

**ACCESSBILITY AND USAGE OF ELECTRONIC RESOURCES BY  
POSTGRADUATE STUDENTS AT DAR ES SALAAM UNIVERSITY  
COLLEGE OF EDUCATION, TANZANIA**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE AWARD OF MASTER DEGREE IN LIBRARY  
AND INFORMATION MANAGEMENT (MLIM) OF THE OPEN  
UNIVERSITY OF TANZANIA**

**2019**

**CERTIFICATION**

The undersigned certify that they have read and hereby recommend for acceptance by the Senate of The Open University of Tanzania a dissertation titled: “*Accessibility and Usage of Electronic Resources by postgraduate students at Dar es salaam University college of education, Tanzania*” in partial fulfilment of the requirements for the Masterø degree in Library and Information Management of the Open University of Tanzania.

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Signature

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Supervisor

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I, **Jackson Israel Kalama**, certify that this dissertation is my own original work, and that it has not been submitted for a similar degree in any other University

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**Jackson Israel Kalama**

Date\_\_\_\_\_

## **DEDICATION**

This scholarly work is dedicated to my beloved wife Veronica Jackson Kalama, my son Christopher Jackson Kalama and my lovely mother Flora Israel Kalama for laid down the foundation of my education.

## ACKNOWLEDGEMENT

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## **ABSTRACT**

The main objective of this study was to assess accessibility and usage of e-resources by postgraduate students at Dar es Salaam University College of Education (DUCE) in Tanzania. The study sought to identify types of electronic resources available at Dar es Salaam University College of Education (DUCE); find out the extent to which electronic resources are accessed and used by Postgraduate students at Dar es salaam University College of education (DUCE); identify the challenges and prospects faced by postgraduate students when accessing and using e-resources; examine measures to be taken by DUCE to improve the accessibility and usage of e-resources. Both theoretical and empirical literature was reviewed. The study employed a survey research design involving 122 respondents who were randomly and purposively selected. Key findings revealed that, e-books, database, e-paper and e-journals are the types of e-resources found in DUCE. It was revealed that the level of usage of e-resources at DUCE is low due to factors such as; outdated ICT facilities, inadequate bandwidth, lack of information literacy skills, unreliable power supply, cost of subscription fees and instability of availability of online resources. Slowness when downloading, few ICT facilities and network downtime are the challenges faced by postgraduate students at DUCE. In view of the above, the study recommends that DUCE Library should regularly advertise, promote and market its e-resources through information literacy training; information literacy training should be included in the formal curricula of postgraduate students; management to allocate adequate budget for purchasing ICT facilities and improve ICT infrastructures and include students fees as possible source for funding. The study concluded that, e-resources at DUCE have been vital in supporting teaching, research and community services and therefore, its usage should be promoted.

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## LIST OF ABBREVIATIONS & ACRONYMS

AGORA	Access to Global Online Research in Agriculture
AJOL	African Journals Online
ARDI	Access to Research for Development and Innovation
CBE	College of Business Education
CD-DVD	Compact Disc-Digital Versatile Disc
CD-ROM	Compact Disc-Read Only Memory
CORTUL	Consortium for Tanzania Universities and Research Libraries
DUCE	Dar es Salam University College of Education
EBSCOHOST	Elton B. Stephens Company Hybrid Open System Technology
EIR	Electronic Information Resources
EOLSS	Encyclopaedia of Life Support Systems
E-RESOURCES	Electronic Resources
FUTO	Federal University of Technology Owerri
HINARI	Health Internetwork Access to Research Initiative
HKMU	Hubert Kairuki Memorial University
ICT	Information and Communication Technologies
IFM	Institute of Finance Management
IT	Information Technology
KNLS	Kenya National Library Services
LAN	Local Area Network
MA Ed	Masters of Arts with Education
MOUAU	Michael Okpara University of Agriculture Umudike
MUHAS	Muhimbili University of Health and Allied Sciences.



NAUA	Nnandi Azikiwe University Awka
NLU	National Library of Uganda
OPAC	Online Public Access Catalogue
PC	Personal Computer
PEOU	Perceived Ease of Use.
PGDE	Postgraduate Diploma in Education
PU	Perceived Usefulness
PUBMED	Published Medline Database
SPSS	Statistical Package for the Social Sciences
TAM	Theory of Technological Acceptance Model Technology
TEEAL	The Essential Electronic Agricultural Library
TRA	Theory of Reasoned Action
UDSM	University of Dar es Salaam
UTAUT	Unified Theory of Acceptance and Use of Information
WI-FI	Wireless Fidelity
WWW	World Wide Web

## **CHAPTER ONE**

### **1.1 Introduction**

The key role of University libraries is to support the functions of the parent organization which revolve around teaching, learning, research and community services. In order to support the mission of the university, libraries are required to provide quality, relevant and timely information to enable their users make efficient and informed effective use of available resources. This view is also supported by Adelaje (2000), who asserts that access and usage of information is needed for decision making and in solving societal problems. Similarly, Dadzie (2005) argued that electronic resources are invaluable resources that compliment print resources and they are helpful to postgraduate students and distance learners who may have limited access to traditional library services (Egberngbe, 2011; Sharma, 2009). However, with the development of ICT, information which was only available in print format is also available in electronic format. In fact, Moahi (2009) argued that ICT have facilitated effective management of information and has led to enhanced access to information which otherwise would not be accessible. On the other hand Ani (2008) posits that, the transition from print to electronic information has provided user with new tools and application for information seeking and retrieval thus electronic resources are invaluable research tools which compliment the print based resources in a traditional library setting. The term accessibility and usage are key basic concepts in this study because they are used to complement each other. It is the accessibility of information which promotes its usage. Ugah, (2008) opined that the more accessible information sources are, the more likely they are used users can only use information if it is accessible. By definition, electronic resources refer to a

resource which requires computer access or any electronic product that delivers a collection of data (Mittal & Bala, 2013). Different types of electronic resources include: full text bases electronic journals, image collections, other multimedia productions and numerical, graphical or time based, commercially available title that has been published with the aim of being marketed (Kenchakkaravar, 2014). While on the other hand, electronic sources which are accessible through Internet are described as Internet sources (Halloumeh and Jirjees, 2016). According to Alison (2012) electronic resources are categorized into two categories namely freely available web based sources and scholarly web based resources such as electronic journals. In Tanzania, academic Libraries through the Consortium of Tanzania University Libraries (CORTUL) have pulled resources together in order to subscribe to electronic resources. As a result, member libraries today have integrated e-resources into their collections. The consortium members have access to electronic journals and books databases which on their own, could not have afforded to subscribe to these resources. Dar es salaam University College of Education (DUCE) is among the members subscribes to these resources. Based on this cooperation, DUCE has managed to access over 21 electronic resources databases such as Emerald, JSTOR, American Chemical Society Journals just to mention few to support teaching, learning and research.

## **1.2 Background Information**

Universities are major creators and repositories of knowledge which supports teaching, learning and research. Thus, the aim of Libraries is to provide academic information and services for supporting learning, teaching and scientific research

(Zhang, etl 2014). Halloumeh (2016) argued that in order to provide better services to patrons, some libraries have transformed into virtual, which increases the global dissemination of knowledge. Wamukoya, & Wekullo (2014) on the other hand reported that digital libraries had a potential to settle the knowledge deficit in many parts of the world including Africa. According to Tyagi, & Kumar, (2011) e-resources are important in research because they keep researchers up to date in their fields of specializations, and at the international level. Besides that, Ray & Day (1998), argued that e-resources open up the possibility of searching multiple files simultaneously; information can be printed or saved for future reference and can be easily updated. Stewart (2000) indicated that electronic resources are more useful for their ability to link to other sources including multimedia elements and many subject fields. As a consequence, electronic resources have made Libraries to extend their collections beyond the confines of physical walls. At the same time various types of e-resources used in education includes but not limited ; E-books, E-journals, E-Databases, CDs/DVDs, E-conference proceedings, E-Reports, E-Maps, E-Manuscripts, E-Theses, E-Newspaper, Internet/Websites - Listservs, Newsgroups, Subject Gateways, USENET, FAQs etc. These resources are used as educational material because by their nature, they facilitate teaching, learning and research endeavours. Luambano and Nawe (2004) viewed electronic resources as one of the many formats the library acquires to support the entire library collection. With this development, users in academic institutions no longer depend solely on printed resources as an alternative , rather they also use e-resources to support their information resources. Apparently, accessing e-resources in these formats depends on many factors including the availability of devices required for reading,

connectivity and individuals literacy level or adequate skills for evaluating and retrieving information. Hoffmen and Marshall (2008) refer these skills as the competencies needed to access information. Before the event of ICT this was not possible. In acknowledging the importance attached to e-resources in teaching, research and learning, the International Network for the Availability of Scientific Publications (INASP) came up with the initiatives to enable researchers, lectures, students and decision makers in developing countries access a wide range of digital materials. Katabalwa (2016) in his study on e-resource utilization in academic institutions observed that students use electronic resources for various purposes including working on their assignments, research proposal writing, literature review, and research report writing.

Despite the value of electronic resources, however other studies have shown that there is under-utilization of electronic resources in higher learning institutions. For example Katabalwa (2016); Ahmed, (2013); Ndungu (2016); Manda and Nawe, (2008), Lwoga et al. (2007) identified limited number of titles, limited access to back issues, computers, power outage, difficulty in finding information, inability to access at home and slow speed, as major constraints. However, these constraints are mainly attributed to poor IT infrastructure and limited access to e-resources, which may also lead to other constraints such as unwillingness to use the resources regularly as well as low satisfaction with such resources (Katabalwa, 2016).

Dar es salaam University College of education (DUCE) is not exceptional in this regard. Through CORTUL, Universities and Colleges in Tanzania has subscribed to e-resources. Some have been freely available while others are accessible at a

subsidized price. These e-resources are designed to improve learning, teaching and research endeavors. This study therefore was intended fill the devoid of documented evidence about the extent of e-resources accessibility and usage by postgraduate students at DUCE.

### **1.2.1 Context of the Study**

The history of the Dar es Salaam University College of Education (DUCE), can be traced as far back as in 1964, when it started as Dar-es Salaam Teachers Training College (DUCE Newsletter, 2015). The aim of its establishment was to produce qualified teachers for secondary schools. Through the government Notice No 22 published on 22<sup>nd</sup> July, 2005, under Sec 55 (1) of the University of Dar ó es Salaam Act No. 12 of 1970, the Dar-es Salaam Teachers Training College was transformed into the College of the University of Dar-es Salaam. The establishment of the College was a response by the government to address the problem of acute shortage of graduate teachers and experts in the education sector in the country (UDSM prospectus, 2015/16). The shortage was aggravated by the expansion of primary education, through the Primary Education Development Programme (PEDP) 2002 ó 2006 and creation of new secondary schools through Secondary Education Development Programme (SEDP) 2004 ó 2009. These Government initiatives created an enhanced demand for graduate teachers and tutors in the country (DUCE Newsletter, 2015). Therefore, the establishment of DUCE was geared towards fulfilling the functions of teaching, research and public service. The College is mandated to offer both undergraduate and postgraduate programmes. In terms of infrastructure the college has put in place computer laboratories, and it is also

connected to the internet services in study areas and the national broadband Backbone, which has made internet services more reliable. With such infrastructures in place, it is expected that the user can easily access e- resources.

#### **1.2.1.1 Role of the University Library**

The role of the university library is to support the mission and vision of the parent organization which is teaching, learning, research and community services. The library supports the mission and vision by providing quality information, to meet the needs of its users. Such information can either be in the form of printed or e-resources. As a result, postgraduate students and the academic community are able to access e-resources from programmes such as PERI, HINARI and AGORA initiatives. The use of e-resources at DUCE has been facilitated by infrastructural development such as LAN, wireless link and standby generators which ensure continuity of service in case of power outage. (Carnegie Proposal Funding 2008/2009). However, despite the effort made by the college to improve ICT infrastructural networks and acquire/ introduce a range of e-resources, yet very little is known about the accessibility and usage and this study is geared towards establishing that.

### **1.3 Statement of the Problem**

The development of ICT has changed the way in which information is provided and used. This developmental change has made it possible for users to meet their information needs not only by using traditional printed resources but also e-resources. Accessibility and usage of electronic resources have become vital to the success of postgraduate studies in any institution and the library plays the central role

in making information available and accessible. Postgraduate students are expected to have good information search skills, knowledge of, and familiarity with libraries and electronic resources, which are vital for the successful completion of their university/college studies. In fact University/college libraries provide current and relevant information resources in areas of specialization, in order to support the college curriculum.

In Tanzania, a number of studies exist on access and usage of electronic resources. Both studies have stressed the importance and efficacy of e-resources in supporting teaching, learning and research. For example the study on electronic resources usage in research conducted by Manda (2007) reported that, e-resources are used by both students and faculty members to acquire information for research literature, complete class assignments and as part of learning process, for the purpose of advancing the frontiers of knowledge. Msagati's (2014) study conducted at DUCE, reported that electronic resources are mainly used for research and academic purposes. Katabalwa (2016) in her study entitled "Assessing Access and use of E-journal" established that Electronic resources are used by students for various purposes including working on the assignments, research proposal writing, and for extra exploitation of on-going scientific debates through peer reviewed papers. Mtega et al (2014) study on the usage of e-resources among agricultural research and extension staff in Tanzania established that usage of e-resources from popular agriculture databases remains low despite its availability. Mwantimwa et al (2017) on the other hand reported that, despite the importance attached to e-resource in supporting teaching and research most of the subscribed e-resources are insignificantly utilized.



Nkebukwa (2016) conducted a study on the status of usage of electronic resources by students at the college of Business Education and revealed that lack of awareness is an obstacle in accessing and utilization of e-resources despite of its availability. While many studies have investigated and focused more on individual institutions none has examined accessibility and usage of e-resources with particular reference to postgraduate students at Dar es Salaam University College of Education (DUCE) as situation is not clearly known. Hence this study was designed to assess the accessibility and usage of usage of e-resources with particular reference to postgraduate students at DUCE. The particular study also intended to fill in the existing research gap.

#### **1.4 Research objective**

##### **1.4.1 General Objective**

The general objective of this study was to assess the accessibility and usage of electronic resources by postgraduate students at Dar es Salaam University College of Education (DUCE).

##### **1.4.2 Specific Objectives**

Based on the general objective of the study, specific objectives were to:

- i. To identify types of electronic resources available at Dar es Salaam University College of Education (DUCE).
- ii. To find out the extent to which electronic resources are accessed and used by Postgraduate students at Dar es salaam University College of education (DUCE).

- iii. To identify the challenges and prospects faced by postgraduate students in accessing and using e-resources.
- iv. To propose measures to be taken by DUCE to improve the accessibility and usage of e-resources.

### **1.5 Research Questions**

The study was guided by the following specific questions:

- i. What are the types of electronic resources do postgraduate students at Dar es Salaam University College of Education use?
- ii. To what extent do the postgraduate students of the Dar es Salaam university college of Education access and use library electronic resources?
- iii. What are the challenges faced by postgraduate students when accessing and using electronic resources?
- iv. What should be done to improve the accessibility and usage of electronic resources at DUCE?

### **1.6 Significance of the Study**

As pointed out earlier, accessibility and usage of electronic resources is key to the successful completion of students' postgraduate studies, and the library plays a key role in making information available and accessible. The findings of this study, therefore, will assist universities and colleges in sharing information on issues related to accessibility and usage of e-resources. Findings of this study will also inform decision makers on what should be done to promote the accessibility and usage of electronic information resources. The findings of this study will contribute to an understanding and knowledge on accessibility and usage of e-resources by

postgraduate students in universities/colleges in Tanzania. Such knowledge is also intended to build up other researcher's interest in the research subject (create the basis for other studies).. Finally the findings of this study will contribute to the existing body of literature on the subject.

### **1.7 Scope of the Study**

The study was confined to Dar es Salaam University College of Education (DUCE). This university college was selected because it has access to electronic resources acquired through CORTUL. Besides, it conducts specialised programmes in the education field. The study was limited to accessibility and usage of e-resources by postgraduate students. Postgraduate students here refer to students registered in the current postgraduate diploma in Education (PGDE) and Masters of Arts with Education (MA (Ed)) program. Postgraduate students were chosen because they are expected to have a good knowledge of and familiarity with libraries and electronic resources which are relevant to the successful completion of their studies (teaching, research and learning). Similarly, upon completion of their studies as teachers, they are expected to impart the acquired knowledge and skills to students in their respective schools. This is because some schools have installed ICT facilities in order to facilitate students access to information. This is key in building a literate nation.

### **1.8 Limitation of the Study**

Time constraint was limitation whereby time given for fieldwork was limited to six months only. Besides, as an employee, I was faced with the challenge to fulfil my employer's demands which required me to work while studying. To overcome this challenge, I had to work in the night. Budget constraints were also another limitation.

This study was self-sponsored and hence, it was difficult to raise funds to cover tuition fees and at the same time meet family obligations. The limit was minimized by the support from the family and bank loan.

## **1.9 Definition of the Key Terms Used in the Study**

The definitions of key terms are intended to provide a better understanding of issues to this study in order to avoid ambiguities. The following operational definitions are used to guide the study:

### **1.9.1 Access**

Techopedia (2018) defined access as a user's ability to retrieve resources stored within a database or other repository. A user who has access can store, retrieve, move or manipulate electronic resources, which can be stored on a wide range of hard drives or external devices. In the context of this study, this definition will apply.

### **1.9.2 Accessibility**

Accessibility means that users can identify and use the resources. It also refers to extent to which user can obtain resources at the time it is needed (Tech Terms Computer dictionary, 2017). In other words is an authorization, opportunity, or right to retrieve information from computer systems or website. This definition is adopted because it applies to the context of this study.

### **1.9.3 Electronic Journals (e-Journal)**

E-journal refers to as scholarly journal that can be accessed via electronic transmissions and has the purpose of providing materials for academic research and

study. Some electronic journals are online only journals; others are online versions of printed journals (Halloumeh, & Jirjees, 2016). In the context of this study, this definition applies.

#### **1.9.4 Electronic resources (e-resources)**

According to IFLA (2012) e-resources refer to those materials that require computer access, whether through a personal computer, mainframe, or handheld mobile device. They may either be accessed remotely via the Internet or locally. It includes; E-journals, E-books, Full-text (aggregated) databases, indexing and abstracting databases, Reference databases (biographies, dictionaries, directories, encyclopaedias, etc), Numerical and statistical databases, E-images and E-audio/visual resources. The term e-resources is also used interchangeably with digital resources comprises e-journals, e-books, online database and e-thesis/dissertations. This definition is adopted because it applies to the context of this study.

#### **1.9.5 Postgraduate student**

According to Tanzania Commission for Universities Charter (2013), postgraduate student is an individual student with general degree, studying a postgraduate qualification. In this study may be postgraduate diploma and Masters degrees qualifications.

#### **1.9.6 Usage**

According to Concise Oxford Dictionary (10<sup>th</sup> Edition) 2007, Usage refers to action of using something or the fact of being used. It is the way that something is being

used, or to the proper way to make use of something. In this study the term is used to imply collection of electronic information resources for the purpose of full filling the information needs.

#### **1.10 Organization of the dissertation**

Chapter one presents the introduction and background information, containing the statement of the problem, general objective, specific objectives, research questions, significance of the study, scope and limitation of the study as well as definition of the key terms used in the study. Chapter two described the literature review and relevant research related with the problem including. Theories/Models (summary), Empirical review, overview of electronic resources access and usage in Tanzania, Research gap and motivation for the study and conceptual frame work. Chapter three explains methodology and procedures that were used to conduct the study and data analysis. Chapter four is data presentation, analysis and discussion and chapter five is the summarized study findings, conclusions, recommendations and areas for future research.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter reviews various related sources pertaining to the accessibility and usage of electronic resources by postgraduate students. The review of the literature is organized around broad themes and includes both current and retrospective sources. Reviewing the literature is an important aspect of the research process and serves several purposes including finding out what has been done, methodologies used, and area of agreement or disagreement. Review of the literature also enhances understanding of the research problem, research questions, and identification of concepts concerning the conceptual or theoretical framework to be used. Gastel (2012) stresses that a review of the literature makes a researcher to be familiar with previous works or research in his/her discipline, in addition for the need for the researcher to gain knowledge on how to find, analyse, evaluate and integrate information from existing research.

The reviewed literature is organized around broad themes as follows: Types of E-resources used; Access and Usage of e-resources; Challenges and Prospects towards the use of electronic resources; Suggested Measures to improve the Accessibility and Usage of E-Resource. Finally the chapter discusses the research gap and the conceptual framework for this study.

#### **2.2 Types of E- resources Used**

The term electronic resources represent a generic name which include electronic books (e-books), electronic journals (e-journals), government reports to aggregated

databases and interactive websites (Ashikuzzaman, , 2014). In the same vein IFLA (2012) refers e-resources to those materials that require computer access, whether through a personal computer, mainframe, or handheld mobile device. E-resources can be accessed in various ways. Among the common is online Public Access Catalogue (OPAC), search engines and websites (Bhatia & Venkata, 2011). Users can access information either from open access or subscribed. Ray & Day (1998) argued that e-resources has opened up the possibility of searching multiple files at a time; besides, it can be printed or saved for future reference; and are frequently updated. In fact these resources have been integrated as part of library collection. The advantage of e-resources is that multiple users are likely to access the same e-resource at the same time. It is asserted that postgraduate students are highly dedicated users of electronic information resources for their studies and research. The following are the most frequently encountered types of e-resources:

### **2.2.1 Compact disc-read only memory (CD-ROM) databases**

By definition 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).



Due to its importance, CD-ROM databases allow users access to relevant databases without having internet connectivity. 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 World Wide Web. 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).

### **2.2.2 E-Book**

An e-book or eBook is also known as electronic book, digital book and e-edition. It is a book length publication which contains text of text, images, or both, and produced or Published through, and readable on computers or other electronic devices. They are books provided in a digital format for checkout or use via an internet browser, a computer, or another electronic device like an e-book Reader (Johnson *et al.* (2012).

According to Falk (2003), there is a 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. Contrary to Somers (2015) on the use of e-resources, major problem

identified is that of limited information on the use of e-books and by academics and postgraduate students for research, learning and teaching purposes.

However, distance learning has been catalyzed by the use of e-book. Similar to Mini-Obradovi (2011); Online education makes higher education more affordable and accessible, the number of students enrolling for online education programmes are constantly increasing. Students can complete or advance their education while working. The reading of e-books via a standard web browser seems to be in keeping with the general moves for online delivery. Regardless to the time and distance, academics and students do accessing e-books.

### **2.2.3 E-database**

An e-database is an organized collection of information of a particular subject area. The information of an e-database can be researched and retrieved electronically. Johnson *et al.* (2012) defined e- database 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. Some examples of e-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; Science Direct; 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 (Chowdhury, 2004: 15)

#### **2.2.4 E-Journal**

An electronic journal is a periodical publication which is published in electronic format, usually on the Internet. Although printed books are still very important in the research field, electronic journals have become popular as they bring information directly to the desktop. Tenopir et. al. (2003) described the trend of electronic journals as 'evolutionary process' and there has been a gradual increase in the use of electronic journals. Some of the e-journals databases are, the African Journals Online (AJOL) 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.

#### **2.2.5 OPAC**

Online Public Library Catalogues (OPACs) are widely used electronic library catalogues giving a wealth of remote access to library information resources. 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) (study.com, 2018). 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.

**Table 2.1: Types of electronic resources (Summary)**

<b>Types</b>	<b>Descriptions</b>
E-Book	An e-book or eBook is also known as electronic book, digital book and e-edition. It is a book length publication which contains text of text, images, or both, and produced on Published through, and readable on computers or other electronic device.
E-database	An e-database is an organised collection of information of a particular subject area. The information of an e-database can be researched and retrieved electronically
E-paper	E-Paper is a portable, reusable storage and display medium that looks like paper but can be repeatedly written on refreshed, by electronic means- thousand or millions of times
E-Thesis	An e-thesis or electronic thesis describes a thesis in digital form that is generally accessed via the internet.
E-Journals	An electronic journal is a periodical publication which is published in electronic format, usually on the Internet.
OPAC	These are Online Public Library Catalogues (OPACs) are widely used electronic library catalogues giving a wealth of remote access to library information resources
CD-ROM	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

Since e-resources are available in various formats, there is a need to establish the types of available e-resources used by postgraduate students at DUCE. Understandably, knowing the available resources is likely to inform the library and university management which resources need to be added in the collection.

### **2.3 Accessibility and Usage of e-resources**

The term access refers to identify resources while usage is to utilize or make use of identified resources. Accessibility and usage of information are two terms which complement each other. It is the accessibility which influences the usage of information. The development of ICT has revolutionized the way information is accessed and used. Information is made available and accessible to students and academic staff through computers, the Internet, digital libraries, and related electronic networks. Thus it is readily used in teaching, learning and the research process.

Accessibility and usage of e-resources facilitates research, learning and teaching. Deng (2010) affirmed this on acceptance of mobile e-books, where the study revealed various purposes for using electronic resources, including: gathering information on a specific topic, gaining general information, obtaining answers to specific questions, completing assignments, reviewing literature, writing essays and helping decision making. Such revelation reflects the facts that people are dependent on availability of e-resources to meet their academic endeavours.

Various studies have investigated access and use of e-resources by students, faculty academic and research staff of institutions of higher learning. These studies

employed 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 accessibility and usage of e-resources.

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 & Tao, 2002; Ibrahim, 2004). Falk (2003) reported on the rapid growth and use of e-books in schools, colleges and universities. Ashcroft & Watts (2004) also mentioned the potential advantages of e-books including easier access, speed of publication, space-saving and lower costs. Ashcroft & Watts (2004) 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 & Calsada (2003). With the proliferation of these resources, especially for libraries with large subscriptions, Cohen & 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 & Tsigilis (2009) conducted a study at the Aristotle University of Thessaloniki. 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). The study found that the vast majority of the participants used Internet resources.

Kumar and Reddy (2014) study on the use of e-journals by research scholars in university libraries in Andhra Pradesh revealed that students and academic community still use print due to lack of searching skills. 74% of the students and

university libraries in Nigeria. The study adopted the descriptive design where a Questionnaire and face-to-face interview schedules were used to collect data. The findings revealed that e-resources are not fully utilized by undergraduate students, because they did not possess adequate information literacy skills for optimal use of e-resources. This could be attributed to either minimal knowledge of basic searching skills or retrieval skills. Findings of this study revealed that students were not formally taught the use of e-resources and information literacy.

The scenario in Africa is different from academic libraries in the developed countries, since many African students reach the university without having mastered effective use of e-resources or any other resources accessed via the use of computers at their secondary or A-level studies (Ukachi, 2015). This was evident from the outcome of the study conducted by Edem and Ofre (2010). The implication is that students read printed information resources more often than they use the



internet and other e-resources. Factors which hindered the use of internet and e-resources include: inadequate computing and internet access facilities in university libraries, lack of provision of user-friendly interfaces or services and effective user education programmes.

Soyizwapi (2005) focused on the use of e-databases by postgraduate students in South Africa. The study found that students did use the available e-databases, through library orientation programmes and through other students. The study on the use of electronic resources conducted by Oyedapo & Ojo (2013), Obafemi Alowowo University observed very low usage of electronic resources. This is due to limited searching skills.

On other hand, a study conducted by Hadebe (2010) noted 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. Manda (2005) conducted a study on Electronic Resource Usage in Academic and Research Institutions in Tanzania. The survey has shown significant variations between institutions in accessing electronic resources. The existing technical infrastructures and access to PCs show that there are no major obstacles to accessing electronic resources. However, in some institutions like CBE and IFM, there are only a few or even no PCs in the library for users because the computer labs in these institutions can accommodate only a minimum number of the students and staff. At IFM each member of staff has access to a PC. For effective usage of electronic resources, availability of ICT equipment,

infrastructures and Internet connectivity is important. Msagati's (2014) study investigated awareness and use of scholarly electronic journals by members of academic staff at DUCE. Findings of the study revealed that the level of use of scholarly electronic journals was low and the use of search engines such as Google was high amongst members of academic staff. The study further revealed that, scholarly electronic journals were mainly used by members of academic staff for research and academic purposes.

However, modern academic libraries are organized to provide effective e-reference service and resources in order to meet the information needs of their users (Ray, 2004). In the same vein the DUCE Library was established to support core activities of the University namely teaching, consultancy, research and learning. Hence, there is a need to find out the extent to which electronic resources are accessed and used by postgraduate students at DUCE.

#### **2.4 Challenges and Prospects towards Electronic Resources**

The new ICT technology has a tremendous impact on library's operations, services, users and students. Broadly, 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 (Sahoo, 2013).

Despite the importance attached to e-resources in teaching, research and learning, however, there are constraints faced in the acquisition and access of e--resources. For example Budget constraints are a critical part for the effective running of an

institution. In this context Linn (2007) noted that budget is a method of accomplishing many managerial tasks. According to Linn, budget is not only a means of planning for various revenue streams, but also 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 summarization of the activities that the various units will undertake. Similarly, it is also a technique for setting the organization'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).

A lack of a standard format has also been identified as a challenge to the adoption of e-resources (Mincic-Obradovic 2010). E-resource publishers publish e-resources in different file formats, such as HTML and PDF. Not all e-resources formats are compatible with all e-book readers or reading devices. On the other hand, some e-resources require special software to be downloaded and some software might not be compatible with certain e-resource reader devices and computer software (Wang & Bai 2016).

Digital rights management is another factor that may hinder the adoption of e-resources. Digital right management systems are systems used to digitally manage the copyrights or enforcing exploitation rules as determined by the rights holder (Vasileiou, Rowley and Hartley, 2012).

Prior IT infrastructure is also viewed as a challenge to utilization of e-resources. The study conducted by Ahmed (2013) on barriers of e-resources, reported that students

were not satisfied with e-resources because of prior IT infrastructure, difficult in searching required information, inadequate to access from home.

The speed of downloading document also poses as a challenge to accessing e-resources. Madhusudhan (2010) carried out a study at Kurukshetra University to determine users' skills in handling e-resources and the purpose of their use; the study noted that the most common problem facing use of electronic resources is slow access speed; it took too long to view or download a document. Another problem identified by the respondents was difficulty in getting relevant information due to information overload and lack of IT skills. Somers (2015) study on the use of electronic resources by postgraduate students and academics reported the problems postgraduate students encountered when using e-resources. These problems included "Limited off-campus access", "Not sure which database to choose", "Password requirements", "Slow internet connection" and the need for training in the use of e-resources.

On other hand, lack of guidelines and e-resources collection development policies was reported as one of challenges (Lefuma, 2017). The study concluded that access to and uses of electronic information resources in the academic libraries were influenced by how e-resources were accessed, systems in place, policy effectiveness of the consortium, challenges facing libraries and strategies in place.

Luambano and Nawe (2004) conducted a study on Internet use by students which revealed that students were not using IT because of limited number of computers with internet access and speed of computer.

Above been noted as among the factors that lead Libraries and information centers fail to acquire relevant and update? by Wema and Manda (2003). The study suggested all budget constraint seems to be major challenge on utilization of e-resources. Thus a budget is a constraint to acquiring educational materials as well as to subscribing to various e-resources. Lefuma (2017) in her study on access to and use of e-resources found that 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.

Generally the different scholars views on challenges and prospects discussed in the study imply that, budget constraint leads to poor ICT infrastructures for access and use of e-resources. Not only infrastructures but also limited IT skills, lack of up to date information Technology (IT) infrastructure, inadequate searching skills, shortage of staff and high cost of subscription fees were identified as constraining factors. For that matter, poor accessibility to the internet and internet connectivity can lead to low usage of e-resources. Hence the study will evaluate the challenges and prospects of electronic resources faced by postgraduate students at DUCE.

## **2.5 Suggested Measures to improve the Accessibility and Usage of E-Resources**

The mission of academic libraries is to support the core functions of the parent organization by providing scholarly information and services for learning, teaching and research. Due to the development of ICT, libraries worldwide are adopting modern innovative library programs in order to take advantage of the ICT in

providing electronic resources to their users. In fact, ICT has changed the way information is generated, stored and disseminated. The information which was only available and accessible in printed format is also now available in electronic version. Literacy training should be provided for e-resources users. Similarly, enough budgets should be allocated for the acquisition and sustenance of e-resources. This will in turn, facilitate easy users access to and use of e- resources for their academic and research endeavours.

Alongside the challenges and prospects discussed in the previous section of this review, Scholars have also put forward some suggestions to overcome the constraining accessibility and usage of e-resources. For example, there is the need for ensuring sufficient networked computers in libraries. In this vein, RIN (2010) conducted a study on UK universities' net expenditure on libraries which showed that the University Library should ensure sufficient networked computers and other facilities for the use of the undergraduate students in the library. The study also suggested that information retrieval skills using information technology should be included in the curriculum for the undergraduate students, in order to enable students make use of these electronic resources effectively. Hands-on training on the use of e-resources is also strongly advocated.

Accessing and using e-resources by students is normally costly, especially in terms of downloading. Thus, the cost of use of e-resources by students should be subsidized for easy access. Pandurangaswamy and Kishore (2013) focused on the use of e-resources by first and second year students of the Institute for Financial Management and Research. The study affirmed that the cost of accessing and

downloading electronic resources by students should be highly subsidized if they are to bear the list of off-prints and buy access time, in order to encourage the use of the electronic resources. The study further suggested that adequate provision should be made for alternative power supply to solve the problem of erratic and epileptic power supply which makes accessibility to the electronic resources difficult for the undergraduate students.

According to Sejane, (2017), in order for users to benefit from e-resources, improvement in accessibility to and usage of e-resource is critical. It is through this improvement that institutions could realise the value for money invested in e-resources. Issues such as e-collection development policies, procedures for budget allocation, assessment to selection, collections maintenance, resource sharing, requirements, standards and specifications in terms of ICT infrastructure need to be considered. Similarly, University librarians need to ensure strategic

Development of ICT infrastructures and the procurement of EIRs including library databases software in order to ensure the sustainability of e-reference services offered. The need for postgraduate students to acquire some knowledge and skills in accessing and using electronic resources is crucial. However this need to be accompanied by well tailored library information literacy instruction/ training programme, which targets all levels of library users in the university /college, including postgraduate students. Chimah and Nwokocha (2015) suggested that librarians should adopt an active literacy training programme and student-centred approach in their acquisition as intervention measures for improving availability and students' skills in using EIRs. Information literacy programmes, seminars and

workshops and other innovative strategies like developing online tutorials should be incorporated into postgraduate curriculum. Harle (2010) posited that, users have accepted the new electronic environment, but need better information literacy support. 74% of the students and academic faculties learned about electronic information sources either by trial and error or through the advice of friends Kumar and Reddy, (2014). Findings of this study imply that for effective accessibility and usage of e-resources, information literacy training to users is important. However despite this, research has shown that students have limited access to e-resources due various factors including shortage of computer, poor internet connectivity, Literacy training and budget limitations in the higher learning institutions are the core constraining factors. Wema & Manda, (2003) suggested that, there must be enough budgets in institutions of higher learning in order to facilitate access to e-resources. Lack of adequate budget, especially in the developing countries like Tanzania, may obstruct the quality of education, acquisition of new knowledge, and development of new research.

Generally, available literature shows that problems which hinder access and use of e-resources are varied. Prospects and challenges facing DUCE on the access and use of e-resources are not known. Knowing the prospects and challenges, this study will suggest various measures to improve the accessibility and usage of e-resources by postgraduate students at Dar es Salaam University College of Education (DUCE).



**Table 2.2: Attributes of Library environment for provision of e-resources to students**

S/N	Feature	Remarks
1.	Form	CD-ROM, DVD-ROM, Online Databases, Electronic Journals etc
2.	Cost	Digital resources should offer cost benefit in comparison to the print media
3.	Hardware setup	Hardware required for installation of digital Resources
4.	Software setup	Software required for viewing the digital resources viz. Operating Systems, Acrobat Reader for PDF files
5.	User Interface	Should be user friendly
6.	Training	Training: 1 Library staff in case of online Database searching, etc. 2 User training e.g. CD-Rom Searching

## **2.6 Importance of e-resources**

The current evolution in information technology brings major changes in the way of information communication. Information Communication technology developments opened up new avenues to e-resources publishing at a phenomenal scale. The ICT and internet technologies have enabled libraries to electronically store resources which can be accessed via the library webpage. This allows users, (students and academics) to retrieve and disseminate information anywhere, anytime for their

teaching, learning and research. An electronic resource includes collection of e-books, e-journals and other reference materials (Van Groenendaal, 1997). Electronic resources have great potential and bright future to attract users. They combine all the benefits of the multimedia, digital coding and Internet. E-resources are also portable, which enables the user to carry them everywhere and can be read on all types of computers including handheld devices. The following are some highlighted importance of e-resources;

- i. Provides current information.
- ii. Update information is necessary for research work.
- iii. Through electronic resources users are able to access latest institutions information.
- iv. Save the time of user and staff.
- v. Solve the space problem in Library
- vi. Easy to use and disseminate.

## **2.7 Conceptual Framework**

The study adopted the Theory of Technological Model (TAM) to investigate how postgraduate students used ICT to access and use e-resources. Tao (2008) observed that there was a significant growth in the availability and use of electronic resources. He established that perceived usefulness played a major role in determining students' intentions to use electronic resources. There are several studies on the technology acceptance which are summarized by Lu, Yu, Liu and Yao (2003).

Hu, Chau, Sheng and Yan (1999, p. 94) point out that there are several studies that have examined its overall explanatory power and measurement validity in

different empirical settings characterized by user group, technology, and organizational context. They pointed out that using the theory was of great importance in measuring and understanding perceived usefulness and perceived ease of use on behavior intention.

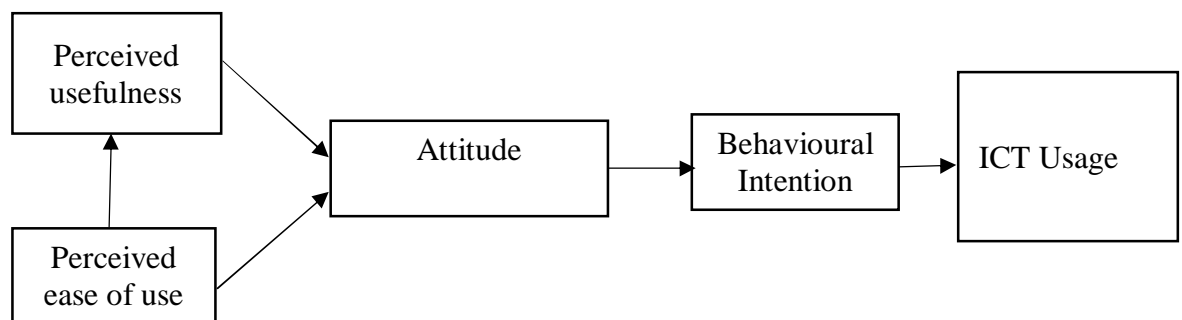
is claimed to be capable of providing a fairly adequate explanation and/or prediction of user acceptance of IT (Hu, Chau, Sheng and Yan, 1999).

TAM is built on the foundation which suggests that two beliefs of perceived usefulness and perceived ease of use are instrumental in explaining the variance in attitude (Agarwal and Prasad, 1999). These are the main determinants of users attitudes towards a technology, which, in turn, predicts their behavioral intention to use and accept the system (Ghazizadeh, Lee and Boyle, 2012). As mentioned earlier, the two factors, perceived usefulness and perceived ease of use have a great impact on peoples attitude towards the use of IT (Sheikhshoei and Oloumi, 2011). Figure 2.1 is the original TAM that was proposed by Davis, Bagozzi, and Warshaw (1989).

This study measured perceived usefulness with regard to providing access and usage to useful information, and reducing information retrieval time. In the context of electronic resources, ease of use is expected to be an important factor that determines behavioral intentions through attitude towards electronic resources. Perceived ease of use represents the degree to which online databases are perceived to be easy to understand, learn or operate (Lin, 2007; Hartshorne and Ajjan, 2009).

Thus, the TAM presupposes that perceived usefulness and perceived ease of use influence attitude toward behavioural intention to use information and communication technology. Davis (1989: 320) affirmed that the aim of the TAM is to “provide better measures for predicting and explaining use” of ICT in organization/institution (university).

From the theory, the study assumes that;



**Figure 2.1: Conceptual framework**

Adapted from Davis, Bagozzi, and Warshaw (1989)

## 2.8 Research Gap and Motivation for the Study

A review of literature revealed that a number of studies have been conducted on electronic resources in Tanzania. These include those by: Katabalwa (2016), on use of electronic journals by postgraduate students at the university of Dare Es salaam; Mwantimwa, K et al (2017), on utilization of E-resources to support teaching and research in Higher Learning Institutions, Tanzania; Nkebukwa (2016), on Status of Usage of Electronic Resources by students at the College of Business Education and Mtega etl (2012). Similarly as a Librarian, I have participated in a number of occasions, on discussions related to issues on e-resources and their utilization and if

they merit the value of money paid for subscription. Apparently, none of these studies have investigated access and use of electronic resources by postgraduate students at DUCE. Therefore, the current study was set to determine the accessibility and usage of e-resources by postgraduate students at DUCE. This is the gap this research intended to fill.

## **2.9 Summary**

This chapter, presented the introduction to literature review, general overview of electronic resources access and usage in Tanzania, followed by general literature review which embedded given specific objectives. Importance of e-resources, the conceptual framework and research gap and motivation for the study were discussed. The literature review has clearly indicated that postgraduate students depend on library e-resources to meet their research, teaching and academic needs. While some studies revealed that library users are aware of e-resources, this however, is not always the case. Similarly, recommendations for further training and marketing of library e-resources to users have been made. Based on the review of the literature relevant to the purpose of this study, e-resources are arguably the best means globally for postgraduate students to acquire new information. While the use of e-resources is important for the enhancement of teaching, learning and research in the university. However, the continued use of print resources is still predominant amongst students and staff.

Lack of searching skills was identified as one of the major challenges faced by users in accessing and utilizing e-resources. Similarly low library budget is cited as the

major factor which leads to poor and low availability of ICT infrastructure; poor network connectivity; low bandwidth and hence low access and use of e-resources.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

Research methodology refers to a systematic way of solving a research problem (Kothari, 2004). Research methodology may also be defined as a general road map a researcher follows when conducting a research or also as steps and associated mechanisms or tools applied in performing a certain research for the purpose of generating new knowledge or acquiring an understanding of a certain phenomenon (Kumar, 2011). This chapter describes the research design, area of the study, population of the study, sample size, sampling techniques, data collection methods, instruments, data processing and analysis, ethical issues and data quality control.

#### **3.2 Research Design**

Research design is a set of plans and procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis. It provides a direction to be followed from the beginning to the completion of the study. According to Kumar (2005), a research design is a procedural plan adopted by the researcher to answer questions with validity, objectively, accurately and economically. Basically, a research design is a strategy for ensuring the study effectively addresses the problem, in line with the objectives of the study (Saunders et al, 2007; Kumar, 2005; Kothari, 2004 and Creswell, 2003).

To accomplish the study, this study used the cross sectional research design survey to collect data where by data was collected at one time. According to Smt. U, Smt. K,(2011), Cross-sectional survey are Sample surveys whose samples are drawn in

such a way as to be representative of a specific population. Cross-sectional studies measure units from a sample of the population at only one point in time. Cross-sectional design is also based on observations that take place in different groups at one time. In this context Mann (2003) posits that cross-sectional design helps to enrich a study because it assists to study a large number of people within a short period of time and determine the causes and prevalence of a phenomenon or current situation. The definitions provided stress the idea that cross-sectional research is an approach for exploring. Moreover, the definition by Smt. U, and Smt. K,(2011), fits well in this case. It points out that within cross sectional survey various methods of data collection and analysis are used. The cross section survey itself employs various methods in data collection such as questionnaire and interview (Smt. U, and Smt. K, 2011). Cross sectional depth approach was adopted due to the nature of the study. The primary advantage of cross section survey is that an entire college was investigated in depth and with meticulous attention to detail. Also it was easy for researcher to find insights and details of the study and thus, this is one of the reasons to availability of all needed and correct data as well as information, and thus detailed analysis and recommendations to such data and information (Sreevidya, 2011). The researcher preferred a cross sectional design as it helps in achieving the research objectives by facilitating to obtain information that described existing phenomena.

### **3.3 Area of Study**

Kothari (2006) defines a study area as a place of researcher's interest where data for the study are being collected. This study was conducted in Dar es Salaam at the Dar es salaam University College of Education (DUCE), which prepares teachers to



impart knowledge and skills to their students. Similarly, DUCE was selected because it has invested in e-resources to an appreciable degree, hence it was important to explore how the e-resources are accessed and used by postgraduate students. In addition, DUCE was selected because of its proximity and also because of its membership to CORTUL, and has an access to subscribed e-resources. Apparently, with the availability of e-resources, it is necessary to establish their accessibility and usage to realise the value for money invested. In the same vein, DUCE is connected to the National Broadband Backbone which makes easy to access e-resources.



**Plate 3.1 Dar es salaam University College of Education (DUCE), by Google earth (2019)**

### **3.4 Population of the Study**

According to Sreevidya, (2011) population can be defined as all people or items with the characteristic one wish to understand. In other words, population refers to people or things with similar characteristics, which the researcher intends to study within the context of a particular research problem (Rwegoshora, 2006). Population may also be defined as a group of individuals, objects or items from which sample are taken for measurement for example a population of students (Kombo & Tromp, 2006). The population of this study comprised of DUCE Postgraduate students and library staff. The target population is estimated to be 122 constituting Postgraduate students (100) and library staff (22). These groups were included in the study because they are invariably involved in the use or instruct the use, access and provision of ICT /library e-resources and services within or and external to the college environment./ Library staff were included because of their roles in subscription of e-resources and affording access to e-resources through information literacy training. Postgraduate students were included because they form the group of user category. In fact, they are expected to consume e-resources because of the nature of their studies which require them to read intensively and at the end of the programme they are expected to submit a researched based dissertation.

#### **3.4.1 Population Sample and Sample Size**

Rwegoshora (2006) and Wimmer (1991) define a sample as a subgroup or subset of the population that is taken to be representative of the entire population. Sample size refers to the number of items to be selected from the universe to constitute a sample, In other words, Sample size is the number of items or people to be selected

from the population (Kothari, 2002). The sample size for this study was 122 respondents comprising of 100 postgraduate students and 22 Library staff. These were purposively and randomly selected from a target group of 136. These respondents were selected because they were expected to provide valid data for the study since they were involved in their roles in subscription of e-resources and affording access to e-resources through information literacy training. The researcher considered this number to be representative and manageable and hence provides reliable data for this study.

### 3.4.2 Sampling Frame

The sampling process requires the development of a sampling frame. In this study, the current list of postgraduate students contained in the students register list in the admission office and current Library staff. In this study, both random and non-random sampling techniques were employed.

At DUCE 122 questionnaires were distributed to the respondents and interview was conducted to respective respondents as shown in Table 3.1 below.

**Table 3.1: Sampling Frame N=122**

Category	Distribution of the study Sample		
	Male	Female	Total
Postgraduate Students	54	46	100
Library Staff	10	12	22
Total	64	58	122

**Source: Field Research 2017**

As shown in the Table 3.1 above, out of 100 postgraduate students who participated in this study, 54 were males and 46 females and out of 22 library staff, 10 were male and 12 female. Therefore, it makes total of sample size of 122. Basically this shows high respondents return rate. It possesses a sample that provided 95% of confidence level. Based on this fact, the researcher considered this number to be adequate to provide the required information.

### **3.4.3 Sampling and Sampling Techniques**

Sampling is a process or technique of choosing a sub-group from a population to participate in the study; it is the process of selecting a number of individuals for a study in such a way that the individuals selected represent the large group from which they were selected (Ogula, 2005). Sampling may also be defined as the process of taking only a portion or part of the targeted population for the purpose of collecting data from them so as to draw conclusions which can then be generalized to the general population (Krishnaswami, 2005).

There are two main techniques of drawing sample size from the targeted population, namely, Purposive and Simple random sampling techniques which were used to obtain respondents for this study. According to Saunders et al. (2007), and John and Christensen (2004), purposive or judgemental sampling is a type of sampling procedure which enables a researcher to use judgements to select cases that enable one answer research questions and to meet research objectives defines purposive sampling that a sampling which relies on the decision of the researcher, based on some well-known criteria. Criteria like characteristics of a population, objective of the study and knowledge of the population were considered. This method is less

costly, more convenient and guarantees inclusion of relevant elements in the sample.

Simple random sampling on the other hand, is a technique which gives each element an equal chance of being selected. This method is easy to apply and understand, does not need prior knowledge of the population and the amount of error associated with the sample drawn, can be easily computed.

Purposive sampling was used to select DUCE library staff. This method was used due to the nature of this study, which demand collection of data from some experts or experienced persons on e-resources use in the library- This method enabled the researcher to select rich information cases from key informants. Library staff were included since they play vital role in the subscription of e-resources and affording access to e-resources; library staff are also the main operators of the library system; while simple random sampling was used to select postgraduate students. The researcher used a postgraduate students list to randomly select respondents. This sampling technique was beneficial because it gives equal chance to all respondents to be included in the sample.

### **3.5 Data Collection Methods**

Data collection methods are instruments which guide a researcher in gathering data in order to obtain answers to the problem being researched(Kothaari,2004) Data for this study were collected through a combination of methods (triangulation) including a standardized questionnaire with both closed and open-ended questions ,interviews and observation, in order to increase validity and reliability of data

collected , and because each method has its own strength and weaknesses. Two types of data were collected, namely primary and secondary data.

### **3.5.1 Secondary Data**

According to Kothari, (2010), secondary data are data which were used by researcher but have been collected by others. Secondary data falls under three main categories: documentary data, survey based data and those compiled from various sources (Saund and sett, 2003). Such documentary materials include published and unpublished sources namely books, journal articles, university circulars, minutes and meeting files. In other words, they refer to published and unpublished magazines, newspaper, electronic manuals, reports, websites and internet sources (like e- books, e-journals, papers). Both these sources were reviewed and major points were summarized to support attainment of study objectives.

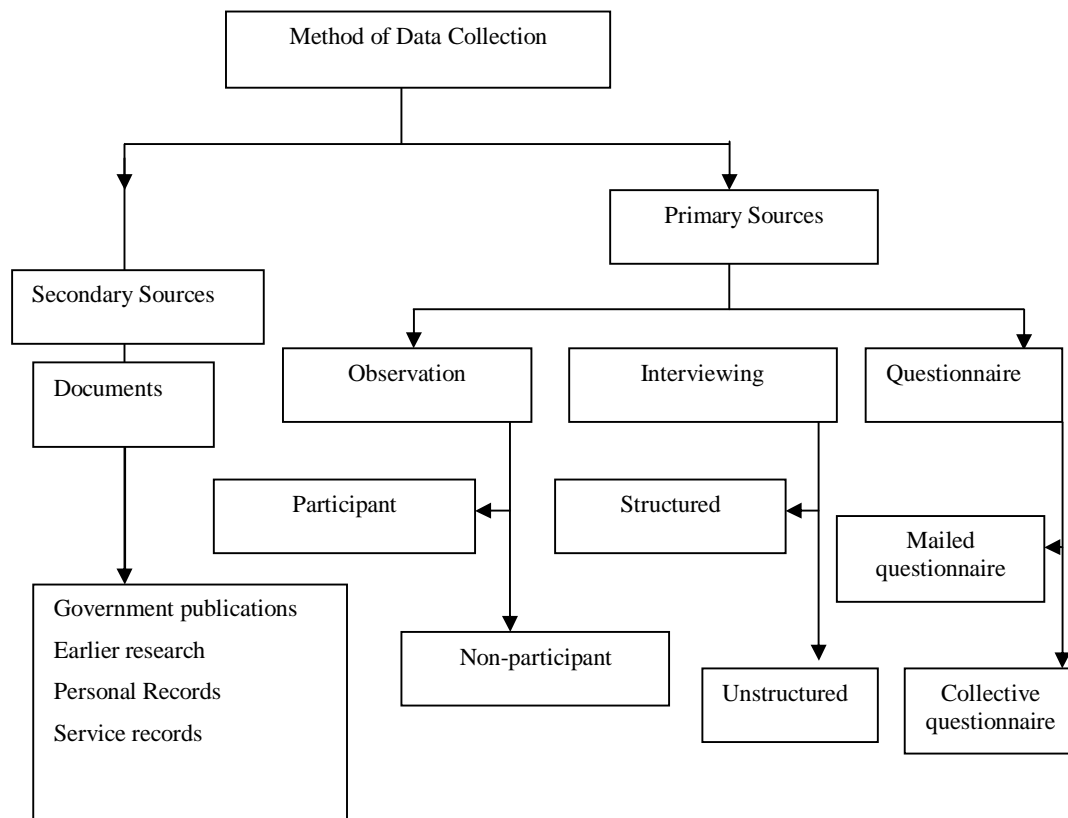
The secondary data provided the researcher with more insights on the problem being studied by cross-validating and augmenting evidence obtained from observation, interview and questionnaires. Similarly, secondary data were used in this study because published and unpublished materials can provide significant documented information. The advantage of secondary data is that it saves time, efforts and money and adds to the value of the research study. Through secondary data, it was possible to refine the research objectives of the study.

### **3.5.2 Primary Data**

Kumar (2011) defined Primary Data as information collected by a researcher from the field, specifically for a research assignment. These are fresh data from the survey

collected by researcher through a standardized questionnaire with both close and open-ended questions, interviews (both semi-structured and structured) and observations. The major assumption of this study was that perceptions, feelings and opinions of the key informants in e-resources access and usage is extremely important.

Advantages of primary data include their originality and degrees of accuracy hence are expected to be relevant to the topic of the study. Moreover, primary data provide current situation and it provide better give view to the researcher about the study under consideration. Reliability of primary data is very high because these are collected by the concerned and reliable party.



**Figure 3.1: Data collection method**

**Source: Kumar, 2011.**



### **3.6 Data Collection Instruments**

According to Johnson (1994), Research instrument is the means by which different approaches to research are used to collect the necessary data. Basically the choice of methodology depends on what the researcher wants to know, the way the problem has been defined, the goals and circumstances of the research, as well as the nature of the phenomena under study. Under such a situation, the researcher has to weigh the merits and limitations of each strategy and select the methodology accordingly. In this study, questionnaire, interviews and observation method were used.

#### **3.6.1 Questionnaires**

According to Monion, L and Morrison (2000), questionnaire refers to both standardized interview schedules as well as forms to be filled out by the respondents; or may refer to a set of written questions prepared for the purpose of collecting fresh data for the study. There are two types of questionnaires namely: self-administered or administered by researcher. In this research self-administered questionnaire was used. The researcher administered the questionnaire to 122 respondents. The study used self-administered questionnaire. Questionnaires were administered face to face with respondents by researcher. This was because self-completion questionnaire was cheaper to administer. A covering letter for the questionnaire was developed in collaboration with the supervisor to request respondents to fill in. This network was used to supplement other methods of data collection. Where it was not possible to do this, respondents were provided with the questionnaires to fill in and close follow up was made by the researcher. Data collection through questionnaire was conducted from June to October 2017.

### **3.6.1.1 Administration of the Research Instruments**

The interview and questionnaire were self-administered by the researcher. The questionnaires with both closed and open ended questions were self-administered to 122 respondents by the researcher. The advantage of questionnaires was that they are extremely flexible and helpful to gather information from large or small numbers of users on any topic (Chowdhury and Chowdhury, 2011). This strategy yielded high return rate as most of them returned the questionnaire at the specified period.

### **3.6.1.2 Data Collection Administration**

Postgraduate students were found in the classroom while Library staff were assembled in Library. The availability of respondents in one place helped to get high response rate. However, few respondents refused to participate in the study and therefore, were not included in the sample.

### **3.6.2 Interviews Guides**

According to Chowdhury and Chowdhury (2011), Interview is the set of the questions by which a researcher asking questions to selected group of respondents. Saunders et al (2003) define interview as purposive discussion between two or more people (Kuhna Canell, 1977 cited by Saunders et al, 2003:245). Interview are informal and used to explore in-depth an area of interest to be covered by particular research. Therefore, the interview acts as an interpretive tool for data collection and analysis. Saunders et al (2003) outlined three commonly used forms of interview in social sciences these are; Structured interview, semi-structured and unstructured interviews. Structured interviews are standardized because they use preceded answers or an interview schedule. Semi- structured interviews are non-standardized

but are based on the themes and questions that researcher intends to cover. Unstructured interviews are also known as in-depth interviews. This study used both structured and semi-structured methods to collect data from field.

This method was used to collect primary data by asking questions from Library staff. This was semi-structured interview using open-ended questions. The method was used to a limited number of respondents in a particular staff (Library staff, N=22). The researcher conducted interviews within the Library. It was conducted at DUCE Library from June to October 2017. This method enabled researcher to get respondents' opinions relevant to the research. The method provides the opportunity of the researcher to record the context of the interview, and non-verbal gestures (Saunders et al, 2003). These methods provided opportunity for probing the respondents and explain some questions which are difficult to respondents. The interview was very flexible and enabled the researcher to collect the additional information that the questionnaire failed to address.

Interviews are advantageous because they provided flexibility and also provided data and insight that cannot be obtained through other methods. They provide opportunity for study. The researcher was able to repeat or refine the question when the response indicates that the respondents misunderstood it. The researcher used check list for respondents (see appendix II). The research used this method in order to supplement information acquired through questionnaires.

### **3.6.3 Observation Guide**

Observation technique, as a method of data collection, enables the researcher to identify situations or items which he/she wishes to observe on the ground. Magigi (2013) delineates two types of observation techniques namely: Participant observation and Non-participant observation techniques. In a non-participant observation, the researcher excludes him/herself from respondent's activities but he/she observes closely how respondents perform their activities, and in the process he/she collects pertinent data. However, in participant observation the researcher gets involved in respondents activities and in the process collects the required data (Kothari, 2004).

In this study, the researcher used both non-participant and participant observation techniques, to observe and record individual behavior or situations. This was carefully done by looking at the availability of technical facilities and the state of the DUCE library area and facilities used to keep electronic resources. In the same vein, a prepared checklist showing pertinent items to be observed was used (See Observation Checklist). Similarly, in this study, observation techniques enabled the researcher to get a clear picture of the actual situation on the state of availability, accessibility and usage of electronic resources by postgraduate students and the library staff role in enhancing the use of e-reference services, and in gauging the pace of the adaption and use of internet technologies at DUCE.

#### **3.6.3.1 Observation Check list**

Both participant and non-participant observations were used in this study.

**Table 3.2: Observation check list**

Item	Available	Not Available
E-paper	√	
E-books	√	
Database for theses	√	
E-journal	√	

### **3.7 Data Process and Analysis**

According to Smt. U and Smt. K (2011), analysis of data means critical examination of the data for studying the characteristics of the object under study and for determining the patterns of relationship among the variables relating to both, quantitative and qualitative methods. Qualitative data obtained through an open-ended questionnaire were organized, summarised, coded and arranged according to their themes as they emerged. For quantitative data, SPSS version 20 was used to analyse data, generate Tables, frequencies, percentages graphs for easy interpretation.

#### **3.7.1 Quantitative Data Analysis**

According to Kumar (2011), quantitative data refer to numerical data. The initial stage for qualitative data analysis started soon after reading the interview transcripts, observational notes and documents obtained from the field. The first step was to categorize the interview materials into memos, coding and thematic analysis/narrative analysis. The quantitative data collected from questionnaire, were coded and summarized prior to analysis, by using the Statistical Package for Social

Sciences (SPSS) version 20. The codes were designed to reflect key variables of the research questions. According to Birley and Moreland (1998), coding is the process of structuring data into an analysable form.

Data needs to be collected and presented in a way that makes meaning or sense to researcher and other future researchers and readers (Idoniboye, 2013). After collecting all the questionnaires, the first task was to make sure that they were currently filled and coded for each question asked. Data were entered into SPSS then run a process called cleaning data. The researcher utilized descriptive statistics, such as frequencies, percentages in data analysis.

### **3.7.2 Qualitative Data Analysis**

Qualitative data refer to non-numerical data (Kumar, 2011). Data were analysed using content analysis. Qualitative technique was applied for non-numerical data. The initial stage for qualitative data analysis started soon after reading the interview transcripts, observational notes and documents obtained from the field. The first step was to categorise the interview materials into memos, coding and thematic analysis/narrative analysis. Qualitative data obtained through an open-ended questionnaire were organized, summarised, coded and arranged according their themes as they emerged. The statements obtained were included in the explanations of the findings obtained.

### **3.8 Data Quality Control**

According to Olsom (2003), the quality of data depends on the extent to which it satisfies the requirements of its intended use. To ensure that good quality, valid and

reliable data was obtained, different approaches were used. These included Triangulation and Pre-test.

### **3.8.1 Triangulation**

For validity and reliability assurance of data, triangulation method was adopted where interview, questionnaire and observation was employed in data collection. It is a best way of controlling bias and establishing valid proposition (Golafshani, 2003). In this research, this involved a combination of methods to collect relevant reliable data for the study. Hence a questionnaire, supplemented by interviews and observation were used. This assisted in maximizing credibility and confidence level of the findings.

### **3.8.2 Pre-test of the Instruments**

According to Kruger and Mitchell (2005), Pretesting involves the testing of the research instrument before the main study to observe any irregularities that may occur. Kothari (2004) posits that a pre-test is a small scale replica of the study which is intended to provide advance alert on where the research protocol may not be followed. This allows the researcher to alter questions or to rectify any inadequacies that may appear in the questionnaire before it is administered to the respondents. Therefore, a pre-test was conducted to allow the researcher to establish, amongst other things, whether all questions in the questionnaire were understood and that the answers provided reflected this. The pilot study was conducted to postgraduate students (MLIM), and Library staff (8) at the Open University of Tanzania. Questions which did not yield useful answers was revised or discarded, after consultation with the supervisor.

### **3.9 Ethical Consideration**

According to Cresswell (2009), researchers need to protect the participants, gain trust with respondents; support the reliability of research, guard against transgression that might reflect on their institution or organizations.

This research took into account the issues of informed consent, anonymity and confidentiality of respondents stated. According to dictionary (OXFORD, University Press, 2016), Informed consent is a permission granted in the knowledge of the possible consequences.

Letters from the Department of postgraduate Research and publication were issued to ask permission from the Library Director of Library services at DUCE in order to allow the researcher collect data. In compliance with these requirements, respondents were assured of their anonymity, in that names and other personal details were not linked with specific responses given. For this study, respondents were also guaranteed of their confidentiality; the information which was provided was only meant for the intended academic exercise. The Open University of Tanzania code of ethics was duly adhered to.

#### **3.9.1 Rigor**

To ensure validity and reliability of data collected the researcher followed all the steps required in doing research.



### **3.10 Summary**

The chapter describes the methodology adopted to investigate the accessibility and usage of e-resources and includes the research design, data collection instruments and procedures, sampling techniques and methods of data analysis. Interviews were conducted and the questionnaire consisted of both open and closed questions resulting in both qualitative and quantitative data.

## **CHAPTER FOUR**

### **DATA PRESENTATION, ANALYSIS AND DISCUSSION**

#### **4.0 Introduction**

This chapter presents an analysis and discussion of the major findings of this study. The purpose of the study was to assess/ the accessibility and usage of electronic resources by postgraduate students at Dar es Salaam University College of Education (DUCE). In this respect a survey with standardized self-administered questionnaires was administered to a sample of 122 respondents who represent the characteristics of postgraduate students and library staff at DUCE. Data is presented and analysed around clustered questions in six subthemes including : composition of respondents; respondents level of education; Identification of types of electronic resources available at Dar es Salaam University College of Education (DUCE); find out to what extent electronic resources are accessed and utilized by Postgraduate students at Dar es salaam University College of education (DUCE); examine the challenges and barriers of which postgraduate students face in accessibility and usage of e-resources and to suggest ways on how Library can improve the accessibility and usage of electronic resources address the main.

In this chapter questions in the research instrument have been utilized to cluster ideas, respondent's comments and offer researchers own interpretation. Similarly, open ended questions are analysed qualitatively. Select comments made by the respondents are used to show their own views on given issues. Data were collected between June and September 2017, using self-administered structured

questionnaires with closed and open -ended questions, supplemented by key informant interviews.

#### **4.1 Biographical Data of the Respondents**

Question 1 to 6 in the questionnaire, sought the biographical data of the respondents who participated in this study including gender, educational level, age, staff profile and other information that described details of respondents. This information was crucial and provided working knowledge on the characteristic of the population being studied. DUCE participated in this study. 122 respondents were drawn from postgraduate students and library staff. As indicated earlier, generally the response rate was very high, with DUCE recording 89 percent response and return rate.

##### **4.1.1 Distribution of Respondents by Gender/Sex**

This question was directed to all respondents. Respondents were asked to state their gender. This was done to ensure that both gender groups were represented in the study. The findings are summed up in Table 4.1 below

**Table 4.1: Distribution of Respondents by Gender N=100**

Gender	Category of respondents					
	Postgraduate Students		Library Staff		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Male	54	54%	10	46%	64	52%
Female	46	46%	12	54%	58	48%
Total	100	100%	22	100%	122	100%

**Source: Field Data 2017**

According to Table 4.1 above, 54(54%) out of 100 students who participated in the study were males; followed by 46(46%) who were female. Similarly out of 22 library staff who participated in this study, 12 (54% ) were female, while 10(46%) were males.

From these findings, it is clear that effort was made to have both sexes well represented in the study and their views taken aboard. It is also important to note that the gender parity in higher education is narrowing down. As noted by Mwaimu (2013) there are also social, economic and cultural factors which deny women access to education. It is only recently that most Universities, particularly in Africa, have made concerted efforts to narrow the gender gap in student enrolment and gender imbalance in recruitment. In the case of Tanzania, this has been the result of the affirmative government policy towards gender balance in the educational sector.

In terms of gender distribution among library staff as shown in Table 4.1, findings show that females are the majority. This may be attributed to the fact that historically Librarianship has been seen as women's work, alongside nursing and teaching. However, this trend has changed in recent times (Bradley, 1968 and Delong, 2013). Both sexes have been considered in the study. Overall and based on these findings, the study shows that effort was made to ensure gender balance in the selection of the sample of this study

#### **4.1.2 Age Profile of Postgraduate Students**

The choice of information usage depends on the demographic, social, cultural and economic factors. The world now divided among digital information resources

migrants and natives. The digital information resources refer to electronic information resources. In view of this respondents were asked to state their age groups. Responses are summarized in Table 4.2 below.

**Table 4.2: Age Distribution of the students**

Age	Frequency	Percentage
18-25	18	18%
26-30	28	28%
31-35	32	32%
36-40	16	16%
41-45	6	6%

**Source: Field Research 2017**

As shown in Table 4.2 above, 32 (32%) out of 100 respondents were aged between 31-35 years; followed by 28 (28%) aged between 26-30 years, 18 (18%) aged between 18-25 years, 16(16%) aged between 36-40 years and 6 (6%) were aged between 41-45 years.

These findings have implication on the users access and use of e-reference service. It implies that the majority 32(32%) of students in this study were aged between 31-35 years, which indicates that most of postgraduate students are digital natives (born during the ICT) era and they are capable of using computer to access and use of e- resources. Besides, they are mature enough to understand the importance of electronic resources in their studies. These findings corroborate those by Chachage's, (2001) study, which revealed that the adoption and use of new

technology was determined by the age of an individual, whereby young people were the main users of new technology.

#### **4.1.3 Education level of Postgraduate Students.**

The level of education has an influence in information access and usage. At the postgraduate level students are expected to be information seekers rather than other levels because of the nature of their programmes which is by course work and research. They are required to read extensively to accomplish their course work and dissertation. Hence respondents were asked to state their education levels. Responses are summarized in Table 4.3 below

**Table 4.3: Education Level of postgraduate students**

Level	Frequency	Percentage
Masters	24	24%
Postgraduate Diploma	76	76%

**Source: Field research 2017.**

The findings in Table 4.3 above show that 76 (76%) out of 100 respondents are postgraduate diploma students in education while 24 (24%) are enrolled in the Master's degree programme in education. This indicates that majority of students who access and use electronic resources are postgraduate diploma students. In fact the postgraduate diploma programme targets those who intend to work or are already working in the education sector. Besides, the programme leads to the award of a certificate in teaching professions, equivalent to BA(Ed) or BED (DUCE

Newsletter). Generally the findings show that postgraduate students prefer to use e-resources as major sources of information in their research writing.

#### **4.1.4 Year and nature of study**

The study revealed that all of the students' respondents were full time and in their first academic year which was 2016/2017.

#### **4.1.5 DUCE library staff Profile**

Library staff plays a key role in facilitating access to and use of e-resources. In this regard, the researcher was interested in establishing the position levels of library staff. It is expected that postgraduate students in the College are to be served by library staff with requisite professional and academic first degree qualification or and above. Similarly it is also assumed that position level of library staff determines the quality of service delivery in meeting the information needs of Postgraduate students. In view of this, respondents were asked to state their position levels in the library. Results are summarized in Table 4.4 below.

**Table 4.4 Job position of DUCE library staff**

Library Staff Position	Frequency	Percentage	Education level		
			Diploma	Bachelor Degree	Percent
Library assistant I	6	27.3	2	-	9%
Library assistant II	4	18.2	7	-	32%
Senior Library assistant I	8	36.5	9	-	41%
Senior Library assistant II	2	9	-	2	9%
Senior Library assistant III	2	9		2	9%

**Source: Field Survey (2017)**

As shown in Table 4.4 above, 8 (36.5%) out of 22 respondents held the position of Senior Library assistant I, and were ordinary diploma holders, followed by 6 (27.3%) who held the position of Library assistant I and two of them possess an ordinary diploma; 4 (18.2%) held the Library assistants II position, and possess ordinary diploma; 2 (9%) hold Senior Library Assistant II position and have attained a Bachelors degree and 2 (9%) hold Senior Library assistant III position and have attained a Bachelors degree.

Based on these findings it is evident that the prescribed positions are very crucial in the provision of electronic resources to postgraduate students based on their job descriptions. This is because students need to be equipped with essential skills that make them effective seekers, evaluators and creators of information available in many formats. Similarly the study findings revealed that the majority 18 (82%) of the 22 Library staff, hold Diplomas and only 4 (18%) possess Bachelor degrees. This



implies that majority of the Library staff are holders of ordinary Diploma studies qualification.

However, in the modern university/college library management practice , positions/titles of library staff who are holders of ordinary diploma certificate , are usually referred to as sub or para- professional positions and are placed in the administrative scheme of service. As a university college of international standing, DUCE needs to recruit qualified library academic staff (Assistant Librarian and above) with Masters or PhDs. This cadre of staff are expected to perform dual role of teaching/ research and service to the academic community. Thus the university must embark on an aggressive recruitment drive, in order to ensure that the library is manned by staff with professional/academic competence, and capable of serving the library in a dynamic and innovative ICT era. This will also enhance teaching, learning and research in the university.

#### **4.2 Types of Electronic Resources Accessed**

The first specific objective of this study sought to Identify types of electronic resources available at Dar Salaam University College of Education (DUCE), determine awareness of the respondents on Accessibility and Usage of E-Resources, identify Information Communication Technology (ICT) Skills among DUCE Postgraduate students., and to indicate types of facilities available for e-service. Respondents were asked to identify types of electronic resources available, state their level of awareness of the Accessibility and Usage of E-Resources and their ICT Skills, and indicate types of facilities available for e-services. These

questions were clustered because they are inter related. Responses are summarised in Table 4.5 below.

**Table 4.5: Electronic resources**

Uses	Frequency	Percentage
E-paper	18	18%
E-books	46	46%
Database for theses	16	16%
E-Journal	20	20%

**Source: Field Survey (2017)**

As shown in Table 4.5 above, 46(46%) out of 100 respondents identified e-books as the types of e-resources accessed by postgraduate students at DUCE, followed by 20(20%), who identified e-journals, 18(18%) e-paper; and 16(16%) mentioned theses, The findings show that e-books, e-paper, e-journals and databases for thesis were accessed and used by postgraduate students. Similarly findings also show that e-books are the type of e-resources highly patronized by the majority, 46(46%) of postgraduate students at DUCE. The high percentage of use of e-books may have been attributed to the fact that the majority of respondents are in first year of their postgraduate programme, and thus depend much on e-books as a source of information for their academic work. However, e-journals are extensively used by researchers.

#### 4.2.1 Awareness of Respondents on Accessibility and Usage of E-Resources

There is a need of establish Awareness among user because it affects the access and use of E-resources either positively or negatively. This question was directed to all postgraduate students .Respondents were asked to indicate whether or not they are aware of the Accessibility and Usage of E-Resources. Responses are summarized in Table 4.6

**Table 4.6: Status of Respondents (N=100)**

Category	Frequency	Percentage
Yes	76	76%
No	24	24%

**Source: Field Survey (2017)**

According to Table 4.6 above, 76(76%) out of 100 respondents said they were aware of the Accessibility and Usage of E-Resources, while 24(24%) said they were not. From the findings it is clear that majority of the respondents were aware of the Accessibility and Usage of E-Resources at the DUCE Library.

#### 4.2.2 Information Technology (ICT) Skills

In the ICT era, the availability of use of information depends largely on competences and skills. Therefore, for effective accessibility and usage of e-resources postgraduate students require skills to enable them navigate the different data bases. Respondents were asked to rate their ICT skills. Responses are summarized in Table 4.5 below.

**Table 4.7: ICT Skills (n=100)**

Category	Frequency	Percentage
Yes	86	86%
No	9	9%
I don't Know	5	5%

**Source: Field Survey (2017)**

Findings in Table 4.7 above show that 86(86%) out of 100 respondents said they have the ICT skills, followed by 9 (9%) who said they don't have the skills while 5(5%) said they don't know. Based on these findings it is evident that majority of the postgraduate students have skills on Information Communication Technology (ICT). Knowledge of ICT skills among postgraduate students is vital in enabling a graduate student access and use e-resources for successful academic and research work.

#### **4.2.3 Facilities available for e-services**

Effective access and use of e-resources depends largely on the state of the art, infrastructure and reliable internet connectivity available. This question was directed to library staff. Respondents were asked to indicate types of facilities available. Responses are summarized in Table 4.8 below.

**Table 4.8: Facilities available for e-services****N=22**

Category	Frequency	Percentage
OPACs	10	46%
Internet connectivity	6	27%
Wi-Fi/hotspots	4	18%
Computer LAN/internet café	2	9

**Source: Field Survey (2017)**

Findings in Table 4.8 above show that 10 (46%) out of 22 respondents mentioned OPACS as the type facilities available for e-reference services, followed by 6(27%) who mentioned Internet Connectivity, 4(18%) mentioned Wi-Fi/hotspots and 2(9%) mentioned Computer LAN/internet café as a facility available for e-reference services. The findings revealed that there is basic infrastructures which support the access and use of e-resources at DUCE. The findings collaborate well with the DUCE newsletter report (Newsletter pg 4) which reported that the college has basic infrastructure connected to internet and the national broadband backbone which has made internet services more reliable (DUCE Newsletter (99: 4).

### **4.3 Extent of Use of E-Resources By Post-Graduate Students at DUCE**

Information can only be useful if it is accessed and used by users to perform their academic and research endeavours. The second specific objective of this study sought to find out to what extent electronic resources are accessed and utilized by Postgraduate students at Dar es salaam University College of education (DUCE).

This question was directed to Library staff. Respondents were asked to indicate the extent of use of e-resources by postgraduate students at DUCE. Responses are summarized in Table 4.9 below.

**Table 4.9: Level of use of e-resources by post-graduate students at DUCE**

Category	Frequency	Percentage
Very low	2	9%
Low	14	64%
High	6	27%

**Source: Field Survey (2017)**

Findings in Table 4.9 above show that 14(64 %) out of 22 respondents reported that the rate of use of e-resources by postgraduate students at DUCE Library is low, followed by 6 (27%) who said high and 2(9%) said very Low. The state of low usage of e-resources by postgraduate students may have been attributed to the lack of awareness of the availability of e-resources and lack of skills to access and use e-resources. In view of this, DUCE management should consider mainstreaming information literacy training into the curriculum. This is intended to make the course mandatory. By equipping teachers with relevant skills in accessing e-resources,, teachers are expected to transmit or share the acquired knowledge and skills to their students upon completion of their studies and therefore, build an information literate society. The findings of this study are in line with those by Ozoemelem's (2009) study, which suggested that Information literacy and library skills can enhance the use of electronic information sources.

#### 4.4 Challenges in accessing e-resources at DUCE

The value of e-resources lies not only on its availability but also on accessibility and usage. The Third specific objective of this study sought to examine the challenges and barriers faced by postgraduate students when accessing and using e-resources. This question was directed to users and library staff. Respondents were asked to mention major challenges users encountered when using e-resources. Responses are summarized in Table 4.10 below.

**Table 4.10: Challenges that DUCE faces regarding e-resources N=22**

Category	Frequency	Percentage
Inadequate searching skills	2	9%
Budget	18	82%
High cost of subscription fees	2	9%

**Source: Field Survey (2017)**

Table 4.10 above shows that 18(82%) out of 22 respondents said budget was a challenge faced regarding e-resources, followed by 2(9%) who said inadequate searching skills or user training and 2(9%) said high cost of subscription fees was a challenge.

Based on these findings it is clear that budget cuts are a major challenge faced by DUCE Library regarding e-resources. This suggests that there is shortage of sources of funds to acquire requisite e-resources. Also findings of this study have revealed that the DUCE Library depends upon grants from donors. In view of this the DUCE library management must seek the support of the university administration in order to

have more funds committed to this area. Similarly the library should be aggressive in creating links with international institutions abroad that support this type of academic library endeavours.

The study also shows that 2(9%) respondents said inadequate searching skills was a challenge to DUCE Library users regarding accessing e-resources. Although the number of respondents who said searching skills were a challenge is small, nonetheless this is a significant challenge for staff and library users, since knowledge of search skills is often acknowledged as an academic survival tool for a university student. This implies that users who have no training /skills are likely to be constrained in accessing e-resources and in searching internet sources. Hence DUCE needs to invest more in information literacy training. Another challenge facing DUCE Library regarding e-resources is High cost of subscription fees, as reported by 2(9%) of the respondents. This too can be a nagging problem for the library, when the budget is minimal. However in this case it shows that subscription cost fees is affordable.

#### **4.4.1 Problems encountered when accessing e-resources**

The availability of resources does not necessarily guarantee its usage. The researcher wanted find out the problems encountered by Postgraduate students when accessing e-resources. Responses are summarized in Table 4.11 below.



**Table 4.11: Problems encountered when accessing e-resources N=100**

<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
Network downtime	48	48%
Slowness when downloading	30	30%
Slow computers	16	16%
Load-shedding	6	6%

**Source: Field Survey (2017)**

According to Table 4.11 above, 48(48%) out of 100 respondents mentioned Network downtime as a problem encountered when accessing e-resources, followed by 30(30%) who mentioned Slowness when downloading, 16(16%), slow computers and 6(6%) mentioned Load-shedding as problem.

From the findings it is evident that network downtime is a more common problem encountered by students when accessing and using e-resources, as mentioned by 48(48%) of the respondents. It is frustrating for the student, when it takes too long to download pages and eventually failing to view/read the e-resources. Other problems noted include slowness of internet information when downloading. The findings of this study affirm the findings of Alison et al (2012) who posited that utilization of e-resources is influenced by human and institutional factors which includes; information literacy low bandwidth and limited number of resources available to users.

#### **4.5 Respondents Suggestions for Improving Accessibility and Usage of E-Resources**

The fourth specific objective of this study sought to solicit views/suggestions from respondents on how the Library can improve the accessibility and usage of electronic resources. The question was directed to Students and library staff. Responses are summarized in Tables 4.12 and 4.13 below.

##### **4.5.1 Students Suggestions**

Students were asked to give their opinions and suggestions on how to improve accessibility and usage of electronic resources in the campus. Their responses are summed up in Table 4.12 below.

**Table 4.12: Students Suggestions**

**N=100**

<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
Provision of ICT facilities	22	22%
Ensuring reliable power supply	28	28%
Increasing budget allocation for ICT	16	16%
Providing training on how to access and use ICT services	12	12%
Increasing the bandwidth to increase speed	14	14%
Extending time for accessing ICT Services by Library	8	8%

**Source: Field Survey (2017)**

As shown in Table 4.12 above, 28(28%) out of 100 respondents suggested that stable and reliable power supply be made available all the time in order to

improve accessibility and usage of electronic resources in the campus. , followed by 22(22%) who suggested the provision of ICT facilities such as reliable internet connectivity and free Wi-Fi/ host spots , 16( 16%) suggested increased budget allocation for ICT (one of the source could be students fees) , 14(14%) suggested increasing the bandwidth to increase speed ; 12(12% ) suggested providing regular training on how to access and use ICT services, and 8(8%) suggested extending time for accessing ICT Services by Library. As a college which prepares teachers, there is a need to embed information literacy training in the curriculum and make it compulsory rather than optional.

#### 4.5.2 Library Staff suggestions

Library staffs were asked to suggest how to improve accessibility and usage of electronic resources in the campus. Their responses are summed up in Table 4.13 below.

**Table 4.13: Library Staff suggestions on improving accessibility and usage of e-resources by postgraduate students** **N=22**

Category	Frequency	Percentage
Providing training and workshops on how to access e-resources	4	18%
Improving the budget	16	73%
Promoting the use of e-resources among library users	2	9%

**Source: Field Survey (2017)**

Findings in Table 4.13 above shows that 16(73%) out of 22 respondents suggested improving the budget allocated to the library in order to improve accessibility and usage of e-resources by postgraduate students, followed by 4 (18%) who suggested providing training and workshops on how to access e-resources and 2( 9%) suggested promoting the use of e-resources among library users as a means to improve accessibility and usage of e-resources by postgraduate students. Based on these findings it is clear that budget allocated to the library is a major constraint. Similarly the findings show that there is a need to mount training workshops on how to access and use electronic resources. On promoting the use of e-resources among library users, the study found that there is no promotion of e-resources use by the Library. This is due to shortage of e-resources facilities within the Library. However, promoting the use of e-resources is a way of sensitizing university students and making them aware of the importance of these resources for their learning and research. In this context, Popoola and Zaid (2008) posit that users tend to use an information source once they are aware of its source. This implies that information sources which users are not aware of would remain underutilised. Therefore, what is fundamental to library information provision is to create/enhance users' awareness.

#### **4.6 Summary**

This chapter presented, analysed and discussed the key findings of this study. Quantitative data were analysed using Statistical Package for the Social Sciences version 20 used to generate frequencies and percentages and Qualitative data were analysed using content analysis. Data was presented in tables.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.0 Introduction**

This chapter presents the summary, conclusion, recommendations and areas for future research.

#### **5.1 Summary**

The main objective of this study was to assess the accessibility and usage of electronic resources by postgraduate students at Dar es salaam University College of education, Tanzania. Specific objectives of this study were: to identify types of electronic resources available at Dar es salaam University College of Education (DUCE); find out at what extent electronic resources are accessed and utilized by postgraduate students at Dar es Salaam University College of Education; examine the challenges faced by postgraduate students in accessing and using e-resources; and suggest ways on how DUCE can improve the accessibility and usage of electronic resources. To achieve the objectives of this study, data were collected from students and library staff at Dar es salaam University College of Education (DUCE). The study used purposive and simple random sampling techniques to select 122 respondents who participated in this study. Quantitative data were analysed using the Statistical Package for Social Sciences (SPSS) version .20 used to generate frequencies and percentages. While qualitative data were analysed using content analysis. Data was presented in tables, charts and figures.

### 5.1.1 Key findings

Key Findings revealed that Postgraduate students at DUCE face a number of challenges when accessing and using electronic resources, including Network downtime which was mentioned by 48(48%) of the respondents; Slowness when downloading mentioned by 30(30%) of the respondents; slow computers mentioned by 16(16%), of the respondents; and Load-shedding mentioned by 6(6%) of the respondents, as shown in Table 4.10 Similarly budget was mentioned by 18(82%) out of 22 respondents; inadequate searching skills or user training mentioned by 2(9%) of the respondents and high cost of subscription fees mentioned by 2(9%) of the respondents shown in Table 4.9 .

The findings in Table 4.6 also show that the majority (46%) of the respondents indicate using e-books , as electronic resources available, for fulfilling a number of academic activities . The findings at Table 4.4 have also revealed that the majority (76%) of postgraduate students are aware of the accessibility and usage of electronic resources at DUCE library. Similarly the findings at Table 4.5 show that 86% of the students have the requisite ICT skills for accessing and use of electronic resources . This means through the internet, students are now able to access and retrieve the required information anytime, anywhere. The findings of this study Table 4.7 have also revealed that DUCE library possesses basic infrastructure including OPAC (22%) which supports the access and use of e-resources.

However the extent to which postgraduate students at DUCE prefer to use e-resources in fulfilling their academic activities or goals is low (14%) ,as shown in Table 4.6 of the findings.

## **5.2 Conclusion**

The objective of DUCE Library is to support the core functions of the college which is teaching, research and community services. In order to achieve these objectives, the Library is required to provide quality information for both e-resources and print, on timely manner.

Based on the findings of this study, the following conclusions were drawn: Firstly, there are few and out dated ICT facilities and infrastructures in the College Library which constraint access and usage of e-resources by postgraduate students. Secondly, students from both levels of studies such as Postgraduate Diploma and Master's degree students are highly motivated to access and use e-resources. Thirdly, there is low level of use of e-resources by postgraduate students in the Library and the uses are mainly for e-books followed by e-journals, E-paper and theses database. In other words postgraduate students access and use e-resources through their personal computers/laptops outside the College Library. Due to the lack of adequate information literacy training , postgraduate students at DUCE have not been able to utilise e-reference services effectively in accessing and use of e-resources

## **5.3 Recommendations**

Based on the findings, the following recommendations are made to provide guidance on accessibility and usage of electronic resources at DUCE, specifically, and Tanzania in general.

### **1. Increase Library Budget for ICT facilities Subscriptions**

Increasing the funding for and subscription fee for ICT facilities and infrastructures in the Library so as to provide adequate access and usage of e-resources databases. The degree of availability and utilization of e-resources may influence the information services provision to students. The institutions need to reallocate more budgets to expand the availability of electronic resources for students and staff. The internally funding fee from student's fees is likely to reduce dependence from the government.

### **2. Promoting Students Library use**

Students of all levels should be motivated to access and utilize e-resources. A library policy should provide guidelines on e-resources collection development, acquisition and use.

### **3. Library awareness**

Library awareness for its e-resources databases, amongst postgraduate students, is crucial in order to encourage and ensure effective utilization of e-resources collections by many postgraduate students.

### **4. Library staff training**

Librarians should be trained and retrained through in house arranged programs in order to cope with the changing information environment. For example library staff training should cover wide scope of e-resources up to date topics which will equip librarians with information literacy skills, and also learn new techniques on the access and use of e-resources.



Similarly, Librarians should also introduce information literacy training for library users to enable them acquire search and retrieval skills which will enhance their academic performance. Mainstreaming information Literacy training into the college curriculum is a strategic option which will ensure that information literacy training is integrated into all courses across the college.

#### **5.4 Further Research**

Within the scope of this study, there are still other factors affecting the perception on access and usage of e-resources by students which have not been covered in this study. Hence there is need to explore further issues influencing perception, integrated blending, lending and access to other online resources, besides the one mentioned on this study. This is because postgraduate students' perception of e-resources in Tanzania amongst other factors, may affect postgraduate student negatively, in the access and use of e-resources.

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### Section B: Accessibility and Usage of Electronic Resources

7. Do you use electronic resources in your academic reading?  
 Yes ☐ No ☐
8. What type(s) of resources do you consult? (Please tick all those that apply)  
 E- resources ☐ E-paper ☐ e-books ☐ Database for theses ☐  
 e-journals ☐
9. How often do you use electronic resources for your works?  
 Very often ☐ Often ☐ Sometimes ☐ preparation for Exam ☐
10. What is the purpose of having e-resources?  
 Learning ☐ Preparation for exam ☐ Research ☐  
 Assignment ☐ Leisure ☐  
 Others, (please specify)  
 \_\_\_\_\_
11. Where do you access these electronic resources?  
 Library ☐ LAN ☐ Remote access (off-campus) ☐  
 Others, (please specify)\_\_\_\_\_
12. Does your university subscribe to online resources?  
 Yes ☐ No ☐ I don't know ☐
13. Is it easy to retrieve electronic resources?  
 Yes ☐ No ☐ I don't know ☐
14. What kind of problems are encountered when accessing these resources?(Please tick all that apply)  
 Network downtime ☐ Slowness when downloading ☐

Vendor upgrades [ ]      Slow computers [ ]      Load-shedding [ ]

15. What barriers do you experience in access to and use of e-resources? (Please tick all that apply).

Computer/network problems [ ]      Limited spacing for training [ ]

Lack of searching skills [ ]      Shortage of staff [ ]

Lack of up-to-date equipment [ ]      Few computers [ ]

Slow internet connectivity [ ]      Virus attacks [ ]

16. What are barriers of using online resources in Tanzania environment?

Lack of ICT facilities [ ]

Lack of adequate bandwidth [ ]

Lack of information literacy skills [ ]

Unreliable power supply [ ]

Cost of subscription fees [ ]

Instability of online resources [ ]

Other \_\_\_\_\_

\_\_\_\_\_

17. What major challenges do you face in the access and use of electronic resources?

\_\_\_\_\_

\_\_\_\_\_

18. In your opinion do you easily access e-resource in your library?

Yes [ ]

No [ ]

- 

## Appendix II

## QUESTIONNAIRE FOR LIBRARY STAFF AT DUCE

## Section A: Background information on respondents

1. Name of the Library Staff: \_\_\_\_\_
2. Position of Respondent: \_\_\_\_\_
3. Gender:           Female [     ]                               Male [     ]
4. Educational status: (Please tick your highest qualification)  
  
Diploma [     ]                 Bachelor's degree [     ] Post-graduate Diploma [     ]  
  
Master's degree [     ]                               PhD [     ]

## Section B: Accessibility and Usage of Electronic Resources

5. What facilities are available in your library to access and use e-resources?  
(Please tick all that applies).
- OPACs [ ]    Internet connectivity [ ]    Wi-Fi/hotspots [ ]
- Computer LAN/internet café [ ]    Others [ ]
- Please specify \_\_\_\_\_
- \_\_\_\_\_
6. 17. Does DUCE Library offer its members any form of skills development in e-resources access and use?
- Yes [ ]    No [ ]    Don't know [ ]

7. What type of in-service training does DUCE library conduct?
- Seminars [ ]                      Workshops [ ]                      Refresher courses [ ]
8. Which challenges does your library face regarding e-resources?
- Lack of usage statistics [ ]    Budget cuts [ ]
- Inadequate searching skills [ ]                      High cost of subscription fees [ ]
- Loss of knowledgeable staff due to Retirement/resignation [ ]
9. How can you rate the level of use of e-resources by postgraduate students in your library?
- Very high [ ]                      High [ ]                      Low [ ]                      Very low [ ]
10. Is your library experiencing difficulties in maintaining its e-resources subscriptions? (Please tick all that apply).
- Budget cuts [ ]                      Price increases [ ]                      Exchange rates [ ]
11. What suggestions do you have, regard to accessibility and usage of e-resources by postgraduate students?
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

Thank you for your assistance and time.