

**THE ROLE OF THE ACADEMIC LIBRARY IN SUPPORTING DISTANCE
EDUCATION THROUGH THE USE OF INFORMATION AND COMMUNICATION
TECHNOLOGY: THE OPEN UNIVERSITY OF TANZANIA**

MINI-DISSERTATION

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ABSTRACT

This study focuses on the role of the academic library in supporting distance education through the use of information and communication technology, focusing on the Open University of Tanzania.

The study entailed a number of objectives: To examine the information and computer mediated library services needed by the distant learners at the Open University of Tanzania Library, to find out the perceived quality of services offered by the Open University of Tanzania Library to support distance education through the use of ICT, to find out the extent to which the academic libraries embrace/apply ICT to offer library services, to examine the challenges encountered by the Open University of Tanzania Library to support distance education through the use of ICT and to suggest strategies that should be adopted to overcome the challenges at the Open University of Tanzania Library to support distance education through the use of ICT.

As regards data collection, questionnaires and focus group interviews were used. The study used a sample of 100 out of 472 students from the faculty of education and 5 librarians out of 15 librarians. This included a total of 105 out of 487. The respondents to be selected included undergraduate and post graduate students. Data analysis involved a set of qualitative and quantitative methods. Qualitative data obtained from the study was coded and grouped into themes pertaining to the study questions, ideas, opinions and recommendations by the individuals.

Findings indicate that there are issues that need to be addressed as regards the effective use of the internet in accessing information, the improvement of ICT related infrastructures, space in the library, and effective implementation of the policies in place to address the challenging issues. Moreover, findings suggest that there is a need to raise computer literacy among library users as well as encouraging inter-library loan among the academic libraries.

CHAPTER ONE: INTRODUCTION TO THE STUDY

1.1 Introduction

According to Aina (2008:2), distance education is crucial in many third world countries since many people lack the opportunity to get enrolled in Universities on a full time basis. That is, many people in developing countries do not have the opportunity of pursuing university education after their secondary school studies. In this case, distance education becomes an alternative. According to Ball (2003:71), the advent of Information Communication Technologies (ICTs) has triggered great improvement in distance learning. As a result, this has brought about the process of decentralization in education. In this regard, the emergence of distance learning could not be effective without the advent of information technologies.

Aina (2008:2) contends that the provision of distance education programs in Africa entails two organizational models, namely single model and dual model. Universities that practice such modules in Africa include the University of South Africa (UNISA), The National Open University of Nigeria, The Zimbabwe Open University and The Open University of Tanzania (OUT).

In 1992, the Parliament Act No. 17 led to the establishment of the Open University of Tanzania. The Open University of Tanzania is a public university that supports distance learning in Tanzania. (Memba, n.d: 62). Msuya & Maro (2002:23) point out that the Open University of Tanzania currently hosts a total of 25,000 students in various disciplines including Education, Law, Economics, Science and Commerce. The University has its headquarters in Dar es Salaam and there are 25 centers in different parts of the country.

Msuya & Maro (2002) argue that the demand for higher education in Tanzania prompted the government to put much emphasis on the establishment of the Open University. Consequently, this has led to a shift from the traditional means of education delivery to the adoption of the distance education approach as this can help those who do not have the opportunity to study in other public or private universities on a full time basis. Early attempts to adopt the distance education approach started in the 1980's. In this regard, the OUT made decisive measures to put in place modern information technologies that could enhance the delivery of distance education.

According to Komba (2009:14), the adopted education approach could result into the use of modern technology in education, including the social media and other web based platforms.

Ball (2003:4) contends that any academic library should be well equipped so as to cope with the unfolding technological advancement. That is academic libraries should have the required ICT means to help their users access and retrieve information without difficulties. He goes further to note that it is very imperative for academic libraries like Open University of Tanzania Library (OUTL) to be acquainted with the new incoming technologies in order to facilitate easy information access and retrieval, data processing and effective management in distance learning.

According to Sacchanand, (2002:6), academic libraries should fully support both on campus and off campus learners and this should be deemed important and academic or research institutions should see this as a crucial way of enhancing distance learning. This study therefore set out to examine the role the Library can play to support distance education in the Open University of Tanzania. Aina (2008:4) argues that in today's world of computer mediated technologies with the inclusion of both first and third world countries, there is a high transformation rate from physical based or traditional libraries into electronic or virtual libraries which can support distance learning.

Hermosa & Anday (2010:91) point out that there are certain barriers that tend to impinge upon the effective practice of distance education. Such factors include time and space. These barriers have a negative effect on the provision of distance education, as well; they affect the smooth running of academic libraries, including the Open University library. In this regard, there is a need to develop, adopt, use and keep abreast with all the important ICTs to support effective learning in a very interactive way.

According to Bazillion & Braun (1995), the Open University of Tanzania is important in that it can be used to support different academic issues such as teaching, learning, consultancy and research. In this regard, the Open University of Tanzania can greatly support distance learners in their studies. This study may be important in addressing different administrative issues that are related to the way in which academic libraries operate. For example, the study may be crucial to administrators in decision making as they may be aware of the role of academic library in supporting distance education for effective learning, teaching and research and finally addressing

all the impediments for effective practice of imbedded librarianship. It may also form the basis of effective strategic planning for libraries and information services by the University.

Furthermore, this study addresses the problem captured in the study done by Msuya & Maro (2002) who articulated that, students in the OUT withdraw from studies due to the failure of the library to provide quality and adequate services to distant learners as revealed by 92% of the 36 learners who had withdrawn from the program.

1.2 Research question / problem statement

Aina (2008:2) points out that the Open University of Tanzania does not provide full time programs on campus instead it is based on a single model of distant learning. Msuya & Maro (2002:23) argue that although the Open University library is one of the academic libraries that support distant learning, it has failed to meet the library users' needs of accessing library and information services to support their educational goals. Despite the shortcomings raised, no effort has been made to assess the current state and extent of the usage and contribution of the OUTL in supporting distant learning.

In this regard, this study set out to examine the challenges and role of the OUTL on supporting distance education and finally, it recommends the best library practices for effective distant learning at the OUT.

1.3 Central research question

In the light of the above mentioned background, the central research question of the mini-dissertation was formulated as follows:

What is the role of the OUT library in supporting distance education through the use of Information and Communication Technology?

1.4 Formulation of sub-questions or sub-problems

Arising out of this research question, the following sub-questions were formulated.

- i. What is the information and computer mediated library services needed by the distant learners at the Open University of Tanzania Library?

- ii. What is the perceived quality of services offered by the Open University of Tanzania Library to support distance education through the use of ICT?
- iii. How can the academic library embrace/apply ICT to offer library services?
- iv. What are the challenges encountered by the Open University of Tanzania Library to support distance education through the use of ICT?
- v. What strategies should be adopted to overcome the challenges at the Open University of Tanzania Library to support distance education through the use of ICT?

1.5 Scope and limitations of this study

The study focused on the Open University of Tanzania community from which the sample was taken. The population of this study included distant learning students, lecturers and librarians from The Open University of Tanzania main campus. As the study was conducted in Dar Es Salaam-Tanzania, the findings may reflect the reality of distance learning institutions in Tanzania.

The researcher decided to select the Open University of Tanzania because it is the most popular University in Tanzania offering Distance learning and its establishment can be traced back from 1979 when the report titled *“Education Media in Tanzania: Their Role in Development”* produced to recommend the establishment of a correspondence institute at the University of Dar Es Salaam (Memba, n.d.: online). Therefore Kuhanga report of 1988 adopted by the Tanzanian government and lead to the ultimate establishment of OUT in 1993 under the Parliament Act 17 of 1992 (Memba, n.d.: Online). Thus OUT became the first higher learning institution to adopt and specialize on pure distant education in Tanzania.

As this study is limited to only the OUT, it is possible that findings from this study may not be relevant to other institution dealing with the distance education in other developing countries.

1.6 Justification for the research

Findings from this study may help in the improvement of the current library services of the OUT in delivering quality services to both on and off campus library users of distance education in Tanzania. Furthermore, it will provide insights which could be used by the OUT library to bridge the gap to ensure better usage of library and information services by distant learners through the

use of computer mediated technologies and services. Moreover, the study may be very productive in this field to generate more knowledge of dealing with distance learning students to achieve their targeted educational goals.

1.7 Research methodology

This section entails research design, sampling methods, and data collection methods, instruments for data collection, data quality control, ethical consideration as well as analysis and interpretation of data.

1.7.1 Research design

According to Heppner et al (2007), a research design can be defined as a plan and structure of conducting a study. This study was based on a descriptive and case study design that was used to produce qualitative data.

According to Berg & Lune (2004),

“Qualitative research is a method or research technique which aims to gather an in-depth understanding of human behavior and the reasons that govern such behavior”.

This study used a case study design and it dealt with a specific area which represented the whole or part of the study area. According to Yin (2014), a case study design can offer an opportunity to study a limited number of units. This design was good since it narrowed the area of the study and provided adequate and relevant information to the research question. Yin (2014) points out that other qualities of the case study design may include simplicity and in-expensiveness compared to other designs. With regard to the above facts, the study adopted the same design.

1.7.2 Target audience and sampling methods

Barbour (2001) defines sampling as the process of selecting participants in the study of interest and the sample is the selected respondents to be part of the study. In this regard, a sample size includes the number of respondents to be involved in the study. The selected sample in this study was drawn from students and librarians. First year to third year students were included in the study. The study adopted a random sampling technique so as to provide the population with an equal and positive chance of being selected for participation.

1.7.3 Data collection methods

Data was collected through questionnaires and focus group interviews.

1.7.3. 1 Questionnaire

While in the field, the researcher employed questionnaire to collect data from respondents (students). At this time many students were around the campus doing some final touches for the end of semester examination. This tool of data collection included both open and closed ended questions. According to Johnson & Turner (2003), the use of questionnaire in data collection is advantageous in a sense that they allow the collection of data from a big number of respondents and so they are more economic than other data collection methods.

On the other hand, Punch (2009:221) contends that the use of questionnaire as a data collection method is disadvantageous in a sense that they lack validity; it is very difficult to measure the accuracy or truth of the respondent to the researcher while filling in the questionnaire. Respondents may have different understand of the questions and then respond differently basing on the own interpretation. Sometimes there is no way of telling how much thought a respondent has put in. To address this, focus group interviews were also used to help validate the responses obtained from the questionnaires.

1.7.3.2 Focused group interview

The focused group interview was conducted with instructors and librarians. Berg & Lune (2004) point out that this method of data collection is advantageous in this qualitative research because it allows the researcher to clarify questions which might not be clearly understood by the respondent. Msuya & Maro (2002) argue that the use of interviews in qualitative approach provides room for dialogue hence high response rate results.

Johnson and Turner (2003), contend that this method also has certain disadvantages because respondents may be drawn into an interview bias. Moreover, interviews can take a long time for their execution. In order to address the pointed out challenges, Louise Barriball & While, (1994:332) suggested that:

“Interviewer friendliness, approach and manner towards respondents can help enormously with securing validity and reliability of the data”.

1.7.3.3 Data Analysis

Given the use of questionnaires and focused group interviews, the study used content based analysis. According to Kondracki et al (2002:224) content analysis involves a set of descriptive and statistical methods together and makes analysis to the collected data. Qualitative data obtained from the study was coded and grouped into themes pertaining to the study questions, ideas, opinions and recommendations by the individuals. These themes will be discussed in more detail in chapter 3.

1.8 Clarification of key terms

1.8.1 Distance education

Distance education, according to Aina (2008:2), is a type of education based on physical separation between the learners and instructor. In such kind of education, delivery and effectiveness of teaching and learning can be supported by various teaching tools and technologies; mostly being modern computer mediated technologies and services.

1.8.2 Academic library

Simmonds & Andaleeb (2001) point out that:

“An academic library is a library attached to a higher education institution or post secondary education which serves two complementary purposes which is supporting the school's curriculum and research”.

1.8.3 Library services

According to Braun (2014) library services include all administrative and academic strategies to support library users to meet their needs and accomplish the institutional goals and objectives. In this case, library services can be determined by the nature of users, available resources and technology available. For example in the case of nature of users can be researchers, students, people with special needs like blind etc. Resources to determine the nature of services may include human resources available, financial resources technology to be applied, information resources, physical resources such as ICT facilities or equipments and any others.

1.9 Division of chapters

The study had five chapters with the following description:

1.9.1 Chapter one: Introduction to the study

The first chapter provides a descriptive introduction of the study. This chapter includes key issues such as the research question, sub-questions, the scope and limitations of the study. The chapter is concluded with clarifying key concepts and finally a brief discussion on the division of the chapters.

1.9.2 Chapter two: Literature Review

In Chapter two, the researcher reviews various literatures presented by different scholars related to the topic of the study. This will help to identify what has been done and the gap that needs to be filled in. This chapter tries to establish relationship between the specific research problem and the general topic. Also the reviewing of literatures will be according to the themes related to the study. Such themes include distance education, library services and emerging technologies that can support distance education.

1.9.3 Chapter three: Research methodology

Chapter three covers the research methodology of the study. This consists of the selection of study location, and target audience. The sampling techniques chosen as well as data collection methods will be discussed. The chapter will be concluded with a discussion on the application of the questions in the questionnaire and interview schedule.

1.9.4 Chapter four: Data Analysis and presentation

In this Chapter, findings of the study collected through questionnaire and focused group interview are analysed, discussed and presented in relation to the research questions or objectives guiding the study.

1.9.5 Chapter five: Recommendation and Conclusion

This Chapter will cover summary, conclusion and recommendation of the study. The conclusion depends on the results drawn from the study. Finally there shall be possible recommendation to overcome the identified challenges.

1.10 Conclusion

In this Chapter, a brief background has been provided to this study. The research objectives as well as the aims of the research explained. The chapter made some attempts to establish the fact that in distance education, librarianship has entered new phases that pose a great challenge, a challenge that is very different from the practice in a face-to-face learning environment. The chapter has tried to show the application of computer mediated technologies in the practice of modern librarianship to support distance education. Chapter two will discuss various literatures relating to the role of academic libraries in supporting distances learning through the use of computer based technologies. Various themes will be address in reference to what other scholars found in their study.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature that is related to this study. The chapter entails views from different scholars as they pertain to this study. The presented literature review is about distance education and the provision of library services to support this type of education. The chapter goes further to discuss different issues that are related to the use of ICT to facilitate distance education, focusing on the Open University of Tanzania. In this regard, the chapter provides an explanation on what has been done and the gaps that need to be filled in relation to the position of the academic library in sustaining distance education. The chapter presents the background and evolution of distance education and discusses the number of forces driving the increase in distance learning methodologies. The chapter also focuses on Libraries service and information technology in supporting distance education, ICT emerging technologies that can support distance learning and application of ICT in provision of library services. In the following section, the clarification of important concepts will be given.

2.2 Concept clarification

This part provides an elucidation of a range of concepts related to distance education and the role that emerging technologies can play in the provision of library services, this helps to give a reader a common understanding of the various concepts used in this study.

2.2.1 Distance education

Hermosa & Anday (2009:91) point out that Distance Education refers to the system or technique of teaching that employs a diversity of communications technologies to provide information, interaction, evaluation and feedback. This kind of education is based on self-learning by students at different places. They argue that although distance education involves the physical separation between the two parties involved in the learning process, there is always high interactivity and participation in the learning process through the effective deployment of computer mediated technologies and its associated services.

Kakana (2010:33) argues that distance education is an alternative formal education which stands as a supplement to the traditional education system or method which was implemented many

years ago. This education system tends to accommodate off campus students who are physically separated from the instructor. Watson (2000) definition is similar to that of Kakana and points out that distance education is an instructive system whereby there is no physical contact in the learning process among the stakeholders involved in it. Furthermore there are also various synonyms used in literature for the concept distance education. According to Farnes et al (2000:53) distance education can also be termed as e-learning, virtual education, Web-based education, technology supported education, cyber education or whatever name may be referring to the communication means by which information is distributed where student and instructor are separate from each other. Even if distance education concentrates on formal education experiences, informal learning experiences must not be ignored. The concept distance learning includes both formal and informal education experiences and will be discussed in detail in the following section.

2.2.2 Distance learning

Moore et al (2011:72) contend that distance learning can be defined differently that distance education as distance learning focuses on both the formal and informal education experiences, whereas distance education tend to focus mainly on the formal aspects. This is however a very small difference which most authors ignore. As with distance education, distance learning is defined by Haynes (2014:21) as instructional system with a geographical separation in a learning process. In addition, according to Cartwright (1994:64), distance learning is based on the effective use of ICTs to ensure a clear link between the parties involved in the leaning process (teacher and students). This concept may have many definitions trying to vary to some extent but the vital theme of this notion focuses on the off-site content delivery of knowledge via ICTs.

Haynes (2014:21) argues that distance learning is one of the most dramatic technologies that occur in education through the effective use of computer based technologies and services such as internet applications which enables students to receive instructions apart from the geographical separations. The Information and Communication Technology and its application have made a great revolution to discourage traditional classroom education. In this study, the two concepts: distance education and distance learning will thus be used interchangeably to mean the same as described above.

2.2.3 Library Services

According to Jagannathan (2010:31), an academic library plays a significant role in the context of this learning paradigm and supports the university curricular as well as the entire university community. It provides a good forum or environment for the university community to do their research and acquire more knowledge on their field of interest and complement and enhance academic educational programs. Herson and Calvert (2005) contend that in order to support distance education, Librarians should provide quality and trustworthy services to their clientele, addressing their various requirements, characteristics, and interests, these services are referred to as library services.

McPherson and Nunes (2004) point out that with consideration to the main business or activities of the University which includes teaching, research and consultancy; the academic library should be well established as an integral infrastructure with enough learning materials and technologies to support the main mission of the University. The provision of excellence services in libraries is now becoming a major concern among academic libraries including The Open University of Tanzania. Watson (2000) says that the move to distance education among many Universities has forced academic librarians to see the library more than just a physical building but rather a provision and access to quality services.

In this regard, the provision of library services in distance delivery system should be focused to accomplish the wide range. In this case, it is very important to ensure the effective deployment of computer based technologies to meet the main mission of the distance learning programme, the mission of the entire university and the whole community. In addition to providing materials, libraries also provide the services of librarians who are experts at finding and organizing information and at interpreting information needs

2.2.4 Emerging technologies

Valetsianos (2010) points out that the emerging technology has been heralded as providing the opportunities and affordance to change educational system, learning, teaching or delivery system and library practice. That is to say, there is high revolution in the field of Information Technology which is deemed to have a great impact on distance education and librarianship.

Bingham et al (1999) contend that the world is experiencing new computer technologies and its application in the educational system. Also the incoming technology has a significant impact in the effective provision of library services to enhance off campus learning.

According to Watson (2000), the expansionism being experienced in distance education is a result of a technological revolution in the world. The new incoming Information Technologies opened the learning environment in various Universities and their libraries. Olmanson (2011) points out some examples of the computer based technologies and facilities that enable the open context in learning, such technologies include telecommunications, computers, satellites, and fiber optic technologies which enhance the implementation of distance education. Thus the advancement of ICT enhances the growth of distance education in higher learning institutions (Aschenbrenner, 2005), (Association, 2008) and (Islam, 2006).

Salmon (2009) contends that the emergence of modern technologies which supports open education system and effectiveness in library practice has now become more prominent in most academic institutions and societies at large. Examples of the newly and participative computer mediated technologies which supports distance education include web 2.0 applications and services. Additionally social networks and net books have given learners and information specialist greater control over the whole information life cycle from the creation up to the dissemination for effective use.

According to Siemens and Tittenberger (2009), the emerging computer related technologies and services are highly deployed to enhance library services and the entire education delivery through the use of Google Search, Google Scholar, GPS-enabled devices, and e-books. Thus the computer based technologies support access and communication for distance learners basing on the improved bandwidth, enough storage capacity, high processing speed. All these create new opportunities for effective interaction between learners and instructors.

According to Salmon (2009), the educational software is being designed to support distance learning so as to ensure the correlation with disciplinary standards of excellence and professional benchmark. Some examples include the e-Portfolios and learning management systems. The technological dimension, transformation and the learning experience is to be discussed in terms of phases in the next section.

2.3 Background and evolution of Distance Education

Gallagher (2001) points out that the development of distance education in the world can be traced back from a very long history of post-secondary distance education based on a traditional means of printed media delivering to University students. According to Gallagher (2001), the emergence of distance education in the Universities was caused by long physical distance for many students who had to attend classes from such Universities.

Despite the recent increasing number of such academic institutions in many cities, Towns and even in some villages, the overall demand for distance education has changed in recent years. Following the advancement of computer mediated technologies, large number of students now prefer the distance education (Gosper, 2008).

According to Anderson and Simpson (2012), the development of distance education can be grouped into three generations from the printed media and postal services; broadcasting stage and now in the modern distance education combining the strengths of the first and second generations with the potentials of conferencing. Thus, the development of distance education may be simply grouped into two major phases including the traditional distance education based on printed media and other local teaching tools and the modern distance education based on the use and applications of computer based technologies and services. These two categories will now be discussed in more detail.

2.3.1 Traditional Distance education

Dingle et al (2000) argue that distance learning can be described with reference to the various modes from correspondence courses in the 1800's. The primary purpose of the distance learning focused on transmitting information between individuals in different places. Due to the ever changing technologies and educational operations, distance learning is following a modest lineage, which enhances the experience of trajectory with prompt innovations in technological growth.

Additionally, the background of distance education starts from written correspondence based on the expansion of printing technology and the advancement of postal delivery services. Thus the traditional distance education can be grouped into two generations including:

2.3.1.1 First generation: Correspondence study

According to Anderson and Simpson (2012), the first or traditional age of distance education was characterized by the use of print-based technology and media in facilitating education and learning in general. In this generation, distance learning was based on the application of two major technologies including printing press technology and postal services. The combination of the two technologies is what forms a correspondence education widely available.

Anderson and Simpson (2012) argue that this first generation focused on the provision of education opportunities to the people lacking or experiencing difficulties in accessing educational institutions (Universities). They also point out that this generation was associated with the foundations of group-based adult education.

Course, (2002) point out that a good example of the first generation of distance learning can be drawn from Land Grant University in the US which had a main mission of providing education to all people regardless of their geographical location through correspondence courses. Therefore the traditional distance education was based on guided didactic conversation and the systematic distribution of the learning material to students Holmberg (1960:231) & (Black, 2007:321).

2.3.1.2 Second generation: Multimedia distance education

According to Carreiro (2010), this phase has been characterized by the ability to broadcast through the use of some technologies including radio and television to support the provision of remoteness education. The broadcasting attributes of the technologies improved and added value to distance education significantly. In this phase, the provision of access was considered to be an important aspect and sustained to be a strong driver of distance education. A good example for this phase can be demonstrated from the UK Open University (UKOU) and the Australian School of Air which was based on the use of television and radio broadcasts (Anderson & Simpson, 2012).

The availability of well trained and skilled personnel for effective operation of distance learning is of great significance (Keegan, 2005). This recommendation based on the analysis made by Wedermeyer working at the University of Medison-Wisconsin. Basing on his analysis, the concept of team development of teaching materials has developed and there after many other

institutions including UKOU adopted the approach to ensure efficiency in this kind of education (Keegan, 2005) and (Anderson & Simpson 2012). Later on another concept of economies of scale came into being, and this was considered as the driver of the second generation (Anderson & Simpson (2012).

The approach played a very great role towards the development of what John, (1996) later branded as “mega (distance) Universities” with over 100,000 students (Anderson & Simpson (2012). These Universities noted as a noteworthy in the provision of remote based education focusing on improving access, operation within a minimal cost and high quality education. Basically, these two initial generations concentrated on the provision of education using structured materials and instructions from the instructor/teacher. In this case the education system based on individualism instead of learning being a social process. However, the approach began to change owing to the emergence and advancement of computer based technologies and its application in supporting learning process.

Thereafter Moore (1993) came up with transactional theory of distance education (1993) which justifies the importance of both structure and dialogue in learning process. Also, according to Sampath, (2010), advancement of computer technology which supports interaction among the people contributed to the move beyond first and second generations and finally moved to the emergence of the next generation characterized with modern distance educational practices.

2.3.2 Modern Distance education /Computer-mediated distance education

According to Anderson and Simpson (2012), the materialization of modern practice of distance education can be traced back to the 1950's when there was a massive transformation in Telecommunication which created a new form of classroom. Gallagher (2001) contends that the modern practices in distance education can be supported by the existing digital technologies which support the whole leaning process. Gallagher (2001) goes further to point out that modern distance education is based on the effective use of computer mediated technologies and services such as internet applications and services which ensures interactivity among the stakeholders in the learning process. This advancement eliminates the constraints of time and geography between the student and instructor.

According to Anderson and Simpson (2012), the advancement of computer based technologies have changed the scope of educational through the effective use of distance learning. Distance learning is becoming popular in many universities due to the existence of Computers, CD-ROM, computer networks and the World Wide Web which act as an integral component in bridging remoteness gaps around the world.

Anderson and Simpson (2012) argue that it is significant for the academic institutions to keep abreast with the daily incoming technologies to enhance and boost the development of distance education. However there should be a concern to strategize the challenge of limited funding to provide and cope with the increasingly learning opportunities resulting from the new incoming technologies. Therefore development of distance learning is consistently accompanied with technological advancement which played part to change its practices from correspondence courses to modern practices focusing on learning as a social process.

According to Anderson and Simpson (2012), the application of computer based technologies in education system has got a significant impact upon the institutions dealing with face-to-face education. The leaning process involves high interactivity among the learners and instructor. This helps distance learners to interact with full time students through the effective use of web 2.0 applications and social networks.

Anderson and Simpson (2012) contend that the use of technology only does not lead to change. They argue that many computer applications and services of computers such as audio and video conferencing provide great opportunities for effective participation of students in the learning process. The use of teleconferencing in some universities is the indication that fourth generation still exists to some extent, however the possibility of advanced (online) computer based learning is exciting; thus modern universities should consider its effect and the challenges in the learning process.

Dingle et al (2000:87) argue that the changes in distance teaching and learning which are being experienced in the world are grounded by the historical and radically change in technology. Current development such as the approach to openness in educational resources, open scholarship and emergence of e-books and e-research data management is an indicator towards the advancement of distance education. Also the ever increasing use of mobile digital devices

such as smart phones, laptops and I pads enables learning to be done anywhere at any time without constraint of space/venue, time and geographical location which was initially an obstacle in distance learning.

According to Anderson and Simpson (2012:37), advancement and application of modern Information and Communication Technologies in education have enough significance and create new learning experience and opportunities. Many institutions are adopting new technologies and should ensure its effective exploitation to improve learning/teaching and accomplish the mission of the behavioral theory of learning being a social process.

Islam, (2006:77) argue that in order to explore more potential of the computer based technologies in supporting distance learning, there is a need for more research which may produce other constructive theories focusing on the interactivity environment through the use of ICTs. This may have a significant understanding on the current trend of various computer based forums. The theories to be developed by researchers have a potentiality of explaining, interpreting and shaping other new incoming forums for educational practice. Without effecting findings in this field, the exploitation of computer technologies will continue being very minimal. E-learning and M-learning will be discussed in detail next as examples of the modern computer based technologies supporting distance education.

Anderson and Simpson, (2012:23) are of the opinion that distance education is now growing in a very high speed among Universities. There are many driving forces for the dramatically development of distance learning in the world. Such forces include:

A) Ever changing technologies

Anderson and Simpson (2012) contend that the transformation in computer based technology has a significant impact on the persistence of distance learning. The gradual discovery and affordability of new computer systems which supports the transmission of data, text, images, voices and video, acts as a stimulant to the development of distance education.

Massive allocation of funds in developing an information systems and networks, enhance high access to information and meet ever changing user needs which a driven by the dynamics of the technology.

B) Best Learning Environment

Some of the major setbacks in the development of distance learning used to be financial problems which led to inability to afford the necessary learning resources or facilities in order to ensure best or optimal learning environment. The current affordability of computer based accessories or facilities enables people to access vital information and meet the demand of a diverse learning community in different parts of the world. The availability and affordability of computer related facilities to support learning has increased interactivity and guarantee the development of distance learning without jeopardizing the quality.

C) Demands of Business and Industry

Dingle et al (2000:121) point out that failure of many academic institutions to produce quality and competent graduate/workforce lead to the lack of efficiency in work place and finally failure to accomplish the main mission of the organization. Basing on that observation by earlier economic leaders, various business ventures or organizations decided to allocate enough capital in academic institutions to improve the teaching and learning environment to furnish students and teachers with enough learning equipments and teacher training in new incoming technologies. Additionally Dingle et al, (2000:121) contends that:

“Business organizations are willing to allocate time and money to advance efforts targeted at improving the future workforce”.

D) Collaborative Educational Experiences

According to Dingle et al (2000:123), basing on the constructivist theories, the effectiveness and efficiency in learning among students is of great significance. Additionally another theory supporting this is a cognitive or behavioral theory of learning which is based on the assumption of active participation/involvement and collaboration in learning process. Basing on the two theories, the current available computer based technologies encourage students to be active in a learning process. The interactivity feature of the current technologies give students a great opportunities to engage in research process than the traditional learning environment.

E) Diverse Public Consciousness

The emergence of globalization which is accompanied with high advancement of computer-mediated technologies (ICTs) has ensured the public worldwide with enough exposure. The available and advanced media and technology provides console to students in a world of expanding diversity. In this case, globalization enables the development of Distance Learning by exposing students to the vast and ever growing universe and allows students to work together with people of other culture across the world. The possibility of that is made by the utilization of modern computer based technologies in distance education which include e-learning and m-learning. These two concepts are going to be discussed in detail here under.

2.3.2.1 E-learning

E-learning is one of the modern technologies applied to ensure effective delivery of distance education. According to Singh et al (2009), the term e-learning can simply be described as education system based on the effective deployment or use of computer related technologies (ICTs) to enhance acquisition of knowledge. E-learning is very common in post secondary education. Sometimes this kind of education is used in combination with face-to-face teaching or learning which is commonly referred as Blended learning. Additionally Zhang & Nunamaker (2003) contend that:

“E-learning refers to the use of digital technologies to support and deliver some or all of the teaching and learning for a particular unit of study”.

Mehdipour and Zerehkafi (2013) argue that e-learning can be described as a means of using electronic facilities to impart people with some skills without physical contact between the learning stakeholders. This means e-learning depends much on electronic facilities to support learning.

Additionally the efficiency and effectiveness of e-learning is through the application of

“web-based teaching materials and hypermedia in general, multimedia CD-ROMs, websites, discussion boards, collaborative software, e-mail, blogs, wikis, and test chat,

computer aided assessment, educational animation, simulations, games, learning management software and electronic voting systems” (Mehdipour and Zerehkafi, 2013).

According to Holmes & Gardner (2006), e-learning is an approach to support education by making effective exploitation of the computer technologies to enhance communication, collaboration and interactivity. Universities and Middle Colleges use WANS (Wider Area Network) to ensure effective e-learning where people are able to acquire knowledge and skills any time anywhere.

2.3.2.1.1 Demand for e-learning

Course (2002) point out that the higher advancement of computer based technologies and its application like internet services enhanced the move to e-learning among universities and its stakeholders. University students in different parts of the world seem to have high access level to the new computer-mediated technologies. Basing on the recent study conducted, findings indicate that large percent (over 95%) of university students make effective utilization of the computer related technologies (ICT). This is also the case for many university students in Tanzania especially those opting distance learning, effective computer and internet use becomes a fundamental tool in accomplishing their studies.

Furthermore, the need for e-learning may be due to the following reasons as pointed out by McCann et al (1998):

- Change of the world economy from traditional business into computer based system
- The rising need for knowledge and skills among the people
- Globalization in education sector which lead to high competition
- The development of e-learning as teaching method
- The ever changing needs of the community
- Impact of new incoming technologies

Therefore, many big and oldest Universities in the world have well established systems to support e-learning. Thus they have managed to ensure effective utilization of the available advanced computer related technologies by exploiting the fifth model. Sorting examples of such Universities in mostly in Africa include The University of Dar es Salaam, OUT, University of

South Africa, and outside Africa include Deakin University, University of Southern Queensland and many others.

2.3.2.1.2 E-learning Issues

Ryan (2001) notes that e-learning has got some issues which need to be sorted out. These include the following:

- The significance of e-learning to students. It is important to note that mode of communication play a great role in knowledge acquisition. The issue here is that does e-learning an effective method to motivate and ensure effective communication among the stakeholders in the learning process? The answer to this question should be a determinant whether to continue or to stop exploiting e-learning services. Ryan (2001) contends that:
“Many students do not have the ability and motivation for independent learning that is required for e-learning, leading to reports of high dropout rates from some overseas sources”.
- The structure and worth of the education being provided. Basing on the slogans of e-learning of providing education “any time” “at any place” some issues to debate come into being on the structure and value of the education being offered. Another issues to consider is what should be taught under which environment which another important factor which determines learning efficiency. This opens doors to discuss opportunities being offered by e-learning and get clear understanding of its slogans.
- The significance of e-learning as compared to other education modes. To ensure the succession of e-learning as a teaching model, there is need to address what are the opportunities against other models. The assessment should focus on some key factors such as operation cost, its efficiency in learning/teaching and user friendliness.

Mahdipour and Zerehkafi, (2013:54) point out that e-learning is very significant in the sense that it provides opportunities for a diverse community to acquire new skills and knowledge.

Another modern technology being accompanied by e-learning is m-learning and is detailed discussed in next section

2.3.2.2 M-learning

According to Mobifreaks.com, (2004) M-Learning can be defined as the use of Mobile devices including smart phones, tablets and any other hand held information technology device to facilitate learning and teaching. Mehdipour and Zerehkafi (2013:230-233) assert that Mobile learning is based on the use of small portable computing devices which have an ability to support learning. Therefore M-Learning can be considered as a sub-set of e-learning and it has the benefits of mobility through its supporting platforms.

Motiwalla (2007) points out that mobile learning combines the element of E-learning and mobile computing. According to Mehdipour & Zerehkafi (2013), mobile learning can thus be considered as an additional room of E-learning; however the quality of the services can be determined by the stability of the device being used. Motiwalla (2007) argues that Mobile learning is advantageous in a sense of mobility and its supporting platform.

According to El-Hussein and Cronje (2010), the major focus of the M-learning is the mobility of the learner, interacting with convenient technologies, and learning that reflects a focus on how society and its institutions can accommodate and support an increasingly mobile population. This is based on the fact that many mobile devices have got a number of features and functionality to support learning. A good example of this may include podcasts of lectures which can be made available to the public for downloading. Therefore this allows the learners to engage in learning in most modern way outside the traditional teaching venue.

Mehdipour and Zerehkafi (2013) contend that:

“E-Learning can be real-time or self-paced, also known as "synchronous" or "asynchronous" learning. Additionally, E-Learning is considered to be tethered (connected to something) and presented in a formal and structured manner. In contrast, mobile learning is often self-paced, un-tethered and informal in its presentation”.

2.4 Library service and information technology in supporting distance education

According to Bansode and Periera (2008), the academic library designed to support distance learning should have well designed ICT infrastructures and systems which help to make effective interaction between the instructor and students. A great change is being experienced in academic

and other type of libraries worldwide basing on the ever changing ICT technologies and its application in the provisional of quality and reliable library services. Application of ICT in the library will be discussed in the following section.

2.4.1 Uses/application of ICT in a modern academic library

ICT is very applicable in executing various library operations. Traditionally librarians were responsible to ensure the provision of library services to the users manually but the emergence of ICT has made a great revolution in library practice. Thus ICT save the following uses or application in a modern academic library and any other information institution.

2.4.1.1 Library automation

According to Breeding (2009), library automation is simply defined as the application of computer based technologies in performing library tasks or operations such as cataloging, classification, acquisition, circulation and many others. Bansode and Periera (2008:81-83) point out that:

“Library automation also refers to the application of computers and utilization of computer based products and services in the performance of different library operations and functions in provision of various services and production of output products”.

In this case, automation allows the integration of various library operations using well established computer and network system. Different departments dealing with a diversity of activities integrates and works depending on each other through an automated system which stabilizes the communication system among the library personnel.

According to Bansode and Periera (2008:67) automation is one of the major revolutions brought up by the emergence of computer-mediated technologies and its application in the field of librarianship. This has changed the way librarians perform their duties in many countries including Tanzania. The library operations have changed from manual operation into the use of machines in conducting some libraries tasks including acquisition, serial control cataloguing, circulation and many others.

Lynch and Smith (2001:11) note that automation in many libraries started by computerizing most common activities (library house-keeping activities) which considered were to be the basics for effective automation in case of any upcoming advanced service.

2.4.1.1.1 Significance of library automation

Boateng et al (2014) point out that the major focus of any library is to meet the user needs, thus most of its operations or activities are routine in nature. Automation of these activities plays a very big role to ensure effective and efficient management of the library resources which includes time, money, information and personnel. A good example on this case can be drawn from the process of creating a bibliographic description (Author, title, edition, publisher, ISBN etc) which has been created during the time of ordering; the same data can be imported to the library system and save other functions such as Cataloguing, Circulation and Accessioning. Additionally, library automation is significant in terms of speed and accuracy for all the operations in order to meet user needs. Digitization is another key library services depending on ICT and this will be detailed discussed in the next part.

2.4.1.2 Library Digitization and Institutional repositories

According to Conway (2010:5),

“Digitization is the process of taking traditional library materials that are in form of books and papers and converting them to the electronic form where they can be stored and manipulated by a computer”.

In this regard, digitization of library material can lead to the creation of an institutional repository or digital library which can be defined as a collection of digital documents or objects. Therefore, repositories can be presented in forms of website and databases with enough intellectual resources. Further, Zuccala et al (2008:5) and Chan (2004) assert that, building of a digital library can either be general or can be specific to a certain field such as education, science, culture, development, health, governance etc. There is free software such as Greenstone and Dspace to support the creation of digital library, this motivates many academic libraries and other information institutions to create and share information resources globally in a digital environment. Digital libraries are very useful and the following benefits:

2.4.1.2.1 Benefits of Digital Libraries and institutional repositories

The key features which denote the benefits of digital library include the followings:

A) Improved access

The ability of the digital forums to support accessibility of the information sources worldwide at any time is one of the major significance of the digital library against the traditional forums based on physical contact between reader, service provider and information materials (Heery & Anderson, 2005:43). Important is to note is that this type of library can be accessible in the availability of reliable and active internet connectivity and sometimes through Compact Disc-Read Only Memory (CD-ROM).

B) Wider access

Any digital library has got a significant feature of supporting multiple users at a time from different locations. A single document can be accessed by many people at the same time; thus meets the requirements of a large population of users easily.

C) Improved information sharing

Resource sharing is very active in a digital library through the well established metadata and information exchange protocols (Chan, 2004). Therefore different libraries are meeting their mission and satisfying user needs through digital interactivity and sharing of their resources.

D) Improved preservation

Limited space is one of the major challenges facing many academic libraries and other information institutions. As a strategy to overcome the challenge, creation of digital library for special and rare documents and artifacts is of great vital because provides more room for storage in electronic format (Zuccala et al, 2008:3-4). In this case digital libraries are giving more storage capacity and ensure quality and reliable preservation of the information resources.

Bailey, (2008) points out that the establishment of digital repositories should be a concern of any information based institution including libraries (The Open University of Tanzania Library), information centers, research based institutions and resource centers.

Consequently, repositories increase visibility and citation impact of the institutions' scholarship and provide unified access to the institution's scholarship to provide open access and preserve the institutions' intellectual output

Additionally, Kelly & Ferrell (2005:6) point out some key benefits of digital repositories which include the followings:

- Supports sharing of knowledge and teaching practice
- Encourages multidisciplinary collaboration and sharing
- Ensures reliable and quality access of the information for distance learners
- Accomplish the theory of Behavioral learning theory which insists collaboration in a learning process (Learning as a social process)
- Enhances the development of course modules
- Improves information/content management
- Ensures effective retrieval systems through well establishes metadata
- Improves institution reputation globally

Chan (2004) asserts that digital repositories play a very big role in the development of open access and open scholarship movement in the world, and have a great impact on the development of distance education.

2.4.1.3 E-Books

The concept e-book“ can be defined differently depending on the context in which the term is being used. While C. (2010:314) defines an e-book as an electronic format of a literary work, Vasileiou et al., (2009:662) contend that e-books can be in both digital and physical devices such as handheld e-book readers. According to Zinn & Langdown, (2011),

“E-books comprise texts published in electronic form as well as physical books converted into digital form and also books in computer file format or an electronic file of words and images of monographic character, all of which can be displayed on a desktop, notebook computer and any other e-book reader”.

Kahn and Underwood (2013) point out that the development of ICT such as the widespread use of the World Wide Web and the availability of digital versions of a range of materials has

changed the view and role of the traditional library. This has reduced the element of physical visit to the library in order to consult and borrow books and journals but rather the user can now access the services from anywhere at any time through internet connectivity.

Anderson (2009:564) asserts that “the library is not about books; it’s about information”. Thus information institutions like academic libraries should keep abreast with the current ICT technology and transform from traditional physical books into e-books. With respect to the incoming changes in the way libraries operate, there is a need for flexibility among the librarians to be willing and able to adopt the changes as well. However this is not the case for many libraries including academic libraries such as OUTL due to the number of reasons.

According to Snowhill (2001:83), some library personnel resist to embrace the technology of e-books in their respective libraries because e-books are not traditional physical material and the budget to be spent on them is not immediately obvious in many information institutions. Additionally, Kahn and Underwood (2013) insist that re-allocation of funds from print books results in a smaller print collection, adding to the decrease in objects for the library to put on its shelves. Snowhill (2001: 83) contends that another objection by librarians is that subscription or pay-per-view e-book business models, with their “big deals” or patron-driven purchases, may give the impression that librarians are no longer in charge of title selection, suggesting that they have lost control over their collection or do not have the necessary expertise to make the right choices.

2.4.1.3.1 The use of e-books in academic libraries

According to Zinn & Langdown (2011:104) and Bennett & Landoni (2005:43), the emergence of digital environment changed the way information creation, storage, dissemination, access and retrieval. Librarians have had to learn new knowledge and skills in order to meet ever expanding user needs for new information services using Information Communication Technologies (ICTs) and e-resources.

Bennett and Landoni (2005:67) and Islam, (2006:58) point out that the remarkable change experienced by many academic libraries has changed the way information is being provided to the university community. However literatures show that many users of ICT resources are still unacquainted with e-books even if a particular academic library holding e-books in its collection.

There is a high transformation among the information institutions to create awareness on the existence of e-books and it is significance in the provision of information services to users (Islam, 2006).

2.4.1.3.2 Lesson from using e-books in academic libraries and other types of libraries

According to Bennett and Landoni (2005:102), it is very important for educators, students and librarians to consider the potentials pertaining to the usage of e-books to support teaching, learning, and research and finally meeting the major mission of the institution. In this regard, stakeholders including e-books providers should try to arrive at a common understanding of the potential of e-books, rather than focusing on what is currently available. E-books are very important in a sense that they support mobile library and distance learning and provide links to further related materials.

Carreiro, (2010) points out that there are some challenges hindering the effective adaptation and usage of e-books in academic libraries, such challenges include the challenges related to selection, licensing, acquisition, and its management. According to Brown (2009), lack of promotion among users make users to depend much on printed books as their major preference and take e-books as just a supplement to printed books

2.4.1. 4 E-Research environment and services

According to Allan et al (2007), a Virtual Research Environment (VRE) can be described as a

“Distributed way of working through the use of a Web-based portal and linking into users' desktop applications in order to access a wide and growing range of on-line tools including access to Grid based computing and data management systems as well as collaboration tools”.

Allan et al (2007) point out that the emerging characteristics of a VRE are of great significance in a sense of creating more collaborative and interactive environment to the scholarly community. The OST report of March 2006 indicated the potentials and opportunities of the VRE in supporting collaboration in research and learning as a social process through its VRCs.

2.4.1.5 Research data management Service

Ryan and Bernard (2000) point out that research data management refers to the total management and organization of research data from its creation stage passing through the whole research cycle up to the storage or archival stage for future use. This focuses on establishing grounds of validity and reliability of the study conducted and builds a foundation for further studies in the related field.

The effectiveness and efficiency of the research as an academic or scholarly work depends also on well established forum for Research Data Management which is part of the entire research process. Therefore universities and other research based institutions need to pay much attention on research data management projects to ensure that their libraries are in better position to support other researchers with reliable and well organized data to accomplish their study. The nature of library services will be discussed in detail in the next section.

2.4.2 Library services for supporting distance education

According to Komba (2009:11), the recent transformation in computer based technologies have changed the sphere of distance learning by providing computer-mediated pedagogies in teaching and learning process. This enhances social learning process remotely. To assess the library user needs is an essential aspect to ensure quality and reliable library services for distant learners. Tsvuura (2013:17) in his study articulated the need for academic libraries to provide and secure convenient and direct access to the library materials with regard to appropriate formats that are of sufficient quality, depth, number, scope and current.

Watson (2000) argues that the intellectual output of the university community depend on the quality and reliable library services. Initially Bazllion & Braum, (1995:51) point out the potentials and opportunities of a well established library in academic environment to support carrier development. They insisted that library is an integral part of the university infrastructures and the education system is incomplete without well equipped library with both direct and indirect services offered to its clients.

According to Watson (2000), the provision of quality library services is one of the challenges that impinge upon the smooth provision of distance education. Consequently, this has led to the establishment of specialised library and information services that can cater for distance learners'

needs. In this case, distance education has impacted not only on the discipline of education, but it has also fundamentally affected services and professions that support distance learning.

According to Hayness (2002), it's very important to take responsibility to provide quality library services for both on campus and off campus students. It is significant to make evaluation on library operation to maintain quality academic services and standards in order to enhance distance learning programme. Mcharazo (2000) points out that many distant learners in developing countries such as Tanzania face difficulties to get information resources of their need contrary to the full time students.

Watson (2000) suggests that a quality library and information service to distance learners is possible through effective deployment of the available computer based applications and services to ensure interactivity in a learning process among the stakeholders in the provision of distance education.

According to Aina (2008:8), distance learners need all the necessary library services including reference assistance, borrowing of library materials either on reciprocal or contractual basis, access to catalogue, manual or computerized, access to inter-library loan services, and access to internet services, subject literature searches and consultation with librarians.

Msuya and Maro (2002) point out that realizing the significance of library services in order to meet goals of distance education is important; The Open University of Tanzania has extended services to the library users of both categories, including on and off campus users. Such services include access to electronic resources, book delivery service, interlibrary loan, enquiry services and emailing.

Bazillion and Braum (1995:51) contend that distance learning is a growing industry in many higher learning institutions. Designers of modern libraries buildings need to ensure the availability ICT facilities to support remote stake holders like distance learners without jeopardizing the quality of the services being provided. The key issue is that academic libraries today have to consider distance learning services and needs so as to extend support to both on and off campus learners.

Sacchanand and Jaroenpuntaruk (2006:1&2) assert that the Internet services and World Wide Web broaden the scope of conventional distance education to anywhere, any time and any pace.

Moyo and Cahoy (2006) argue that the effectiveness of distance education in any institution and the role of the library to support learning and research should be considered as key factor to ensure quality and successful online programs.

Therefore distance education needs adequate, relevant and quality library support at various levels. Flexibility to the new incoming ICT related technologies is very important in order to meet the adequacy, relevancy and quality library support for distance learners. In order to achieve these flexible high quality services, universities depend on technologies. In the next section attention will be given to the emerging technologies that can be used to support distance learning.

2.5 Emerging technologies and its application in supporting distance learning

Aina (2008:2) argues that in this modern world, distance education is a new learning paradigm adopted by many Universities including the OUT. This educational system depends much on the ICTs infrastructures to integrate learners who are physically detached in terms of time and space from their teachers. On the other hand; Bingham et al (1999) observe that the old system of distance learning was simply related to the postal correspondence and telephone communications.

According to Komba (2009:9), the application of ICT facilities in supporting contemporary distance education programmes is an agenda for many academic libraries in the world. Examples of the computer based technologies/facilities to support remote learning include but not limited to audio-visual, CD-ROM, computers and internet application services. To build more on this, Komba, (2009:14) notes that technology-mediated and blended teaching and learning approaches including the use of social media, BlackBoard Collaboration sessions and WebCT platforms are some of the new approaches to support distance education.

In addition to this, Rouse (2015:online) and Rouse (2015) argue that in this digital age, the popular distance learning technologies can be categorized into:

- *“Voice-centered technology, such as CD or MP3 recordings or Webcast”*
- *“Video technology, such as instructional videos, DVDs, and interactive videoconferencing”*
- *“Computer-centered technology delivered over the Internet or corporate intranet”*

According to Rouse (2015), Sumner (2000) and Anderson et al (2012), basing on the effectiveness of the available computer-mediated technologies and services, there are potentials of effectiveness in distance learning to ensure social interactivity character in the learning process equated to traditional method of face-to-face meeting between teacher and student.

Furthermore, Beldarrain (2006:139) conducted a study in Florida Virtual School where he identified more benefits of deploying new upcoming technologies like podcasts wikis, blogs, video conferencing and web-based instructions which enhance interactivity in learning. Also there was a review of social software applications such as Whiteboard, InstaColl and Imeem.

According to Beldarrain (2006:139), distance education programs in the world still face some challenges that may hinder or deter the functioning of these upcoming technologies

Portugal (2006) in his study found that distance learning faces a number of challenges ranging from the ever changing technologies, inadequate skills for effective online interactivity, globalization, over growing number of students and lack of federal and state educational funding.

In order to be consistent with the future distance education modalities, Portugal (2006) suggests that there is a need to have effective communication strategies related to the current technologies to ensure that online collaboration and its infrastructures remain fluid and free.

With consideration to the significance of library in supporting teaching, learning and research, it's very important to consider the growing demand of the library users in aggressive digital and knowledge-based financial system. Veletsianos, (2010:6) encourages academic libraries to invest in new technologies like the use of e-book and off campus library services through social media and many other emerging technologies.

Portugal 2006) contends that the potential of e-books in academic libraries have taken a new sphere basing on its utility to the distance learners. In this case there is a immense adaptation of this technology to ensure efficient of the remote based education system being offered by many universities. In addition Portugal (2006) emphasizes that there is another issue to be put into consideration which is about information retrieval systems and its functionalities towards the technology homogeny. Therefore e-learning starts to interconnect with digital or virtual libraries

and universities which call upon the standardization of the computing language to enhance information accessibility and retrieval throughout the world (Minishi-Majanja, 2007)

According to Portugal (2006),

“Distance education is developing at rapid speed and media rich content, animation, PDA and cellular phone downloads, holograms, and audio/video/DVD asynchronous and synchronous lectures are the future of this modality”.

There are most recent applications and services which include the ability to hot-synch and wireless video projectors. Applications of these technologies will be discussed in detail in the next section.

2.6 Application of ICT in provision of library services

Gunjal and Dhamdhare (2013) contend that generally ICT refers to a combination of computer and telecommunication techniques which makes possible new systems and products to help people at work, in education and even at home. In the library domain ICT refers to the use or application of various technologies such as computer, reprographics, video recording and other electronic devices to ensure effective the storage, retrieval, reproduction and dissemination of information in a library environment. ICT enables the effective communication, integration of telecommunication and building management systems using the prevailing modern technologies. Additionally Lalitha (2004) notes that ICTs supports communication and information management if there is well established computer networks, communication middleware as well as availability of all the necessary supporting software.

Demonstrating the real applicability of ICT, the focus should be made on all aspects of human life (socio-cultural, political and economic aspects) and how computer based technologies and services affects human life (United Nations ICT Task Force, 2005). The emergence of computer based technologies has changed people’s mind on how they used to look at a library in a traditional way as just a mere storehouses of knowledge. Vinitha et al (2006) note how library operations changed from a soreness and nervous tension to the use of ICT’s, for example, the organization of knowledge, circulation, acquisitions and other technical processing have become easier and more quantum of work can be accomplished in a stress-free mood.

Islam, (2006) states that the concept of ICT entails technologies, the facilitation of communication, processing and transmission of information by electronic means embraces complex communication technologies such as internet, the computer, geographical information systems and simple ones such as the television and radio. In the context of libraries such technologies have the potential of helping users to gain access, disseminate and respond to information in a faster and more far reaching way that ever before.

ICT's comprises all the facilities that enhance information or data management by providing key functionality of storing, retrieve, manipulate, transmit or receive information in a digital form. Examples include personal computers, internet, digital television; social media networks and email services which are now becoming indispensable tools with regards to provision of library services. Information technology has extended the availability of information and libraries are slowly embracing this opportunity to improve on information dissemination, acquisition, storage and organization and also start networking for resource sharing.

Since with ICT the key components of information management (storage, retrieval, manipulation, transmission or receipt) of information is made possible and this becomes an advantage to the libraries especially the public libraries that caters for a diverse of clientele and also academic libraries in information dissemination. Importantly, it is also concerned with the way these diverse users can work with each other, with a computer and an internet connection. This enables patrons to use the library whenever they need. Also the networked environment enables librarian to collaborate with others worldwide by using various internet services such as mailing lists, discussion forums and creation of mail boxes for questions. Inter-institutional support and specialty has resulted in high quality and efficiency thus enhancing the quality of library services.

ICT's also affects the provision of access to the catalogue and availability of resources online. Online catalogues have changed the way in which materials are made available and are able to be viewed. Course, (2002) states that the use of online catalogues facilitates an ease of use which has become critical in the age of information technology. The Online Public Access Catalogue (OPAC) and Machine Readable Catalogue (MARC) facilitate easier access to online information. The application of ICT in a library context is not smooth; it is associated with some challenges. These challenges will be discussed in more detail in the following section.

2.7 The challenges encountered by the academic libraries in supporting distance education

According to Gandhi (2003), the advancement of distance learning programs in universities has brought a range of implication in the library context and its major functions of providing information services to the users. In this case distance learning forces library personnel in academic libraries to find a way how to meet the accreditation requirements to ensure the provision of quality and reliable library services for on-campus students and distance learners.

Gandhi (2003) further notes that the struggle of librarians in meeting the user needs of supporting their remote learning encounters some challenges and issues that are different from those faced by librarians working solely with full on-campus users. However librarians should strategize on how to address the challenge in order to meet the main mission of the library and university at large. The following sections will focus on challenges and opportunities encountered by librarians serving distance learner with respect to the following aspects:

- *Reference and referral services*
- *Access to library collections and information resources*
- *Electronic reserves and copyright law*
- *Reciprocal borrowing and resource-sharing agreements*
- *Interlibrary loan and document delivery*
- *Bibliographic instruction and information literacy*
- *Faculty awareness and course support*
- *Marketing and public relations*

2.7.1 Reference and referral services

One of the core functions of the academic library and other information institutions is to ensure reliable and quality reference services to the customers (Gandhi, 2003). Gunja & Dhamdhere, (2013) asserts that traditionally reference services was based on the direct contact between the librarian and library users and give directives on some technical or professional issues such as resource selection data base searching and responding to reference questions. However, providing reference services to distance learners presents some unique challenges such as information and computer illiteracy among the distance learners.

2.7.2 Electronic reserves and copyright law

According to Haneefa (2007), there is a very big challenge facing distance learners in accessing online materials to support their learning. Libraries and course instructors place leaning/teaching materials to support courses being undertaken; however students get some difficulties related to the copyright issues while accessing such materials remotely. There are some strategies proposed by Haneefa (2007) to mitigate this challenge that there is a great need to scan and digitize the reserve materials to support distance learners without infringing copyright.

Basing on a survey conducted in Harvard College, Lauren Esser, there is a great need to establish e-reserves because many students studying remotely prefer e-reserves to support their learning as demonstrated in this survey that about 80 percent of students preferred E-Reserves. Another important issue to put into consideration is a compliance with copyright laws in which there should be a restriction for enrolled students only to access the e-reserve materials.

2.7.3 Interlibrary loan and document delivery

Initially interlibrary loan for materials requested by library clients were traditionally delivered to the compass through physical contact physical materials and there after the user gets informed on the availability of the anticipated materials. However this is very difficult for distance learners due to geographical limitations. To address this Gandhi (2003) and Portugal (2006) suggests that effective deployment of internet services such as mailing of articles to the person who requested it can be the best alternative. This emphasizes the libraries to adopt e-books for easy implementation of such kind of interlibrary loan to support distance learners.

Gandhi (2003) emphasizes that with a reference to the methods employed at the University of Illinois to support distance learners, other technologies to use include fax, e-mail, scanners and document transmission software system such as Ariel as implemented in The University of South Carolina.

2.7.4 Bibliographic instruction and information literacy

According to Gandhi (2003) and Haneefa (2007), academic librarians have a great role of imparting information literacy to the students and entire university community including distance learners and faculty members. In implementing this one of the major focuses should be on

teaching students to do their own search, identifying and locating materials through bibliographic instructions. Additionally, Gandhi (2003) contends that:

“Academic librarians have played a crucial role in fostering the skills and knowledge in users to effectively select, retrieves, use, and evaluate information disseminated in traditional formats and on networks”.

To meet this, academic libraries including OUT Library need to put in place well established bibliographic instruction programs to support on-campus students in developing library research. However Librarians are facing a very big challenge in doing the same to distance learners and hence fails to support distance learning under this aspect. Therefore it is a role and responsibility of the library personnel to find out how to address the challenge to ensure quality and reliable library services for both on-campus and off-campus students/learners.

On the other hand, Anyona (2009:39-41) in his study focused on the challenges facing distance learning among the African institutions. He came up with more challenges including the following:

- Lack of in-service training among the library personnel to equip with enough skills on the current technologies and its application in supporting library operation.
- Technological constraints that hinder distance education
- Financial constrain
- Poor ICT infrastructures such as poor network especially in Africa
- Cultural bias

Additionally to this many African countries lack clear educational policies supporting the prevailing of distance learning in their respective countries which poses another challenge in this context. Policies are the once which provides a guiding frame work for the development of distance education. In line to the educational policy very few African countries have national ICT policy guiding the development of distance learning. Thus this stands as big impediment because ICT is the most effective means to ensure effectiveness in distance learning.

2.8 Conclusion

This chapter focused on the literature review. The chapter presented the different themes that are related to the area of study. Different issues on distance learning were raised, including the different challenges that academic libraries may face in the course of providing education to distance learners. The chapter also presented insights from other scholars on academic library practices as regards distance learners. The discussion of the broad themes indicated that the provision of distance education requires appropriate planning by academic libraries so as to cope with the emergence of modern technologies in the learning process. Consequently, academic libraries should be ready to use new means of library information access and retrieval. The next chapter focuses on the research methodology to be used in data collection, research design, study area, population, sampling procedures and ethical consideration.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter presents the methodology that was used in the collection of relevant data. More specifically, the chapter focuses on the research design, study area, population, sample and sampling procedures and methods of data collection and techniques of analysing the data. Other aspects include validity and reliability of the study instruments and consideration of ethical issues.

3.2 Research location

The research was conducted in Tanzania specifically in The Open University of Tanzania. The Open University of Tanzania Library was selected because it is the oldest and most famous library in the country supporting distance learning (Memba, n.d.:online). In this case, OUTL can easily help to reflect the transformations in library practice from the traditional librarianship based on library automation and digitization.

3.3 Research design

According to Creswell (2013), research design is a description of how a researcher sets up a study to observe the hypothesized relationship. He further opines that research design includes the steps one undertakes to address the hypothesis in operational terms. Burns & Grove (2003:195) and Marczyk et al (2005:18) refer to research design as a road map that guides a researcher on how to gather the required data from the field. In this regard a research designs determines the type of research for particular study.

This study employed a descriptive research design. A descriptive study is one in which information is collected without changing the environment, nothing is manipulated. Sometimes these are referred to as “co relational” or “observational” studies. Descriptive survey can be “any study that is not truly experimental.” In human research, a descriptive study can make available information on the subject of the physically happening healthiness, conduct, attitudes or other personality of a particular group. Descriptive studies are also conducted to disclose links or relationships between things in the world around us.

Best & Kahn (2006), point out those descriptive studies can engage a one-time interface with groups of people or a study might go after individuals over time. Descriptive studies, in which the researcher interacts with the participant, may involve surveys or interviews to collect the necessary information. Descriptive studies in which the researcher does not intermingle with the participant include observational studies of people in an environment and studies involving data collection using existing records. This design deals with phenomena as they exist and does not attempt to alter. This design can be used to collect qualitative and/or quantitative data.

3.3.1 Qualitative data

According to Bernard (2011:7), qualitative research is by definition exploratory. He sees the social world as a complex and varied in a number of ways, hence have many meanings due different understanding and interpretation of phenomenon. In this case qualitative data are ideal for getting a dipper understanding of the social phenomenon. In order to get qualitative data researcher should be very careful to choose methods or techniques for data collection which portray attitudes, perceptions or intentions of the respondents or community in general(Creswell, 2013:12). Thus a researcher may use questionnaire, interview and observation as research techniques to collect data because these methods have strength of providing rich and detailed information on the issue under study.

However, Creswell, (2013:13) points out weakness of qualitative data that results basing on this type of research approach is not objectives and verifiable and it is expensive in terms of data analysis.

3.3.2 Quantitative data

According to Tewksbury (2009:12) and Bernard (2011:4), quantitative research can be described as a research approach based on the use of numerals or statistics and not narrative way of qualitative research. The approach allows the use of tables, figures charts and graphs to present the report of the findings from the field or from the conducted experiment in the laboratory. This approach is very common in experimental research. Opposite to the qualitative research which depend much on primary methods in data collection, quantitative depend much on secondary method and in cases used questionnaire closed ended questions are the most preferable. Quantitative data are reliable although it is major weakness is that fails to provide detailed and

descriptive data (Bernard, 2011:6). In this study researcher collected primary data through interview and use of questionnaires. The next section indicates the population involved in this study.

3.4 Research Population

According to Kothari (2004), research population includes all the units to be involved in a research study. It therefore includes all the subjects appropriate for the particular study. Burns and Grove (2003:213) further insist that a research population must have a composition of individuals with the same characteristics that a researcher is interested. In this regard it is the research population that will determine the sample size, units of inquiry and the suitability of the tools of data collection.

The study focused on the University community from which the sample was drawn. The population of this study included students and librarians from The Open University of Tanzania.

3.4.1 Students

Students who participated in this study came from the faculty of education. 100 students were included in the study. This is because students are the potential users of the library and they had a great concern in this study. Also this is the true and fair representation of the population under study.

3.4.2 Librarians

These respondents were involved in the study because they were also potential library users for research, teaching/learning, entertainment/leisure and they played a very big role in the selection of library materials during the acquisition process. According to Floyd and Casey (2004), librarians play influential role in strengthening the delivery of online courses to ensure successful Online Support Services. Therefore effective and successful distance learning depends on effective collaboration of students, librarians and their specific faculties.

3.5 Sampling methods or techniques

Kothari (2004:55-56) defines a sample design as a definite plan for obtaining a sample from a given population. He talks about purposive sampling technique and stratified sampling

technique. Purposive sampling involves the researcher choosing informants who will fulfil her/his purpose. Mugo (2002) defines sampling as act of obtaining individuals who shall serve as respondents of the study under research from a chosen population. Ritchie et al (2003) affirms that sampling is the process of selecting participants and the people or part of the population selected is called sample and the sample size indicates the number of the sample (respondents).

There are two major sampling techniques: Probability and Non Probability sampling.

3.5.1 Non-probability sampling

According to Tansey (2007) and Baker et al (2013:22), in non-probability sampling, the probability of any particular element depends heavily on personal judgment. Some examples of the non-probability sampling include but not limited to purposive and convenience sampling.

3.5.2 Probability sampling

Baker et al (2013:22) point out that in probability sampling every subject has a possibility of participating in a study. In this case individuals from the units of a total research population are selected to contribute to a sample size. An example of probability sampling techniques includes systematic sampling, stratified sampling and simple random sampling.

This study used probability sampling techniques and specifically simple random sampling. Mugo (2002) defines random sampling as a probability sampling in which a

“Sample is obtained by choosing elementary units in such a way that each unit in the population has an equal chance of being selected”.

This sampling technique is advantageous of being free from sampling bias. Therefore under this study, questionnaires were randomly distributed to students in the faculty of education. Librarians who participated in the interview were randomly selected.

3.6 Sample size

Barreiro & Albandos (2001) and Baker et al (2013:28) assert that sample size is the number of units/subject from a broader population to which findings from a study are to be generalized. For the purpose of census population size is the sample size but in research; time and financial limitations compel use of representative samples

Regardless of the specific type of sampling employed in this study, the procedures of obtaining samples includes reconciling target and accessible population, determining the sample size from the target population and selecting the sample. As Kothari (2004) hints on the impossibility of reaching all members of a target population; the determining factor for the accessible population includes time and other resources of the researcher.

According to Springer (2009) sample size can be determined by using a good rule of thumb for setting as suggested by John Curry, Professor of Educational Research, North Texas State University. He provided his research students with the "rule of thumb" on sample size as demonstrated by the table below.

Table1: Showing Dr. John Curry’s rule of thumb on sample size

Size of Population	Sampling Percent
0-100	100%
101-1,000	10%
1,001-5,000	5%
5,001-10,000	3%
10,000+	1%

“Using this rule, an adequate sample of Southern Baptists’ 36,000 pastors would be a random sample of 1%, or 360 pastors. L. R. Gay suggests 10% of large populations and 20% of small populations as minimums” (Springer, 2009).

There are factors to put into consideration while determining a sample size, these include accuracy, cost, homogeneity of the accessible population, types of sampling and kind of the study; all together play a very big role in determining the best sample size for the study.

Therefore being guided by the “rule of thumb” on sample size, this study used a sample of 100 out of 472 students from the faculty of education and 5 librarians out of 15 librarians. This included a total of 105 out of 477. Simple random sampling applied in getting both samples for

students (100 respondents) and Librarians. The study was specifically conducted from the Faculty of Education to represent the entire University. The respondents to be selected included undergraduate and post graduate students.

3.7 Data collection methods

Creswell & Clark (2007), Hox & Boeije (2005) and Harmon & Morgan (2007) discusses on the reliability and validity of data collected for research purposes. They assert that inaccurate data collection may yield false study results. For reliable and valid study results, that answers research questions correctly it is very important to be systematic in data collection.

This study used two types of data Collection methods or instruments namely questionnaires and interviews.

3.7.1 Questionnaires

According to Hox and Boeije (2005), a questionnaire is a list of short and objective questions that aim to collect specific information from a respondent. Questionnaires were used to collect data from the students. This included both closed and open ended questions. 100 questionnaires were distributed to the students from the faculty of education. In this regard, the questionnaire helped and guided the researcher on how to ask the respondents and get the direct answers that could provide the information to enable the accomplishment of the study. (*See Appendix I*)

3.7.1.1 Advantages of Questionnaires

According to Phellas, et al. (2013:11); Lewis, et al. (2007:33); Johnson and Turner, (2003), questionnaires may have the following advantages:

- (i) They provide detailed answers, particularly in open ended questions
- (ii) They are likely to protect respondents' privacy and confidentiality of responses
- (iii) They save time in the sense that the researcher is capable of collecting enough data within a short period of time.
- (iv) They are also likely to be free from researchers' biasness. Unlike interviews where the researcher have an influence on respondents' answers.

3.7.1.2 Disadvantages of Questionnaires

However, there are certain disadvantages of questionnaires as pointed out by Phellas et al. (2013:11); Lewis, et al. (2007:33); Johnson and Turner, (2003). These disadvantages include the following:

- (i) Measuring respondents' faithfulness may be difficult
- (ii) Understanding respondents' thoughts may also be a problem
- (iii) There is a likelihood of respondents not thinking within the full context of the situation
- (iv) The researcher may also impose his/her own assumptions, making it impossible to avoid biasness.

In order to avoid such problems, many strategies were put in place to ensure validity and reliability of the study. The process of coding in the case of open ended questions opens a possibility of subjectivity by the researcher.

3.7.2 Interviews

Interview guide is a set of topic and questions about different activities that the researcher will use as he conducts the interviews. This instrument guides the researcher on what to ask and note what is being responded. Interview needs prompt responses from the respondents. In this study, interviews were conducted with librarians. (*Seen Appendix II*)

3.7.2.1 Advantages of interviews

According to Berg and Lune, (2004), interviews have the following advantages:

- (i) They allow the researcher to clarify questions which may not be clearly understood by the respondents
- (ii) They provide room for dialogue hence high response rate results
- (iii) They usually yield richest data, details, new insights
- (iv) They permit face-to-face contact with respondents
- (v) They provide opportunity to explore topics in depth
- (vi) They make it possible to experience the affective as well as cognitive aspects of responses

- (vii) They allow the interviewer to be flexible in administering interview to particular individuals or circumstance

3.7.2.2 Disadvantages of interview

Although interviews are very advantageous in data collection, they have got some disadvantages as postulated by Msuya and Maro, (2002:23); Berg and Lune, (2004) and Opdenakker, (2006:17) as follows:

- (i) They are expensive and time-consuming
- (ii) They need well-qualified, highly trained interviewers
- (iii) The interviewee may distort information through recall error, selective perceptions, desire to please interviewer
- (iv) The presence of flexibility can result in inconsistencies across interviews
- (v) It may be difficult to transcribe voluminous pieces of information

However, the researcher tried to negate such disadvantages by ensuring that the interview guide has few questions relevant to the study and maintain consistency of the interview throughout. Many other possible measures were put in place to ensure that the study achieved its mission.

3.8 Data quality control

3.8.1 Objectivity to avoid bias

Respondents were selected with random start in order to increase validity and reduce bias. The sampling technique ensured that each respondent had an equal chance of being selected. Research data was selected independently of the personal value of the researcher. The conclusion was drawn from the interpretation of the results of the analysis based on the facts of the findings delivered from the actual data. To adhere to objectivity, the researcher avoided personal and vested interests.

3.8.2 Rigorousness

This involved carefulness, strictness and cross-examination. The data to be collected was accurate and unbiased due to the satisfactory research design planned by the researcher. The data collection and handling were scientifically rigorous and factually grounded.

3.9 Data analysis and representation

According to Dey (2003:83), data analysis means to organize, provide structure and elicit meaning. Analysis of qualitative data is an active and interactive process after the qualitative data was obtained from the study, it was coded and grouped into themes and that related to the objectives of the study, ideas, opinions and recommendation by individuals, were summarized in tabular forms and figures.

Answers from the population were compared and integrated with other scholars' insights that were found in available literatures. The researcher used description as a means of presentations.

3.9.1 Editing

According to Bell, (2009) editing consists of searching for problems just as you would edit a paper or an article. The researcher looked at each completed questionnaire, searching for incomplete questions, answers that were possibly wrong, and answers whose questions were misunderstood. Therefore, the researcher used this sort of editing to analyze data.

3.9.2 Coding

Coding was used to categorize questions into meaningful answers. It involved the contraction of coding frame, which was the full set of categories into which data was classified. The researcher scrutinized the collected data from both the questionnaire and the interview to find out whether all the questions were fully answered or not. This helped to avoid duplication while coding and identifying irrelevant answers. Editing was done to all the questionnaires. Emde (2014) observes that on the case of closed ended questions the researcher translated the responses into numerical codes and then descriptive coding was done. For the open-ended questions, all the similar answers were grouped together to ensure easy analysis and interpretation.

3.9.3 Tabulation

Instead of using the manual tabulation of data, the study used a frequency of distribution of the codes using tallies, calculating the number of tallies and calculating their percentages. Grosf and Sardy (2014) point out that the main objectives of tabulation is to carry out investigation; to do comparison; to locate omissions and errors in the data; to use space economically; to study the

trend; to simplify data and to use it as future reference Tabulation has a disadvantage of time consuming when the data is too large.

3.10 Ethical considerations

Research ethics relates to moral standards that the researcher should consider in all research methods in all stages of the research design. In line with the research ethics, researcher requested for permission to conduct a study in the OUT. Confidentiality of the respondent's data was observed, privacy, acknowledgement to all sources to be used. The findings were fairly used for the purpose of the study only; respect was accorded to respondents, punctuality of the researcher, convenient and brevity.

In short, research ethics under this study were guided by five principles of the Belmont Report, namely beneficence, respect for human dignity, privacy, confidentiality as well as justice as pointed out by Polit et al (2001:75).

3.11 Limitations during data collection

The researcher faced a number of limitations during data collection as presented below:

- (i) Coverage: Only one academic library was be studied or covered.
- (ii) Limited time: The researcher faced a challenge of inadequate time since he was supposed to attend classes, work and at the same time conduct research.
- (iii) Poor cooperation: Some respondents were not very cooperative as they were not willing to disclose information. Overdue answering and returning the questionnaires and some were not returned. Reluctance for some respondents while trying to convince them to answer the questionnaires.

However strategies were adopted to overcome the limitations in order to get rid of negative impacts in the study.

3.12 Conclusion

This chapter presented the research methodology including research design which has a purpose of maximizing valid answers to a research question. This was achieved by using a non experimental, qualitative, exploratory-descriptive approach that was contextual. The chapter

described three instruments to be used in data collection including questionnaire and interview guide. Observing the principles of beneficence, human dignity as well as justice, the researcher ensured that the participants were morally and ethically protected. Chapter 4 will focus on data presentation, analysis and discussion of findings.

CHAPTER FOUR: ANALYSIS, PRESENTATION AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter entails the findings of the study on the role of academic library in supporting distance education through the use of information and communication technologies in The Open University of Tanzania. The study set out to answer five sub-questions namely:

- What is the information and computer mediated library services needed by the distant learners?
- What is the perceived quality of services offered by the University to support distance education?
- How does the academic library embrace/apply ICT to offer library services?
- What are the challenges encountered by the University Library to support distance education and finally?
- What strategies should be adopted to overcome such challenges?

This chapter deals with the analysis of the data gathered from the field through the use of Questionnaires and Interviews. The presentation of the findings will be guided by the research sub-questions and major themes generated from the questionnaires and interview.

4.2 Description of the respondents

Two methods were employed in data collection for the study namely an interview and a questionnaire. The questionnaire was administered to students from the Faculty of Education and interview was administered to librarians of The Open University of Tanzania. The study involved a total of one hundred and five (105) respondents including one hundred (100) students and five librarians. Out of the one hundred questionnaires distributed to students, only eighty two (82) which represents 82% were returned and eighteen (18) representing 18% were not returned. In this case the analysis is based on the eighty two returned questionnaire. On the side of the interview, all the five respondents/Librarians sampled were interviewed.

The data collected were fed into appropriate computer worksheets using the Microsoft Excel. The data were then analyzed based on research sub-questions listed in Chapter one. The analysis,

presentation and discussion of the findings started with the questionnaire and there after interview only.

4.3 Analyzed themes

The analysis of the data collected from the field was according to the themes generated from the questionnaire distributed to the respondents (students). Therefore presentation of the findings guided by themes such as usability of the OUTL by students, library resources to support distance learning, methods of instruction used to support distance learning, time of interaction between instructor and students, library services provided to support distance learning, satisfaction with the library services, and many others. All the themes are focused to answer the main and sub-questions of this study as presented in chapter one. Now the presentation of the findings is as follows:

4.3.1 Usability of the OUTL by students

In this study 73 students which is 89% of the total sample of respondents (students) from The Open University of Tanzania proved that they were using the library to support their learning while 9 respondents (11%) indicated that they were not using the library and they gave no reasons as to why they were not using the library despite the fact that, library is an integral part of the university infrastructure which is very important in supporting learning, research and students academic performance. The literature review (Chapter 2, section 2.2.3) also proved that library is the heart of the academic institution and the entire learning community since provides a good forum for students and faculty members or staff to do their research and advance their knowledge.

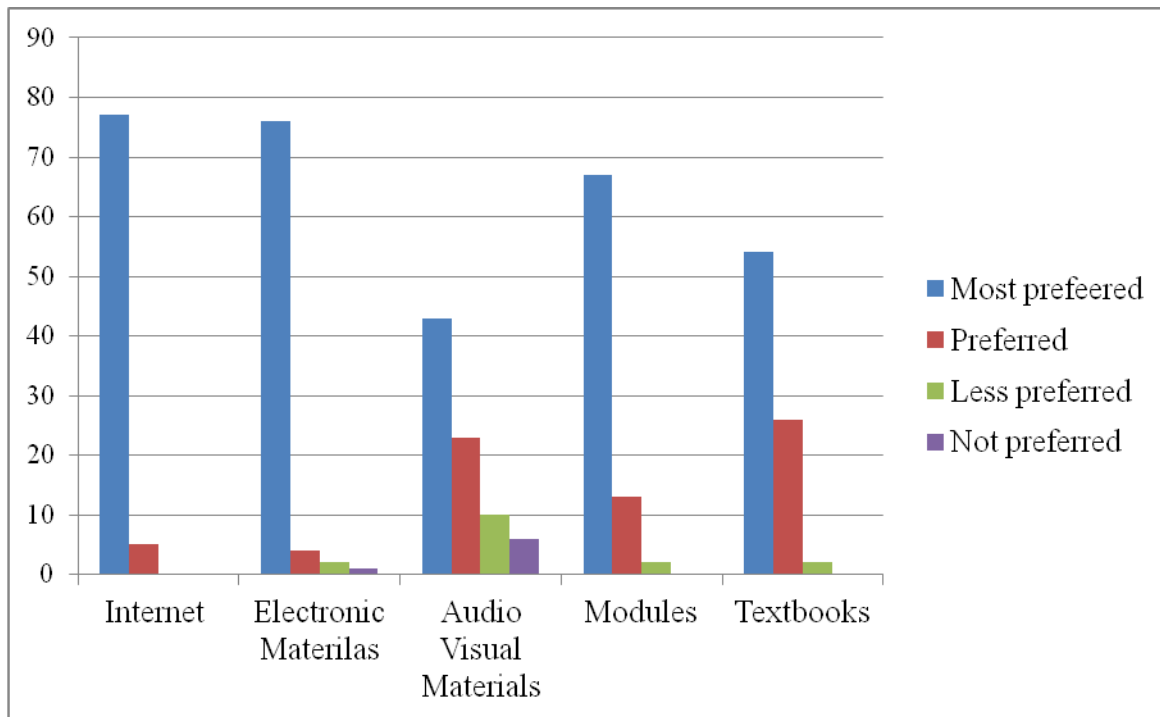
4.3.2 Library resources to support distance learning

In this study respondents (students) were asked to indicate the preferred library resources available in OUTL for support distance learning. Before reporting the findings, Altbach (2009:123) contends that information and Communication Technologies (ICTs), which have long been used in distance education, are increasingly being used by higher education institutions worldwide. This demonstrated in this study where internet and electronic materials such as e-books and journals were seen to be highly preferred by the library users (Students) to support their learning and research. Studies by Gallagher (2001); Anderson and Simpson (2012); as

presented in chapter two confirmed this by showing the transformation of distance learning from the first generation of using printed based technology and media up to the emergence of computer mediated technologies to support distance learning.

As it will be recalled, before the advent of the Internet, open and distance universities were strong advocates for the use of radio and then television for learning. However data gathered from the respondents showed that more sophisticated ICTs are emerging as a part of on campus delivery and as modalities of open and distance higher education delivery as presented in figure 4.1 below.

Figure 4.1: Library resources for distance learning



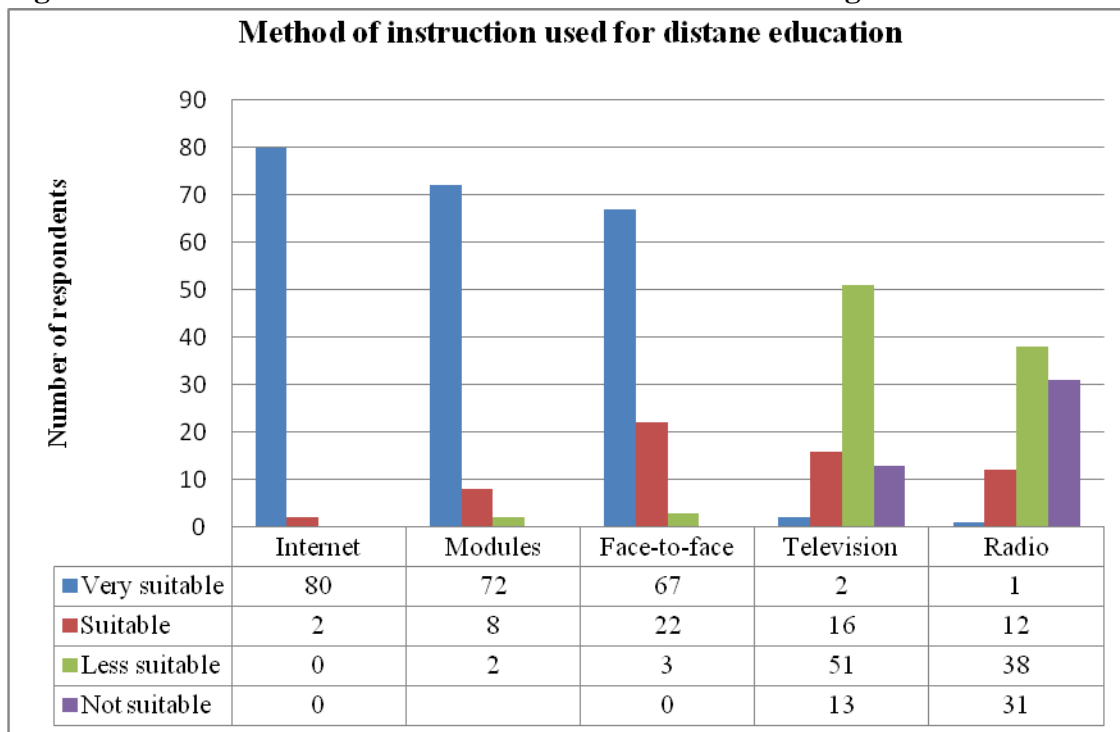
As presented in the findings above, many respondents indicated that the library uses various information resources to support distance learning; such resources include textbooks, electronic materials like electronic journals and electronic books, internet, modules and audio visual materials. High rate of respondents 77 (94%) and 76 (93%) consecutively indicated that the internet and electronic materials are the most preferred library resources to support their learning

(distance learning). Additionally more other library resources which are of preference to distance learners include Modules, Textbooks and to some extent Audio visual materials.

4.3.3 Methods of instruction used to support distance learning

The researcher was also interested to find out which method of instruction is more suitable for distance education. By tracing the background of distance learning which was based on some generations up to the age of telecommunication where ICTs becomes a major means to support this kind of education. In this case, respondents indicated a variation of suitability of the methods used for instruction; such methods include internet, modules, face to face, television and radio. The findings demonstrate that, internet is the most suitable means where 80 (98%) respondents indicated that it is the most suitable method in distance learning. This followed by the use of modules and face-to-face interaction. The findings are well demonstrated in the figure below.

Figure 4.2: Methods of Instruction Used for Distance Learning



The findings above clearly demonstrate that internet service covers 80 respondents of the students' sample and it is the most suitable method of instruction preferred by students at the OUT followed by the use of modules which covers 72 respondents and periodic interaction

between lectures and students also (face-to-face) takes 67. The remaining two methods, Television and Radio were discouraged by the respondents that they either less or not suitable at all as indicated in the figure above. These findings are in line with what was found in a study carried out by Anderson and Simpson (2012). In this study, they indicated that the transformation of distance learning from the first generation up to this age of telecommunication where ICT applications such as internet services facilitated learning for those students who were physically distant from their teachers or the University.

4.3.4 Time of interaction between instructors and students

Periodic interaction between students and instructors in distance learning tends to be very important to ensure efficiency and effectiveness in a learning process. In this study, the researcher was interested to know if time for interaction between students and their instructors is enough. Many students indicated that time for interaction is not enough because they rarely meet lecturers. The interaction is organized periodically when the instructor needs to assess the students' portfolio. Consequently, due to time limit, students are not getting enough assistance from the instructors.

The findings indicated that very few students i.e. 19 students which is 23% of the entire student sample were satisfied with the time allocated for interaction with their instructors. However, many respondents (63 Students) which are 77% of the student sample confirmed that the time allocated for interaction with their instructors was not enough at all since it compromised efficiency in the learning process. Some suggestions were given out by the respondents to ensure effective interaction in this kind of learning. The suggestions include the following:

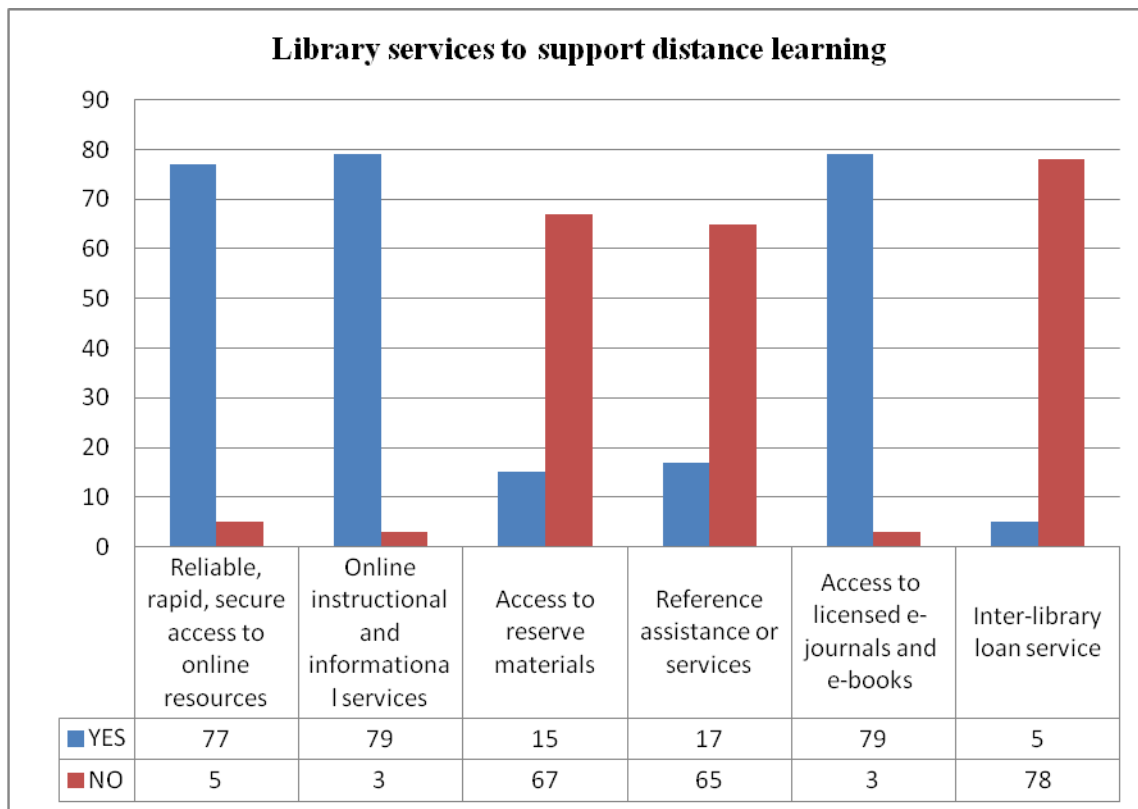
- More time of portfolio assessment should be added to ensure effectiveness and interactivity in a learning process between the students and the instructor
- There should be more use of ICT facilities and services to increase interactivity in a learning process
- Advanced mode of interaction should be designed or purchased to support more interactivity in a learning process.

4.3.5 Library services provided to support distance learning

In this study, respondents were asked to indicate a number of services that were being provided by the library to support distance learners. The findings indicate that there were limited services extended to distance learners, thus contributing to the inefficiency of the program. As indicated in figure 3 below, a number of respondents indicate that, the library was provides the following services:

- Reliable, rapid, secure access to online resources
- Online instructional and informational services
- Access to licensed e-journal and e-books.

Figure 4.3: Library services to support distance learning



On the other hand, there were some student respondents who reported that there were many other library services which were not being provided to distance learners. Such services include inter-library loan services, reference assistance or services and access to reserve materials. In this regard, the library would be said to have been providing very limited services to distance learners

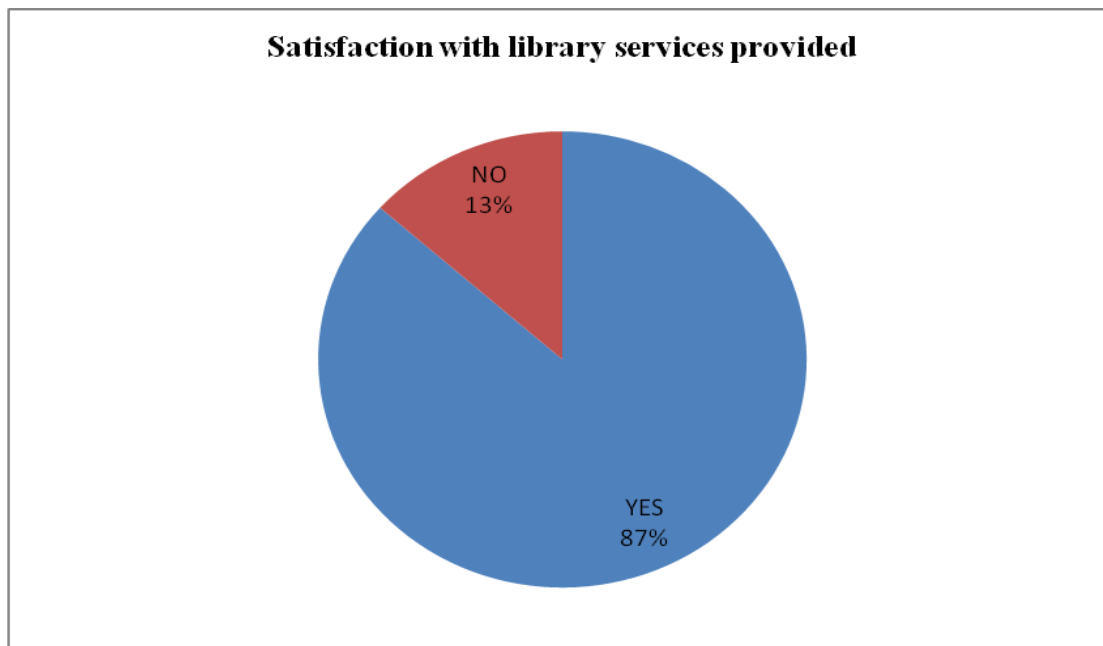
and this in turn affects their learning process. This is in line with what was pointed out by Watson (2010). He argues that the provision of quality library services to those who learn at a distance is undoubtedly one of the most exciting and challenging developments that have occurred in contemporary librarianship. Thus distance education has impacted not only on the discipline of education, but it has also fundamentally affected services and professions that support distance learning and distance education.

4.3.6 Satisfaction with the library services

Abiding by customer satisfaction is part of the comprehensive library evaluation. In order to obtain an overall assessment of a library, both the quantitative value and the qualitative evaluation of the services to offer must be taken into account. These measures make it possible to determine subjective customer satisfaction and thus affecting the quality of library services.

In this study, the researcher wanted to know if library users (students) were satisfied with the services being provided to them. The findings indicated that 87% of the total population under study was satisfied with the library services as indicated below.

Figure 4.4: Respondents' satisfaction with the library services



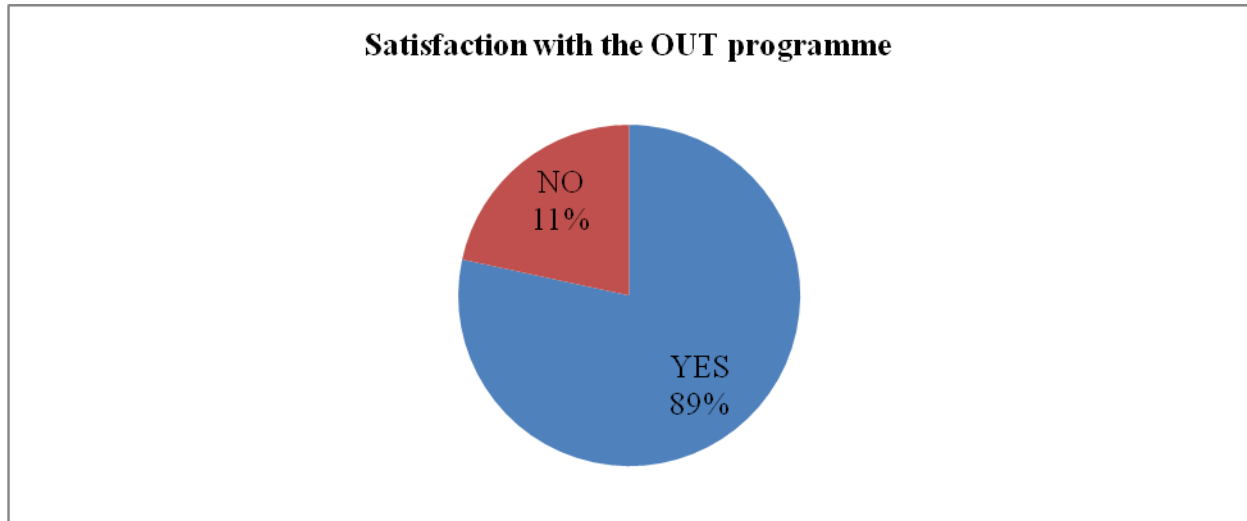
There were many reasons pointed out by the respondents to justify their satisfaction with the library services. These reasons include the reliability and quality of library services to the clients, availability of plenty and relevant materials from various information sources such as internet, textbooks and audio visual materials and the general accessibility of the library for both online and physical means, a remarkable contribution to students' academic performance and learning process at large.

On the other hand, 11 (13%) of the total student sample under study indicated that library services extended to them were not satisfactory due to number of reasons which included the limited interactivity with library service providers, network problems caused by poor ICT infrastructures which affected internet accessibility and hence leading to inaccessibility of library electronic resources which is very important for distance learners. Another reason cited was the unreliable library services to the distance learners such as access to materials placed on reserve by lecturers for specific courses, notification for new acquisition of library materials and limited information literacy education/training to create awareness to the library users on library usability.

4.3.7 Satisfaction with the OUT program of distance learning

Respondents (students) were asked if they were really satisfied with the OUT program of providing distance learning. In responding to that question, 73 students representing 89% of the sample under study indicated that they were satisfied with the program. Some reasons were provided for their satisfaction; were that in distance learning was worthy enough due to time limit for full time programs; it allowed more creativity and self learning among students, effective knowledge acquisition gave an opportunity to deal with other issues apart from academics or studies. Also this programme gave them plenty of learning resources on and off campus. The figure below displays the rate of satisfaction and dissatisfaction by the OUT program among students.

Figure 4.5: Satisfaction and dissatisfaction of students with the OUT programme



The findings above imply that trends such as tele-computing and the changing profile of traditional college students are fueling the demand for distance education. These findings are in line with what was stated by Gandhi and Smiti, (2003:6). They contend that distance education gives more and more opportunities for adults who are working full time, making them balance family responsibilities and studies. Distance education is also an attractive alternative for working mothers, low-income persons, and individuals with disabilities, military personnel, and rural residents.

On the other hand, 8 respondents representing 11% indicated their dissatisfaction with the OUT programme of distance learning with a number of reasons. Respondents reported that they were not satisfied with the programme due to the inaccessibility they were having to the special reserve materials, unreliable and inadequate access to information resources due to poor ICT infrastructures and networks and also the programme did not give them enough interaction with the instructors and other students which is very important in a learning process. However some respondents did not provide any reasons; they left the space blank without filling anything. Therefore this was one of the challenges the researcher faced in the study as respondents left blank many open ended questions in the questionnaire.

4.3.8 The influence of the academic library on academic performance

The importance of library and its impact on students' learning is visible and illustrated in many studies including the study from OUT where respondents confirmed that the University library was playing a significant role on their academic performance and in conducting research. 68 respondents which is 83% of the sampled population proves that library is a reliable source of information for study and academic performance, the library increases learning ability, reasoning and searching of materials to support learning and research. It gives a student a chance to revise and get more materials recommended in the course outline; it also supports students in accomplishing assignments and finally, it helps them in acquiring more knowledge and skills on the course before going for the examination through the provision of more reference materials.

However 6 respondents which is 7% of the sampled respondents despite their admitting that the library had a very big contribution on their academic performance, they suggested that more initiatives should be made to improve the service. They also cited the need to add relevant and quality materials to the collection to satisfy user needs. Again 3 respondents which are 4% of the respondents indicated that the library has no contribution on students' performance due to the poor network which made it difficult for them to access the library resources and services, therefore making it hard for them and then to concentrate on reading their own notes ready for attending the examinations. On the other hand, 3 respondents representing 4% of the respondents left this section blank without any contribution and 2 (2%) gave irrelevant responses in this section.

These findings are supported by Basheer et al (2012:15) who said that the major purpose of the university is not profit, except in the ultimate sense of society profit. Therefore libraries also operate to support motives of universities and colleges which include learning, research and consultancy. In this context therefore, university libraries should give proper learning opportunities and information to ensure the satisfaction of the end users and make a significant contribution to the career development of the clientele.

4.3.9 How can provision of library services be improved to support distance learning

Wells (2011:57) argues that the effectiveness of libraries on supporting distance learning has often been measured by the volume of library materials available to clients, the amount of use of services and resources and the apparent or quantified satisfaction of clients. However the actual value of library services to the university students may be both intangible and tangible. The intangible value may be the contribution to development of intellect or the inspiration to pursue topics further and this is difficult to measure. The tangible value relates to whether the information enables the student to attempt an assignment or to sit for an examination or to attain a higher mark that would have been the case otherwise.

By recognizing the significance of any academic library in supporting distance learning and general students' academic performance, respondents put their contribution on what should be done to improve library services towards the effective support of the distance learning. The suggestions provided include the following:

- The effective deployment of ICTs in the provision of library services,
- Current and relevant library materials should be added in the collection
- Imparting ICT related skills to the library users
- Keeping abreast with the new incoming technologies in the field of librarianship
- There should be effective online access to the library resources and services and finally
- The increase of electronic collection such as licensed e-journals, e-books.

Other suggestions given include:

- The library should be opened throughout the week including weekend days
- Development of infrastructures and services for people with special needs
- Increase of physical space for the library building in relation to the users
- There should be collaboration with other big libraries
- There should be alternative source of power to ensure reliable services to the clients
- Increase of more computers to the library in relation to the number of library users
- There should be effective information literacy education or training to the library users (students).

Other respondents suggested that digitization and automation of library resources and services should be put in place.

4.3.10 The challenges encountered by the university library to support distance education

Gandhi (2003:5) asserts that the phenomenal growth of distance-learning programmes at colleges and universities like OUT has tremendous implications for providing library services to distance students. In realization of this, academic libraries are trying to meet the accreditation requirements by providing equivalent library resources and services to on-campus students and distance learners.

The rapid proliferation of distance-learning programmes at universities has tremendous implications for providing library services to distance students. According to Faulhaber (2010), “distance education without a digital library is not possible”; and Dority (2011) emphasizes that “we need to support distance learners with effective library services”. This view is endorsed by the findings from this study in which respondents stipulated a number of challenges encountered by The Open University of Tanzania Library in supporting distance education. The challenges pointed OUT include the following:

- Poor communication networks
- High cost of maintaining ICT infrastructures
- Limited access to ICT hardware and software

Shortage of funding to provide ICT infrastructures and computer/information illiteracy among the library users were reported as major challenges. Other challenges pointed out are technological obsolescence, neglect of ICT resources, digital and information divide and finally poor institutional policy guidelines.

4.3.11 The Strategies to be adopted to overcome such challenges

Following university libraries responses to the challenges of distance education, the roles and responsibilities of academic librarians are shifting. Academic libraries are adopting a two-pronged strategy in responding to this challenge. In this study, The OUT respondents came up with some recommendations in order to improve library delivery services for effective support to distance learning. Such suggestions include digitization of library materials, marketing and showing publicity efforts, provision of effective orientation to the students on library use and finally proactive promotion of services being provided by the library to distance learners. Also the respondents reported that the University should come up with effective strategies and policies

to encourage the use of Information and Communication Technologies in a learning process and provision of library services. The ICT use strategy should be accompanied with the improvement of ICT infrastructures for effective networks.

On the other hand, Gandhi, (2003:7- 8) stipulates that many academic libraries are creating Web-accessible virtual or electronic libraries and most such libraries have online public access catalogs (OPACs) to make students aware of their journal and book collections; remote access to electronic databases with citations, abstracts, or full-texts of journal articles, books, encyclopedias, and reference works; inter-library loan and document delivery services; remote reference assistance via chat, email, or telephone; and Web tutorials for library instruction. This can also apply as a strategy to be adopted for the improvement of library services towards the effective support to distance learners. Therefore academic libraries should also increasingly create positions for distance-education librarians to cater for the specific needs of distance learners.

4.4 Findings from the interview

Interview was another method employed in data collection. This instrument was used to gather data from the librarians. The interview included a sample of five (5) librarians drawn from the population of 15 librarians involved in this study. All the five librarians' representing 100% participated in the interview effectively. The presentation and discussion of findings is done according to the themes of the interview questions which are largely guided by the main research question and sub-questions stipulated in Chapter one.

4.4.1 Duration of services for librarians

Respondents were asked to share for how long they had been working with The OUT library. The findings indicated that many of them had worked in this library for enough time ranging from two (2) years to eighty (8) years. It was learnt that two respondents had worked for 5 years, 3 respondents had worked for two (2) years; 4 other respondents had worked for four (4) years and 2 respondents have got more experience in this library because they had been working with the library for 8 years. It can be argued in this context of this study that having experienced staff is of great value to give a clear transformation of this Library and the entire university in supporting distance learning. The tracing from the traditional to modern distance learning based

on the use of ICTs in the learning process is very important and can only be justified by the experienced staff.

4.4.2 The current state of library facilities

For the academic library to meet its core functions which are to support teaching, learning, research, consultancy and community services, it should keep abreast with new trends of technological change. In this study, respondents indicated that the current state of the library facilities at the time was satisfactory to meet user needs and accomplish the main mission of the university. However, they suggested that more improvement was needed to ensure effective support to distance learners. Two (2) out of the 5 respondents said that the state of library facilities then was completely satisfactory while the other three respondents said that the state of the library facilities is satisfactory to some extent. The response of one these respondents' res, was quoted here below:

“The current state of library facilities is somehow satisfactory but more efforts should be made to keep abreast with the trend of technological change” (Respondent 4).

4.4.3 Availability of computers in the library and its usage

Akande (2011) points out that the provision of electronic resources in university libraries, cybercafés, homes and technology centres on the universities is becoming crucial especially to distance learners in that it provides access to vast amount of information which students need to achieve their academic goals. In this case, computers are now becoming common tools in most university libraries and are increasingly found in all subject areas. The majority of interviewees (4 respondents out of 5) indicated that computers were not enough while one (1) respondent indicated that computers were enough but were allocated in different blocks. This is evidenced by the direct responses from the respondents here below:

“Computers are not enough compared with the number of library users. This is also caused by the small space in the library where very few computers can be accommodated” (Respondent 3).

And

“Computers are not enough compared with the number of library users. However they are situated in different location, some in the library and others in computer lab in block B. The library space should be increased to have all the related services in one place” (Respondent 4).

The above responses sharply contrast with what was said by another respondent, however to some extent, this shows that library space has brought some issues on the shortage of computers in this university library. A response from another respondent given here below:

“Computers are enough although they are allocated in different Blocks due to the shortage of space in the library. There are two computer labs; one situated in the library and another one in block B which is administrative block. However there is a university policy encouraging each and every student to have personal computer (Laptop or tablet)” (Respondent 2).

Also the findings showed that computers in the library are very useful to ensure effectiveness of distance learning. All the five respondents representing 100% of the sample reported that computers were being used for accessing electronic library materials like e-journals and e-books; searching bibliographic data through OPAC to access physical materials; enhancing communication through email services and accessing open courseware. This was evidenced by respondents who reported that:

“Generally computer in the library are used for accessing e-resources such as electronic journals, electronic books, open courseware, electronic thesis/dissertation, bibliographic information of the physical collection and accessing results of annual exams or tests” (Respondent 1).

And

“Computer in the library are used to facilitate the access and provision of library services such as accessing e-resources, open courseware, searching for bibliographic information for physical collection and enhancing communication through email services” (Respondent 2).

4.4.4 ICT facilities used to facilitate communication

The need to understand potential effects of ICT on distance learning is essential for all those involved in the development and delivery of distance education. In a library setting, deployment of ICT to facilitate communication plays a significant role. In this study, findings indicated that effectiveness of communication between librarians and students depended on ICT facilities and services. All the five (5) respondents representing 100% said that email services and their applications including the use of social media were highly deployed to facilitate communication. However, two respondents mentioned more other facilities including telephone and file tracking system.

4.4.5 Library services provided to support distance learning

The provision of quality library services to support the core function of the university which include teaching, learning and research is a vital business of any academic library. Findings in this study indicated that there were many library services being provided to distance learners and on campus students. Four (4) out of five (5) respondents pointed out almost the same services. These services include access to electronic resources like e-journals, e-books, courseware and access to the institutional repositories. The library provides internet services to the users, search of bibliographic data for the physical materials through OPAC and access to the physical materials. In general, these findings concur with what was obtained from the questionnaires.

However one (1) respondent indicated that the library was providing all the significant library services needed by both on campus and distant learners with a major focus on meeting the main mission of the university. This was evidenced here below:

“The university library services focus on the core mission of the entire university; thus its services are based on the core functions of the university which are teaching, learning, research and community services” (Respondent 2).

4.4.6 The quality of library services and its role in supporting distance learning

Watson (2004:4) notes that the delivery of library and information services to those who learn at a distance is undisputedly the most pressing challenge that distance librarians encounter. According to Watson (2000:4) and Gopkumar and Baradol (2009), distance librarianship

demands that libraries and librarians recognize that their role has been transformed from being custodial in orientation to become cutting edge in nature particularly with respect to the delivery of information services. This is supported by the findings in this study whereby all the five (5) respondents (Librarians) representing 100% reported that there was the provision of quality library services to the distance learners to support the core functions of the university and ensure user satisfaction. The findings indicated that library services offered were of high quality based on the effective use of computer applications and all other related technologies (ICTs). The direct response here below proves this finding:

“The library services provided are of high quality to support distance learners and all the core functions of the university (Teaching, learning, research and community services) are well supported by the library” (Respondent 5).

And

“The library services are satisfactory and of quality to meet the main mission of the university which focuses on supporting teaching, learning and research” (Respondent 4).

However the findings from two out of five respondents indicated that, apart from the struggle being taken by librarians and the entire university to ensure the provision of quality library services and eventually effective distance learning; there were some challenges jeopardizing the quality. Indeed it was revealed that the university was working hard to address such challenges. These challenges are discussed in the next section.

4.4.7 The challenges encountered by the University library to support distance education

On the other hand, in the interview, Librarians pointed almost the same challenges which had already mentioned by the students in the questionnaires although few were added. All the five interviewees agreed that there are many challenges affecting the library in meeting its goals and mission in supporting distance learning. More challenges pointed out were the following:

- Low bandwidth
- Power fluctuation
- Poor maintenance and sustainability of ICT facilities like computers and other infrastructures

- Shortage of enough library space compared to the numbers of users and services being provided.

In addition, two (2) interviewee pointed more other challenges. These included the reluctance of students to attend information literacy education or training, poor cooperation among the academic Librarians on resource sharing and lack of aggressiveness for the new incoming technologies. This is in line with what was found in the literature review as reported by Gandhi (2003) and Anyona (2009:39-41). In their studies that focused on the challenges facing distance learning among the African institutions. Like what these studies found out, this study also found out, other challenges that included the lack of trained cadre of professionals to support the implementation of distance education, technological constraints that hinder distance education, financial matters and access to connectivity.

4.4.8 Policies to address the challenges Encountered by the University library to support distance education

The researcher was interested to know if the institution was taking any initiatives to address the challenges pointed above. It was revealed that policies were used as guides in addressing challenges and hence improving the organizational operation. On this matter all the five (5) respondents reported the availability of some policies in place to guide them in addressing the challenges. Some of the policies in place include ICT Policy and Library Policy which were being supported by many other university policies and the Corporate Strategic Plan.

4.4.9 Recommendation on the improvement of library services in supporting distance learning

In the interview, respondents came up with some recommendations on what should be done to improve library services in supporting distance learning. To a large extent all the five (5) respondents came up with common responses including the following:

- Increase of bandwidth for effective internet access
- Improvement of ICT related infrastructures
- More space should be added for the library
- Effective implementation of the policies in place to address the challenging issues

- Sensitization on the information and computer literacy education among the students (distance learners)
- Inter-library loan among the academic libraries should be more encouraged
- Digitization of library materials
- Government subsidies for internet subscription and increase of more fund/budget for improving library services

4.4.10 Strategies put in place by the OUT to address the challenge of technological change in distance learning

In order to address the challenges facing OUT library and the entire university in its struggle to support distance learning; there should be some strategies put in place. In this study, respondents pointed out a number of strategies taken by the institution to address the challenges. Three respondents (R5, R4 & R3) reported that the university was guided by the available policies to cope with the changing technologies in distance learning; while R1 said that the university responded to the challenge by connecting the institution to the national optic fiber cable to improve bandwidth. R2 reported that initiatives were being made by improving ICT related infrastructures. Although responses from all the five respondents seem to be controversial to some extent, effective policy implementation and keeping in track with new incoming technologies is very important in addressing the changing technology in distance learning.

4.5 Conclusion

This chapter has presented the findings collected by the use of two instruments: questionnaire for students and interview for librarians. The data collected were meant to address the major research question on “The role of academic library on supporting distance learning through the use of Information and Communication Technology”. The analysis provided the platform for the actual picture on the current state of OUT library in supporting distance learning. Also the study has provided a forum for addressing the challenges encountered by the University Library in support distance education through the use of new ICT blended technologies. The presentation of the findings was based on the researcher’s interpretation of the research findings collected from the field and the findings from the literature review presented in Chapter two. Chapter five summarizes the research findings; provide recommendations and conclusion regarding the role of academic library in supporting distance learning through the use of ICTs.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary of findings, recommendations and conclusion. It begins with the summary of findings. The summary for the major findings is in line with the research sub-questions which focused on finding out the role of academic libraries on supporting distance learning through the use of ICT as outlined in Chapter one. Also the chapter presents conclusion and recommendations for further study. In this regard, the major purpose of this chapter is to give conclusions and recommendations based on the findings from the study conducted in the Open University of Tanzania (OUT). The presentation is as follows:

5.2 Summary of the major findings

The main objective or central research question under this study was to examine the role of the OUT library in supporting distance education through the use of ICT. Basing on the central research question, the study intended to determine to answer five sub-questions namely:

- a) To examine the information and computer mediated library services needed by the distant learners at the OUTL
- b) To find out the perceived quality of services offered by the OUTL to support distance education through the use of ICT
- c) To find out the extent to which the academic libraries embrace/apply ICT to offer library services
- d) To examine the challenges encountered by the OUTL to support distance education through the use of ICT
- e) To suggest strategies that should be adopted to overcome the challenges at the OUTL to support distance education through the use of ICT

With reference to the findings presented in chapter four and its conjunction with the literatures reviewed, presentation guided by these sub-questions as follows:

5.2.1 Information and computer mediated library services needed by the distant learners at the OUTL

In this aspect, both categories of respondents that are, students and library staff showed the existence of computers in the library as tools to support the provision of library services to distant learners. However, the availability of these computers seemed to be limited compared to the number of users. As it was learnt, a big number of the respondents disclosed that library resources were being fully utilized though some challenges were affecting its utility. There was the existence of some information and computer mediated library services needed by the distance learners as pointed out by students, including the following:

- a) Reliable, rapid, secure access to online resources
- b) Online instructional and informational services
- c) E-reference assistance or services
- d) Access to licensed e-journals and e-books
- e) Inter-library loan services

On the other hand, library staff in the interview conducted added that more other services provided to distance learners included access to printed materials, access to open courseware, online bibliographic search for the library collection through the use of OPAC and access to internet services. These Librarians reported that effective communication with library users is very possible through the use of some ICT facilities and services such as email services and other related applications such as social media which are highly applicable. Mailing list, website, Google groups and many others were used for distance learners and sometimes the notice board for on campus students. File tracking system was another means of communication reported by librarians as a tool to enhance library services.

5.2.2 The perceived quality of services offered by the OUTL to support distance education through the use of ICT

During the interview, librarians indicated that the library services being extended to users were of high quality to some extent though there were some challenges affecting their efficiency in accomplishing the core function of the library and function of the entire university which is to support teaching, learning, research and community services. The challenges affecting the

quality of library services are a result of the ever changing technologies (new ICT incoming technologies).

A big number of students from the Faculty of Education reported that library services were not of high quality due to some challenges which were affecting their efficiency in meeting user needs. Some of the challenges pointed out included: poor ICT infrastructures which were leading to unreliable internet access thus, making it difficult to have access to some library services and resources and finally, respondents reported that there was a limited interactivity with service providers

5.2.3 The extent to which the academic libraries embrace/apply ICT to offer library services

ICT and all other computer related technologies tend to be the integral part in ensuring effective provision of quality library services to distance learners. Respondents from the two instruments employed in data collection reported that ICT is the most effective and applicable method used in the provision of library services. ICT facilities are employed in facilitating communication between librarians and library users through the use of email services and file tracking system; provides access to electronic resources such as e-books, e-journals, open courseware and institutional repository, bibliographic search for the physical library materials through the use of OPAC and access to internet services. Supporting security to the library holding is another issue that was reported by librarians during the interview. However the respondents indicated that there were some challenges which were hindering the effective application of ICT in the provision of library services in most academic libraries including OUT, These are discussed in the next section.

5.2.4 The challenges encountered by the OUTL to support distance education through the use of ICT

From the two instruments used in this study as presented in Chapter three; both students and librarians as respondents reported a number of challenges which were being encountered by The OUT in its endeavor to support distance education through the effective use of ICT. Such challenges include the followings:

- Poor communication networks
- Poor sustainability and maintenance of ICT infrastructures due to shortage of fund
- Limited access to ICT hardware and software
- Lack of funding to provide ICT infrastructures
- Computer/information literature among the library users
- Technological obsolescence
- Digital and information divide
- Poor institutional policy guidelines
- Low or limited bandwidth
- Power cut
- Lack of aggressiveness for the new incoming technologies

5.2.5 The strategies to be adopted to overcome the challenges at the OUTL to support distance education through the use of ICT

Responding to this sub-question, librarians reported that OUT had developed some policies to address the challenges mentioned above. Such policies included the University ICT Policy, the Library policy all being supported by the university strategic plan and other policies.

On the other hand, respondents suggested some strategies to be adopted; these include the following:

- Digitization of library materials
- Enhancing marketing and publicity aspects
- Provision of effective orientation to the students on library use
- Proactive promotion of services being provided to distance learners.

5.3 Recommendations

There are many ICT related facilities and technologies which play a great role in the provision of library services and supporting distance learning. Therefore there should be an effective investment in ICT infrastructures to ensure efficiency and applicability in the provision of library services and in supporting distance learning. Many challenges were encountered in the OUT

library in its bid to support distance learning. In this regard, the study recommends the followings:

Academic institutions that provide distance education should make sure that the distance learning community has access to library materials equivalent to those provided in traditional settings. In this regard, they should provide or secure convenient, direct access to library materials in appropriate formats that are of sufficient quality, depth, number, scope, and currency to:

- Meet all students' needs in fulfilling course assignments;
- Enrich the academic programmes
- Meet teaching and research needs
- Support curricular needs
- Accommodate students with varying levels of technological access (i.e. low bandwidth)
- Accommodate other informational needs of the distance learning community as appropriate.

Additionally the study recommends that:

- There should be further effective deployment of ICTs in the provision of library services
- ICT related skills should be imparted to the library users (Distance learners)
- All library stakeholders including members of staff and students should keep abreast with the new incoming technologies in the field of librarianship
- There should be effective online access to the library resources and services and finally the increase of electronic collection such as licensed e-journals, e-books.
- Collaboration with other big libraries should be put in place
- There should be alternative source of power to ensure reliable services to the clients
- There should be effective information literacy education or training to the library users (students).
- The University should come up with effective strategies and policies to encourage the use of Information and Communication Technologies in a learning process and provision of library services.

5.4 Suggestion for Further Research

The study's findings have indicated several issues which should be addressed in the use of ICTs in academic libraries, with reference to the Open University of Tanzania. This study is likely to shed light on further studies pertaining to this subject matter. The study solely centered on the use of ICTs in the provision of library services. Future researches may go beyond the use of ICTs and examine other related issues as regards access and retrieval of information. For instance, future studies may find out why some academic libraries are reluctant to use modern information technologies to their users. In this regard, findings of this study may pave the way for other studies on ICTs with other research objectives.

5.5 Conclusion

This study focused on examining the role of academic libraries (OUTL) in supporting distance education. Basing on the finding obtained from the Librarians and students using the two data collection instruments (Interview and questionnaire), the results is that, academic library play a great role to ensure the efficiency and effectiveness of distance learning. Distance learners of the OUT are being provided with a number of computer mediated library services such as reliable, rapid, secure access to online resources, online instructional and information services, access to licensed e-journals and e-books. However there some services which are not extended to distance learners, these include inter-library loan services, reference assistance and access to reserve materials. The study concludes that there were limited skills among the library staff to support distance learning, computer illiteracy among the library users (distance learners) and lack of awareness on the existence of some library services being extended to them as well as poor ICT infrastructures which led to unreliable and ineffective support to distance learners.

Challenges are part and parcel of any human struggle. This study concluded that the provision of library services to support distance learning has encountered a number of challenges which have been affecting such provision thus leading to inefficiency in supporting learning, teaching and research to the distance learners. These challenges can be categorized into three levels: government level, individual and university levels. Some major challenges as hinted above include poor communication networks, limited access to hardware and software, low or limited bandwidth, computer/information illiteracy among the library users and finally technological obsolescence.

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APPENDICES

Appendix I: Questionnaire for Students

Instructions: I am a student of the University of Pretoria pursuing a Master in Information Technology (MIT). I am currently undertaking an academic study on “*The role of Academic Library in Supporting Distance Learning through the use of Information and Communication Technology: The Open University of Tanzania*” This questionnaire is for collecting data on the topic named above. Please read the questionnaire carefully, answer the questions to the best you can. All the information provided will be treated with confidentiality and for academic purposes only.

Tick the letter that represents your response for each statement any fill in the blanks where necessary.

1. Level of study

a) Undergraduate

b) Post graduate

2. Do you use the University Library?

a) = Yes

b) = No

If no, please specify why not?

.....

3. Indicate by ticking the library resources of your preference in the range provided in supporting distance learning

Resources	Most preferred	Preferred	Less preferred	Not preferred
Textbooks				

Modules				
Audio Visual materials				
Internet				
Electronic materials				

4. (a) Are you satisfied with programme delivered by the the OUT?

= Yes

= No

(b) Please provide reasons for your answer...

.....

.....

.....

5. Did you get any orientation /training on library use?

a) = Yes

b) = No

c) = I do not know

6. What are the library services being provided to you to support distance learning?

Library Services	YES	NO
Reliable, rapid, secure access to online resources		
Online instructional and informational services		
Access to reserve materials		
Reference Assistance or services		
Access to licensed e-journals and e-books		
Inter-library loan service		

If there any other, please specify:

.....

.....

7. Are you satisfied with the above library services?

a) = Yes

b) = No

Please provide reasons for your response in question 9 above.

.....

8. What is your general view on the influence of the academic library on your academic performance?

9. In your opinion how can the provision of library services in academic libraries be improved to support distance learning?

10. What is the method(s) of instruction used? (Tick your selection)

	Very suitable	Suitable	Less suitable	Not suitable
Television				
Radio				
Modules				
Internet				
Face to Face				

Any other specify

.....

11. (a). Is the time of interaction with the instructors adequate?

i) = Yes

ii) = No

(b). If no, what do you suggest should be done to improve the situation?

.....

.....

 12. What are the challenges facing the current library and information services to ensure effective support to the distance learners through the use of ICT?

	YES	NO
Poor communication networks		
High costs of maintaining ICT infrastructure		
Limited access to ICT hardware and software		
Lack of funding to provide ICT infrastructure		
Digital and information divide		
Neglect of ICT resources		
Computer /Information illiteracy		
Poor Policy guidelines		
Technological obsolescence		

Any other please specify -----

13. What do you think can be done to improve the service delivery?

	YES	NO
Digitization of library materials		
Marketing and publicity efforts should be geared		
Provision of effective orientation to the students		
Proactively promotion of services being provided to distance learners		

If the there is any other please specify.....

“THANK YOU FOR YOUR SUPPORT”

Appendix II: Interview Schedule for Librarians

1. For how long have you worked in this library?
2. What is your opinion about the current state of library facilities?
3. In your opinion are there enough computers in the library? For what purpose are they used?
4. What types of ICT facilities do you employ and how effective are these types of facilities in communication between the librarian and the students?
5. What are the services does the library provides to its distance learners?
6. What is your opinion of the quality of library services and its role in supporting distance learning through the use of ICT?
7. What are the challenges encountered by the library in supporting open and distance learning delivery compared to traditional methods of instruction?
8. Do you have policies in place to address these challenges? If so, what are they?
9. What do you recommend to ensure that library services through the use of ICT supports distance learning effectively? `
10. Please comment on the strategies put in place by your institution to address the changing issues of technology in distance learning.