed into meaningful facts using thematic content analysis.

Chapter Six (Interpretation and discussion of the results) interpreted the research findings by comparing the findings to the related literature reviewed.

Chapter Seven (Summary of findings, conclusions and recommendations) provides a summary of the research findings, and recommendations. Contributions of the study from a policy, practical, theoretical perspective are put forward. Suggestions for further research are outlined.

7.2 Summary of findings and conclusions

The section summarises the findings of the study that relate to access to and use of e-resources in academic libraries of the LELICO. The order or sequence of the findings follow the order of the previous discussion that followed the research questions. The primary objective of this

research was to investigate access to and use of electronic information resources in the academic libraries of the LELICO. The aim was to provide access and usage analysis based on academic libraries e-resources. The strength of the study lies in the fact that access and usage analysis was complemented by in-depth interviews with a University Librarian, Library Directors, a PVC, Directors and Rectors of the institutions. This provided the necessary contextual information to inform the interpretation of the data, as well as showing views on the topic of access and use of e-resources. The study provided a clear indication that the academic libraries of LELICO were clearly moving towards an electronic environment. The study provided an overview of the current e-resources available in the academic libraries, the current benefits, strategies and challenges faced by libraries, content providers, publishers and other stakeholders in the electronic information supply chain, and offers a set of recommendations to best support access to and use of e-resources in the academic libraries.

7.2.1 Access to and use of e-resources

The first research question of the study sought to investigate how e-resources were accessed by first identifying what type of e-resources were available in their libraries. The findings showed that the e-resources available were e-mail, e-journals, search engines, full-text databases, websites, CD-ROMs, reference databases and IRs. The study found that awareness of available e-resources in the academic libraries was through library orientations, colleagues and lecturers. Awareness through subject librarians, library websites, library guides and displays was low in the academic libraries.

The results showed that e-resources which were mostly accessed included e-mail, search engines, websites and OPAC, while e-journals, full-text databases, IRs and reference databases were least accessed. Evaluation criteria of e-resources for ongoing subscriptions included user community demand, online statistics provided by the publisher and content of subject matter. The findings showed that online statistics and coverage were the least means of evaluating ongoing subscriptions. E-resources in academic libraries were found to be mainly used for communication, assignments to support teaching and learning activities, and for professional research works. Other uses were for administrative purposes and for recreation. The findings revealed that frequency and level of use of e-resources in the academic libraries was very low.

The study further revealed that there were conditions attached to use of e-resources in academic libraries. Conditions required that users be registered students or staff members in their institutions, access required user login and passwords, users were not allowed to access pornographic sites and some e-resources could only be accessed on-campus.

7.2.2 Systems in place to facilitate access to and use of e-resources

The second research question of the study investigated which systems were in place to facilitate access and use in the academic libraries. The findings showed that the most commonly used library software system was CDS-ISIS. Other software systems were WEBLIS and ITS, while INNOPAC was the least used software system. The results revealed that there were computer servers housed in some academic libraries, while other academic libraries did not have servers housed in their libraries. The results revealed that all academic libraries had internet connectivity. A few libraries were not sure if there was a server housed in their libraries. The findings established that bandwidth strength in most academic libraries was good, while in other libraries it was poor. A very good bandwidth strength was only found in one academic library. Other facilities to enhance access to and use of e-resources were Wi-Fi connectivity and hotspots, computer LANs or internet cafés.

7.2.3 Effectiveness of LELICO in influencing access to and use of e-resources

The third research question of the study investigated the effectiveness of LELICO in influencing access to and use of e-resources in the academic libraries, such as guidelines and policies. The study found that there were no guidelines in a majority of the academic libraries. No collection development policy for e-resources existed in the libraries, a policy was in place for monographs. The study revealed that LELICO did not offer skills development to a majority of the academic libraries, while a few received such skills. The findings showed that activities that lead to skills development in some libraries included in-service training through workshops, seminars and refresher courses.

7.2.4 Challenges libraries face in facilitating access to and use of e-resources

The fourth research question investigated the major challenges influencing access to and use of e-resources in the academic libraries. The findings showed that the major challenges were technical, administrative and human resource issues. These include: lack of searching skills, shortage of staff due to loss of knowledgeable staff or members resigning, lack of up-to-date equipment, few computers, and slow internet connectivity. The study further revealed that major challenges in academic libraries were budget cuts, inadequate funding, and extreme fluctuations in the exchange rate of local currencies with the dollar, pound and euro currencies.

7.2.5 Strategies adopted to enhance access to and use of e-resources in academic libraries

The fifth research question of the present study investigated strategies adopted to enhance access to and use of e-resources in the academic libraries. The libraries focus was on IL skills, OA, library orientation sessions, and IRs initiatives. The study established that library orientation sessions and IL were the two best practices adopted for access and use of e-resources. The findings revealed that OA and IRs were the two initiatives for promoting e-resource access and use, and institutions of the academic libraries supported and contributed to the two initiatives, though some academic libraries were not involved in managing their repositories.

7.3 Recommendations

The recommendations presented are based on the discussions and findings of each of the research questions. The recommendations are made in the following areas: access to e-resources and use, systems to enhance access to and use of e-resources, effectiveness of LELICO in facilitating access to and use of e-resources, challenges libraries face in facilitating access to and use of e-resources, and strategies to enhance access to and use of e-resources.

7.3.1 Access to and use of e-resources

Though most of the e-resources accessed were through search engines, websites and in the academic libraries, it is recommended that there should be an assessment by libraries to ascertain the low usage of other e-resources such as e-journals, full-text databases, reference databases and IRs. The academic libraries of LELICO need to equip users with strategic information skills for retrieving information from e-resources, to facilitate and encourage its users to make an effort to access and use the e-resources, thereby promoting intention to use the resources. It is recommended that the academic libraries of LELICO need to monitor usage statistics of e-resources to help them compile usage statistics and to provide the necessary information to establish the usefulness of the e-resources. It is recommended that academic librarians assist users to identify and evaluate information essential to decision-making, and to perceive usefulness of the resources. The academic libraries of LELICO need to make the academic community aware of the existence of e-resources, especially e-journals which have shown low usage, which are up to date research resources. Current awareness campaigns are a must for every academic library, because they can facilitate awareness amongst students, lecturers and researchers. This would influence their intention to use the resources and improve the performance expectancy. It is therefore recommended that the academic libraries of LELICO need to intensify training, awareness programmes and education on the accessibility, availability and usage of library's e-resources.

7.3.2 Systems in place to facilitate access to and use of e-resources

The internet is a vital e-resource that must be accessible to all academic library communities. Institutions need to devise means of harnessing ICTs that should be used for the greater good of the academic community. Institutions should partner with private stakeholders to provide academic libraries with high speed internet access and to fast track the roll-out of improved broadband. It is recommended that LELICO negotiate on behalf of its members with local internet service providers such as Telecom Lesotho, to purchase additional internet access bandwidth for higher educational academic libraries. It is recommended that LELICO strive towards sourcing donor funding to procure a common integrated library software system for a comprehensive collection of resources in the academic libraries. This could occur through

equipment supply policies or dedicated funding for both equipment and ICTs positions or support in funding proposals. Studies should be conducted more frequently to find out the changes in access and use patterns as the technology is becoming more and more sophisticated on a daily basis. The academic libraries of LELICO need to improve the speed of internet connectivity for ease of accessibility and usage of e-resources. Wi-Fi connectivity needs to be intensified and hotspots need to be set-up in various places around campuses to enable 24 hour access to and use of e-resources. Systems in place such as fast broadband, Wi-Fi connectivity and up-to-date ICT infrastructure act as facilitating conditions for use, thereby harnessing effort expectancy and intention to access and use the e-resources.

7.3.3 Effectiveness of LELICO in influencing access to and use of e-resources

The use of e-resources provided through various consortia has been found to be good enough. LELICO is responsible for ensuring the continued development of an online information environment, building on existing partnerships and forging new ones to contribute to a vision of a single integrated information environment. In order for LELICO to be effective in influencing access to and use of e-resources, it is recommended that a common electronic collection development policy, guidelines and procedures for budget allocation, needs assessment, selection, collection maintenance, evaluation and resource sharing be formulated and be implemented to enhance the efficient management of e-resource collections in the libraries. This can be achieved by providing selection procedures, requirements, standards and specifications in terms of ICT infrastructure and equipment and human resource recruitment. In order to optimise the use of e-resources, it is recommended that LELICO organise training sessions to familiarise the user community with the features, content, coverage of the resources and how to remotely access them. The academic libraries of LELICO are recommended to engage in professional development activities in a variety of formats including workshops, discussion groups and educational tours and trips in the academic libraries. It is recommended the LELICO offer its members academic libraries, training in skills development on current awareness, importance of usage statistics, and specialised technological skills such as web-based administrative tools and e-resources information retrieval skills to be able to impart such skills to the academic community. Policies and guidelines in place and skills acquired by the academic libraries will be the driving forces of facilitating conditions, social influence and intention to access and use e-resources.

The coalition of South African Library Consortium (COSALC) observed that currently higher education institutions and library consortia are individually approached by vendors and publishers of information. This leads to unnecessary duplication, and is extremely expensive for individual institutions, widens the gap between the information rich and information poor, and does not contribute to the goal of information resource sharing and equitable access to information for all academic institutions. The role of LELICO, is to facilitate joint purchasing of e-resources at reduced cost, to bargain for reduced rates to subscriptions for consortium libraries. Therefore, for LELICO to facilitate access to and use of electronic information, it must emulate COSALC by establishing an initiative, such as the South African Site Licensing Initiative (SASLI), managed as a project to promote the sharing of information resources and to achieve economies of scale in SA. Its role is to establish needs, negotiate licenses and prices, co-ordinate access, delivery and training, and other issues related to the cost effective use of electronic information.

7.3.4 Challenges libraries face in facilitating access to and use of e-resources

As mentioned earlier, challenges such as shortage of staff due to skilled and trained staff, lack of up-to-date infrastructure and equipment, slow internet connectivity and so on, are due to a lack of proper funding and budget cuts for academic libraries. Therefore, it is recommended that libraries lobby for more funding, mainly for up-to-date ICT infrastructure, since retrieval of information resources require ICTs for easy access to and use of e-resources. On the other hand, academic libraries should be allocated adequate funding to fulfil the libraries mission of supporting teaching, learning and research in their institutions. Academic libraries, when drafting their budget, should separate it so as to specifically allocate for e-resources and monographs separately. As mentioned earlier, the results revealed that the academic libraries have a limited budget, which cannot keep pace with either publishers' price increases or devaluation of the local currency, it therefore, recommended that selection decisions for e-resources, especially e-journals be made with great care, taking into account the information needs of the academic community and collection relevancy, accessibility, usage, availability of full-text databases and the overall cost of e-journals and inflation. The academic libraries of LELICO are recommended that they must continuously review e-resources in light of the current interest of users, by conducting a needs assessments in relation to access of and use of e-resources.

7.3.5 Strategies adopted to enhance access to and use of e-resources in academic libraries

In order to strengthen the existing strategies such as IRs, OA, IL and library orientation initiatives, the study recommends that instead of each individual institution taking on the stewardship of its own repository, the economic and environmental costs of managing such repository services can be significantly reduced by cooperating and sharing resources. Academic libraries must adequately train their staff and equip them with the necessary skills and knowledge to manage, administer and maintain their IRs. Parent institutions should support faculties in the form of funding for research, thereby encouraging academics to make use of libraries and their resources, especially to available OA resources. This would permit any user to make lawful access to and use of the content and data, with appropriate acknowledgement. Academic libraries should also promote access to its IRs, especially local theses, dissertations and research papers to be accessed, and encourage researchers to deposit their research works to the repositories. It is also recommended that academic libraries encourage users to make use of IRs and OA initiatives through awareness campaigns and training sessions. It is recommended that IL programmes be intensified to assist users with better information-seeking and retrieval options to the libraries resources. The skills acquired by the users in the academic libraries of LELICO will be the facilitating conditions to have intention to use the initiatives in place and to make users take the efforts necessary expected of them to access and use the e-resources.

7.4 Contribution and originality of the study

The study was the first comprehensive one to investigate of access to and use of electronic information resources in the academic libraries of LELICO. Therefore, the study contributes to the body of knowledge and literature, especially in the context of Lesotho. The research questions addressed in the study were of value to institutions, administrative staff, academic staff, library staff, policymakers, and researchers in Lesotho, and more particularly to those who are dealing with academic libraries. The findings of the study have the potential to influence the formulation of an electronic collection development policy in the LELICO academic libraries. Furthermore, awareness access and use of e-resources in the academic libraries should be increased for efficient use of electronic information resources.

7.5 Suggestions for future research

The study investigated access to and use of electronic information resources in the academic libraries of LELICO and was limited to only the academic libraries of LELICO, therefore, it is suggested that future research be conducted in other types of libraries, such as special, government, and national libraries, to determine how e-resources are accessed and used, what systems are in place to enhance access and use and the challenges and strategies to improve access to and use of e-resources in these libraries. Future research could be carried out to determine the impact of access and use to users of such libraries. It is suggested that future research look into all the variables of the UTAUT model for an enhanced understanding of access to and use of e-resources in such libraries.

7.6 Summary

The chapter provided a summary of all the previous chapters of the study, findings, conclusions and recommendations of the study that investigated access to and use of electronic information resources in the academic libraries of LELICO. The UTAUT model provided the conceptual framework for the present study. Literature was reviewed describing the access to and use of e-resources in academic libraries. The research used the mixed methods approach, adopting both qualitative and quantitative methods. Data was analysed and interpreted and the major findings were budget cuts and lack of funding to procure up-to-date equipment, lack of awareness of the available e-resources and lack of policies in place. Recommendations and suggestions for future research were put forward to enhance access to and use of e-resources in the LELICO academic libraries.

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APPENDICES

Appendix 1: Informed Consent Letter for Questionnaire



Dear Respondent,

Invitation to participate in a survey

Informed Consent Letter for Questionnaire

I, Lefuma Sejane, a PhD Information Studies candidate at the University of KwaZulu-Natal, Pietermaritzburg Campus, kindly invite you to participate in the research project entitled **“Access to and use of electronic information resources in academic libraries of the Lesotho Library Consortium.”**

The research project is undertaken as part of the requirements for the Doctoral degree, which is undertaken through the University of KwaZulu-Natal, Information Studies Programme.

The purpose of this study is to investigate access to and use of electronic information resources in academic libraries of Lesotho Library Consortium. The study will assist in determining whether electronic resources that are provided by your institution are accessed and used efficiently. It will also assist in identifying challenges that your institution face in facilitating access and use of these resources. It is hoped that the findings will identify strategies to be adopted to enhance access to and use of electronic resources in academic libraries of the consortium.

Participation in this research project is voluntary. You may refuse to participate or withdraw from the research project at any stage and for any reason without any form of disadvantage. There will be no monetary gain from participating in this research project. Confidentiality and anonymity of records identifying you as a participant will be maintained by the Information Studies Programme, at the University of KwaZulu-Natal.

If you have any questions or concerns about participating in this study, please feel free to contact myself or my supervisor at the numbers indicated below.

It should take you about 15 minutes to complete the questionnaire.

Thank you for participating in this research project.

Researcher: Ms. Lefuma Sejane

Institution: University of KwaZulu-Natal, Pmb

Telephone number: +27827900834

Email address: 201500344@stu.ukzn.ac.za

Supervisor: Professor Ruth Hoskins

Institution: University of KwaZulu-Natal, Pmb

Telephone number: +0332605093

Email address: hoskinsr@ukzn.ac.za

HSSREC Research Office: Ms. P. Ximba

Institution: University of KwaZulu-Natal

Telephone number: +27 (0) 31 260 3587

Email address: ximbap@ukzn.ac.za

Please complete this form

Title of study: “Access to and use of electronic information resources in the academic libraries of the Lesotho Library Consortium”

I....., hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participate in the research project as outlined in the document about the study.

I acknowledge that I have been informed of the purpose of this survey. I am aware that participation in the study is voluntary and I understand that I am at liberty to withdraw from the project at any time, should I so desire.

Participant

Signature

Date:

Email:

Researcher

Signature

Date:

Email:

Appendix 2: Self-administered questionnaire for systems, acquisitions and systems librarians

QUESTIONNAIRE FOR SYSTEMS, ACQUISITIONS, AND SUBJECT LIBRARIANS

Instructions for completing the questionnaire

- a. Unless otherwise instructed, please place a tick in the space provided.
- b. Where you are required to answer in your own words, please use the space provided.

A. BACKGROUND INFORMATION

1. a. Institution/Library Name.....

b. Position/Rank of respondent.....

c. Gender:

Male

Female

d. Educational status: **(Please tick your highest qualification)**

Diploma

Bachelor's degree

Post-graduate Diploma

Master's degree

PhD

B. E-RESOURCES ACCESS

2. What e-resources collection are available in your library? **(Please tick all that apply)**

OPAC

E-journals

E-mail

Search engines

Full-text databases

Websites

E-images

CD-ROMs

Reference databases

Institutional Repositories (IRs)

3. How do users in your library become aware of e-resources? (Please tick all that apply)

- | | |
|---------------------------------|--------------------------|
| Library orientation/instruction | <input type="checkbox"/> |
| Library guides | <input type="checkbox"/> |
| Institutions newsletter | <input type="checkbox"/> |
| Library website | <input type="checkbox"/> |
| Subject librarians | <input type="checkbox"/> |
| Faculty Deans/Lecturers | <input type="checkbox"/> |
| Colleagues | <input type="checkbox"/> |
| Acquisition's section | <input type="checkbox"/> |
| Displays | <input type="checkbox"/> |

4. Which e-resources are accessed most? (Please tick all that apply)

- | | |
|---------------------|--------------------------|
| OPAC | <input type="checkbox"/> |
| E-journals | <input type="checkbox"/> |
| E-mail | <input type="checkbox"/> |
| Search engines | <input type="checkbox"/> |
| Full-text databases | <input type="checkbox"/> |
| Websites | <input type="checkbox"/> |
| E-images | <input type="checkbox"/> |
| CD-ROMs | <input type="checkbox"/> |
| Reference databases | <input type="checkbox"/> |
| IRs | <input type="checkbox"/> |

5. Have your users encountered problems when accessing these resources?

- | | |
|----------|--------------------------|
| Yes | <input type="checkbox"/> |
| No | <input type="checkbox"/> |
| Not sure | <input type="checkbox"/> |

If 'yes', go to question 6.

6. What kind of problems are encountered when accessing these resources?

(Please tick all that apply)

- | | |
|----------------------------|--------------------------|
| Network downtime | <input type="checkbox"/> |
| Slowness when downloading | <input type="checkbox"/> |
| Vendor upgrades | <input type="checkbox"/> |
| Slow computers | <input type="checkbox"/> |
| Load-shedding | <input type="checkbox"/> |
| Off-campus access problems | <input type="checkbox"/> |

C. E-RESOURCES USE

7. What criteria do you use to evaluate use of e-resources for ongoing subscriptions?

(Please tick all that apply)

- | | |
|--------------------------------------|--------------------------|
| Online usage statistics by publisher | <input type="checkbox"/> |
| Online statistics by the library | <input type="checkbox"/> |
| User community demand | <input type="checkbox"/> |
| Coverage | <input type="checkbox"/> |
| Content of subject matter | <input type="checkbox"/> |

8. In your library, what are e-resources mainly used for? (Please tick all that apply).

- | | |
|-----------------------------|--------------------------|
| Communication | <input type="checkbox"/> |
| Assignments | <input type="checkbox"/> |
| Lecture requirements | <input type="checkbox"/> |
| Recreation | <input type="checkbox"/> |
| Support teaching activities | <input type="checkbox"/> |
| Professional research | <input type="checkbox"/> |
| Administrative purposes | <input type="checkbox"/> |

9. How frequently do you think e-resources in your library are used?

- | | |
|------------------|--------------------------|
| Daily | <input type="checkbox"/> |
| 2-3 times a week | <input type="checkbox"/> |
| Once a week | <input type="checkbox"/> |

- 2-3 times a month
- Once a month
- Don't know

10. How can you rate the level of use of e-resources in your library?

- Very high
- High
- Low
- Very low

11. Are there any conditions attached to use of e-resources in your library?

- Yes
- No

If 'yes', please explain your answer

.....

.....

.....

.....

D. SYSTEMS IN PLACE TO ENHANCE ACCESS AND USE

12. What is the name of your library software system?

- INNOPAC
- ITS
- CDS-ISIS
- WEBLIS

If not in the list, please specify the one used in your library.....

13. Does your library have its own computer server?

- Yes
- No
- Not sure

14. How would you rate the strength of the bandwidth in your library?

- Very good
- Good
- Poor
- Very poor
- Don't know

15. What facilities are available in your library to access and use e-resources? (Please tick all that apply).

- OPACs
- Internet connectivity
- Wi-Fi/hotspots
- Computer LAN/internet café
- Photocopying /scanner machines

E. LELICO's EFFECTIVENESS ON ACCESS AND USAGE OF E-RESOURCES

16. Does LELICO have guidelines, which encourage access to and use of e-resources?

- Yes
- No
- Don't know

17. Does LELICO offer its members any form of skills development in e-resources access and use?

- Yes
- No
- Don't know

18. What type of in-service training does LELICO conduct?

- Seminars
- Workshops
- Refresher courses

F. CHALLENGES FACING ACCESS TO AND USE OF E-RESOURCES

19. What barriers does your library experience in access to and use of e-resources? (Please tick all that apply).

- | | |
|------------------------------|--------------------------|
| Computer/network problems | <input type="checkbox"/> |
| Limited spacing for training | <input type="checkbox"/> |
| Lack of searching skills | <input type="checkbox"/> |
| Shortage of staff | <input type="checkbox"/> |
| Lack of up-to-date equipment | <input type="checkbox"/> |
| Few computers | <input type="checkbox"/> |
| Slow internet connectivity | <input type="checkbox"/> |
| Virus attacks | <input type="checkbox"/> |

20. Which challenges does your library face regarding e-resources? (Please tick all that apply).

- | | |
|------------------------------------|--------------------------|
| Lack of usage statistics | <input type="checkbox"/> |
| Budget cuts | <input type="checkbox"/> |
| Inadequate searching skills | <input type="checkbox"/> |
| High cost of subscription fees | <input type="checkbox"/> |
| Loss of knowledgeable staff due to | |
| Retirement/resignation | <input type="checkbox"/> |

21. Is your library experiencing difficulties in maintaining its e-resources subscriptions? (Please tick all that apply).

- | | |
|-----------------|--------------------------|
| Budget cuts | <input type="checkbox"/> |
| Price increases | <input type="checkbox"/> |
| Exchange rates | <input type="checkbox"/> |

G. STRATEGIES TO ENHANCE ACCESS TO AND USE OF E-RESOURCES

22. Which of the following strategies are adopted in your library? (Please tick all that apply)

- | | |
|-----|--------------------------|
| OA | <input type="checkbox"/> |
| IRs | <input type="checkbox"/> |

Information Literacy (IL)

Library orientation/sessions

23. If your library has an institutional repository, is it involved in its management?

Yes

No

24. Does your library support OA initiative?

Yes

No

25. If the above response is 'yes', please explain your answer

.....
.....
.....
.....

26. Is there any training/ workshops/seminars organized to build the capacity of staff/students for enhanced access and use of e-resources?

Yes

No

27. Any comments, in general with regard to access to and use of e-resources in academic libraries?

.....
.....
.....
.....

Thank you very much for your time.

Appendix 3: Informed consent letter for interview with PVC, Directors and Rectors



Dear Respondent

Informed Consent Letter for Interview

I, Lefuma Sejane, a PhD Information Studies candidate of the University of KwaZulu-Natal, kindly invite you to participate in the research project entitled **Access to and use of electronic information resources in the academic libraries of the Lesotho Library Consortium.**

The research project is undertaken as part of the requirements of the PhD, which is undertaken through the University of KwaZulu-Natal, Information Studies Programme.

The purpose of this study is to investigate access to and use of electronic information resources in academic libraries of Lesotho Library Consortium. The study will assist in determining whether electronic resources that are provided by your institution are accessed and used efficiently. It will also assist in identifying challenges that your institution face in facilitating access and use of these resources. It is hoped that the findings will identify strategies to be adopted to enhance access to and use of electronic resources in academic libraries of the consortium.

Participation in this research project is voluntary. You may refuse to participate or withdraw from the research project at any stage and for any reason without any form of disadvantage. There will be no monetary gain from participating in this research project. Confidentiality and anonymity of records identifying you as a participant will be maintained by the Information Studies Programme, at the University of KwaZulu-Natal.

If you have any questions or concerns about participating in this study, please feel free to contact myself or my supervisor at the numbers indicated below.

It should take you about 30 minutes to complete the interview.

Thank you for participating in this research project.

Researcher: Ms. Lefuma Sejane

Institution: University of KwaZulu-Natal, Pmb

Telephone number: +27827900834

Email address: 201500344@stu.ukzn.ac.za

Supervisor: Professor Ruth Hoskins

Institution: University of KwaZulu-Natal, Pmb

Telephone number: +0332605093

Email address: hoskinsr@ukzn.ac.za

HSSREC Research Office: Ms. P. Ximba

Institution: University of KwaZulu-Natal

Telephone number: +27 (0) 31 260 3587

Email address: ximbap@ukzn.ac.za

Please complete this form

Title of study: “Access to and use of electronic information resources in the academic libraries of the Lesotho Library Consortium”.

I....., hereby confirm that I understand the contents of this document and the nature of the research project, and I agree to participate in the research project as outlined in the document about the study. I consent / do not consent to have this interview recorded.

I acknowledge that I have been informed of the purpose of this interview. I am aware that participation in the study is voluntary and I understand that I am at liberty to withdraw from the project at any time, should I so desire.

Participant

Signature

Date:

Email:

Researcher

Signature

Date:

Email:

Appendix 4: Interview schedule for PVC, Directors and Rectors

INTERVIEW SCHEDULE FOR PRO-VICE CHANCELLOR, DIRECTORS AND RECTORS

A. INSTITUTION LIBRARY

1. In supporting teaching, learning and research, can you please rate the importance of e-resources for your institution?

Very important []

Important []

Unimportant []

Not at all important []

Please elaborate on your answer

.....
.....
.....
.....

2. Would you say your library is fully e- resourced to meet learning, teaching & research needs of your institution?

Yes []

No []

Not sure []

Please explain your answer

.....
.....
.....
.....

B. FUNDING/BUDGETING

3. From your institutional budget, what percentage is allocated to the library?

.....%

Not sure []

4. Has this allocation ever increased over the last two years?

Yes []

No []

Not sure []

Please explain your answer

.....
.....
.....
.....

5. Any strategies put in place to improve funding for e-resources in your library?

Yes

No

Not sure

C. INSTITUTIONAL REPOSITORIES

6. Does your institution support and contribute to OA repository for institutional publications?

Yes

No

Not sure

Please explain your answer

.....
.....
.....
.....

Any comments regarding access to and use of e-resources in your institution?

.....
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.....
.....

THANK YOU

Appendix 5: Informed consent letter for interview with the University Librarian and Library Directors



Dear Respondent

Informed Consent Letter for Interview

I, Lefuma Sejane, a PhD Information Studies candidate of the University of KwaZulu-Natal, kindly invite you to participate in the research project entitled **Access to and use of electronic information resources in the academic libraries of the Lesotho Library Consortium.**

The research project is undertaken as part of the requirements of the PhD, which is undertaken through the University of KwaZulu-Natal, Information Studies Programme.

The purpose of this study is to investigate access to and use of electronic information resources in academic libraries of Lesotho Library Consortium. The study will assist in determining whether electronic resources that are provided by your institution are accessed and used efficiently. It will also assist in identifying challenges that your institution face in facilitating access and use of these resources. It is hoped that the findings will identify strategies to be adopted to enhance access to and use of electronic resources in academic libraries of the consortium.

Participation in this research project is voluntary. You may refuse to participate or withdraw from the research project at any stage and for any reason without any form of disadvantage. There will be no monetary gain from participating in this research project. Confidentiality and anonymity of records identifying you as a participant will be maintained by the Information Studies Programme, at the University of KwaZulu-Natal.

If you have any questions or concerns about participating in this study, please feel free to contact myself or my supervisor at the numbers indicated below.

It should take you about 20 minutes to complete the interview.

Thank you for participating in this research project.

Researcher: Ms. Lefuma Sejane

Institution: University of KwaZulu-Natal, Pmb

Telephone number: +27827900834

Email address: 201500344@stu.ukzn.ac.za

Supervisor: Professor Ruth Hoskins

Institution: University of KwaZulu-Natal, Pmb

Telephone number: +0332605093

Email address: hoskinsr@ukzn.ac.za

HSSREC Research Office: Ms. P. Ximba

Institution: University of KwaZulu-Natal

Telephone number: +27 (0) 31 260 3587

Email address: ximbap@ukzn.ac.za

Please complete this form

Title of study: “Access to and use of electronic information resources in the academic libraries of the Lesotho Library Consortium”.

I....., hereby confirm that I understand the contents of this document and the nature of the research project, and I agree to participate in the research project as outlined in the document about the study. I consent /do not consent to have this interview recorded.

I acknowledge that I have been informed of the purpose of this interview. I am aware that participation in the study is voluntary and I understand that I am at liberty to withdraw from the project at any time, should I so desire.

Participant

Signature

Date:

Email:

Researcher

Signature

Date:

Email:

Appendix 6: Interview schedule for University Librarian and Library Directors

INTERVIEW SCHEDULE FOR UNIVERSITY LIBRARIAN AND LIBRARY DIRECTORS

1. Please tell us what your job entails?

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2. Does your library have an e-resource collection development policy?

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3. Does your library have e-resources department/section?

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4. Is the current budget for the library sufficient to subscribe to e-resources?

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5. In your library, who is involved in decision-making regarding subscription of e-resources?

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.....

6. What strategies are available for enhanced access to and use of e-resources in your library?

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.....
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7. What infrastructure is available for access and use of e-resources in your library?

.....
.....

.....
.....

8. What are challenges do libraries face in facilitating access to and use of e-resources?

.....
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.....
.....

9. Are there any issues or concerns that you would like to mention regarding e-resources access to and use for your library?

.....
.....
.....
.....

THANK YOU

Appendix 7: LELICO's gatekeeper permission letter



LESOTHO LIBRARY CONSORTIUM (LELICO)

One in vision, together@work, electronically connected

28th May, 2015

Officer-in-Charge
Research Ethics Committee
University of KwaZulu-Natal
Pietermaritzburg Campus, South Africa.

Dear Madam/Sir,

SUBJECT : PERMISSION FOR MS LEFUMA SEJANE - DOCTORAL STUDENT AT UKZN

As Chairperson of the Lesotho Library Consortium (LELICO), I would like to acknowledge a request from Ms Lefuma SEJANE, a PhD Candidate in Information Studies Programme with the University of KwaZulu-Natal, Pietermaritzburg Campus, that she be given permission to conduct her research titled *Access to and use of electronic information resources in academic libraries of the Lesotho Library Consortium* in LELICO member libraries.

I have spoken with Ms Sejane and understood the scope of her research and how she will collect and present her data. We are convinced that all information seeking will be done in a confidential and appropriate manner.

I further understand that Ms Sejane's study regarding data collection is expected to run from July to September, 2015.

In this regard, I write to confirm that the permission sought is duly granted.

Should your good offices seek more clarification relating to this matter, you must feel free to contact us.

Yours sincerely,

Assoc. Prof. MM Moshoeshe-Chadzingwa (PhD)
CHAIR – LELICO

Tel : 266 22340468 (Office)
Cell: 266 58854122

P.O. Box 1972, WINDYBANK, Lesotho. Tel: (+266) 22340468/22340468
Fax: 22340468
Email: lelco@ukzn.ac.za

AR, IDM, LAC, LCE, LIPAM, LP, LPPA, LNLS, NUL, LHDA, PJ, PARLIAMENT

Appendix 8: UKZN Ethical clearance certificate



26 August 2015

Ms Lefuma Sejane 201500344
School of Social Sciences
Pietermaritzburg Campus

Dear Ms Sejane

Protocol reference number: HSS/0140/015D
Project title: Access to and use of electronic information resources in academic libraries of the Lesotho Library Consortium

Expedited Approval

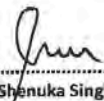
In response to your application dated 12 March 2015, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol have been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. Please note: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully



.....
Dr Shenuka Singh (Chair)

/px

cc Supervisor: Professor R Hoskins
cc Academic Leader Research: Professor Sabine Marschall
cc School Administrator: Ms Nancy Mudau

Humanities & Social Sciences Research Ethics Committee

Dr Shenuka Singh (Chair)

Westville Campus, Govan Mbeki Building

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Website: www.ukzn.ac.za



Founding Campuses:  Edgewood  Howard College  Medical School  Pietermaritzburg  Westville