

**AN ASSESSMENT OF THE EFFECTIVENESS OF LIBRARY ELECTRONIC
SECURITY SYSTEMS IN HIGHER LEARNING INSTITUTIONS IN
TANZANIA: A CASE STUDY OF UDSM AND NM-AIST LIBRARIES**

COMFORT SOLANOUS KOMBA

**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF
REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN LIBRARY
AND INFORMATION MANAGEMENT DEPARTMENT OF HISTORY,
PHILOSOPHY AND LIBRARY STUDIES OF THE OPEN UNIVERSITY
OF TANZANIA**

2020

CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by the Open University of Tanzania a dissertation entitled: *“An Assessment of the Effectiveness of Library Electronic Security Systems in Higher Learning Institutions in Tanzania: A Case Study of UDSM and NM-IST Libraries”* in partial fulfillment of the requirements for the Degree of Master of Arts in Library and Information Management Department of History, Philosophy and Library Studies of the Open University of Tanzania.

.....

Dr. Henry L. Mambo

(Supervisor)

.....

Date

COPYRIGHT

No part of this Dissertation may be reproduced, stored in any retrieval system, or transmitted in any form by any means, electronic, mechanical, photocopying, recording or otherwise without prior written permission of the author or the Open University of Tanzania in that behalf.

DECLARATION

I, **Comfort Solanous Komba**, do hereby declare that, the work presented in this dissertation is original. It has never been presented to any other University or institution. Where other people's works have been used, references have been provided. It is in my regard that I declare this work as originally mine. It is hereby presented in partial fulfillment of the requirement for the Degree of Master of Arts in Library and Information Management.



.....
Signature

.....
Date

DEDICATION

To my Lord, Jesus Christ, who gave me good health, protection and strength in order to complete my studies successfully and

To my lovely wife, Alice Christopher Khamsini, and our daughters Vernielle, Vernon and Viveca.

ACKNOWLEDGEMENT

It is not possible to acknowledge all those who have contributed to the completion of this study in several ways. However, I would like to mention just a few of them on behalf of others.

Firstly, I am grateful to my supervisor, Dr. Henry L. Mambo who patiently and tirelessly read through my work in order to improve it. His insights, comments and constructive criticisms shaped up this study.

Secondly, I wish to express my thanks to all academic staff in the Department of History, Philosophy and Religious Studies at the Open University of Tanzania. Their support and guidance enabled me to complete my proposal and dissertation on time. I also wish to express my sincere appreciation to my colleagues and MLIM students in the academic year 2017/2019. Moreover, I would like to extend my thanks to all respondents from the University of Dar es Salaam (UDSM) and Nelson Mandela - African Institution of Science and Technology (NM-AIST) for their readiness to participate in this study.

My heartfelt thanks should go to my lovely mother Elly - Amani Agnes Johnson Ngallo and father, the late Solanous Marcus Mercury Komba for their moral support and encouragement throughout the whole period of my study. Lastly, my special thanks go to Pastor Magdalena Mtedzi for her spiritual and moral support.

ABSTRACT

This study aimed to assess the effectiveness of library electronic security systems in higher learning institutions in Tanzania with specific reference to the University of Dar es Salaam (UDSM) and Nelson Mandela - African Institution of Science and Technology (NM-AIST) libraries. The objectives of the study were to assess application of the electronic security systems to the earmarked libraries; evaluate effectiveness of electronic security systems; find out the pros and cons of the electronic security systems to the libraries, universities and users of the systems; and to identify the challenges of using of library electronic security systems. The study adopted quantitative and qualitative research approaches. The study findings indicated that the performance of library electronic security systems faces the challenges such as poor libraries management, absence of users training and education programs, lack of reliable electrical power resources, lack of commitments among library staff, poor library budgets and inadequate funds. Based on the study findings, it can be concluded that the electronic security systems in the universities libraries understudy were effectively designed and optimally used to safeguard information resources except that challenges were exacerbated by inadequate libraries management. It is recommended that there should be staff training and education programs on managing and operating library electronic security systems, reliable electrical power resources to library buildings, and commitment among library staff.

Keywords: Library Electronic Security System, Higher Learning Institutions, University of Dar es Salaam, Nelson Mandela - African Institution of Science and Technology, Tanzania.

TABLE OF CONTENTS

| | |
|---|-------------|
| CERTIFICATION..... | ii |
| COPYRIGHT | iii |
| DECLARATION | iv |
| DEDICATION | v |
| ACKNOWLEDGEMENT..... | vi |
| ABSTRACT | vii |
| LIST OF TABLES..... | xii |
| LIST OF FIGURES..... | xiii |
| LIST OF ABBREVIATIONS AND ACRONOMYS..... | xiv |
| CHAPTER ONE..... | 1 |
| INTRODUCTION | 1 |
| 1.1 Introduction..... | 1 |
| 1.2 Statement of the Problem | 2 |
| 1.3 Objectives of the Study | 3 |
| 1.3.1 General Objective of the Study..... | 4 |
| 1.3.2 Specific Objectives | 4 |
| 1.4 Research Questions | 4 |
| 1.5 Significance of the Study..... | 5 |
| 1.6 Limitations of the Study | 5 |
| 1.7 Definition of the Key Terms | 6 |
| 1.7.1 Library | 6 |
| 1.7.2 Electronic Material..... | 6 |

| | | |
|----------------------------------|---|-----------|
| 1.7.3 | Security System..... | 6 |
| 1.7.4 | Electronic Security Systems | 6 |
| 1.7.5 | Higher Learning Institutions..... | 6 |
| 1.8 | Chapter Summary..... | 7 |
| CHAPTER TWO..... | | 8 |
| LITERATURE REVIEW..... | | 8 |
| 2.1 | Introduction..... | 8 |
| 2.2 | Conceptualization of Library Electronic Security Systems..... | 8 |
| 2.3 | Development of Library Electronic Security Systems | 8 |
| 2.4 | Types of Library Electronic Security Systems | 9 |
| 2.5 | Application of Library Electronic Security Systems..... | 9 |
| 2.6 | Needs and Importance of Library Electronic Security Systems | 10 |
| 2.7 | Challenges Facing Library Electronic Security Systems | 10 |
| 2.8 | Measures for Protect Information Resources | 11 |
| CHAPTER THREE..... | | 12 |
| RESEARCH METHODOLOGY..... | | 12 |
| 3.1 | Introduction..... | 12 |
| 3.2 | Research Design..... | 12 |
| 3.3 | Research Approach | 12 |
| 3.4 | Study Area | 13 |
| 3.5 | Study Population | 13 |
| 3.6 | Sample and Sampling Procedures..... | 14 |
| 3.7 | Data Collection Methods | 14 |
| 3.7.1 | Questionnaire | 14 |

| | | |
|--|---|-----------|
| 3.7.2 | Interview Guide | 15 |
| 3.7.3 | Observation Guide | 15 |
| 3.8 | Data Analysis Procedure | 15 |
| 3.9 | Validity and Reliability of Data Collection Instruments | 16 |
| 3.9.1 | Validity | 16 |
| 3.9.2 | Reliability | 16 |
| 3.10 | Ethical Issues | 17 |
| CHAPTER FOUR | | 19 |
| DATA PRESENTATION, ANALYSIS AND DISCUSSION OF THE | | 19 |
| FINDINGS | | 19 |
| 4.1 | Introduction..... | 19 |
| 4.2 | Response Rate..... | 19 |
| 4.2.1 | Demographic Information of the Study Sample | 20 |
| 4.2.2 | Level of Education of Respondents | 21 |
| 4.2.3 | Positions Held by Respondents..... | 21 |
| 4.2.4 | Work Experience of Respondents..... | 22 |
| 4.3 | Application of the Electronic Security Systems | 23 |
| 4.3.1 | Reasons for Using Library Electronic Security Systems | 23 |
| 4.3.2 | Awareness of Electronic Security Systems | 23 |
| 4.4 | Effectiveness of Electronic Security Systems in Safeguarding Library Materials | 24 |
| 4.4.1 | Frequencies in the Use of Libraries | 24 |
| 4.4.2 | Performance of Electronic Security Systems..... | 25 |

| | | |
|---|--|-----------|
| 4.4.3 | Security Conditions of Information Resources Materials before and after Application of Library Electronic Security Systems..... | 27 |
| 4.4.4 | Access to Information Resources..... | 27 |
| 4.4 | Pros and Cons of Using Electronic Security Systems in Libraries | 28 |
| 4.5 | Challenges that Exist Using of Library Electronic Security Systems | 28 |
| 4.5.1 | Training on the Use of Library Electronic Security Systems | 29 |
| 4.5.2 | Key Challenges Facing Library Electronic Security Systems | 30 |
| 4.6 | Maintenance of the Systems | 30 |
| 4.7 | Suggestions on the Ways to Make Library Electronic Security Systems to Operate Efficiently | 30 |
| CHAPTER FIVE | | 32 |
| CONCLUSION AND RECOMMENDATIONS | | 32 |
| 5.1 | Introduction..... | 32 |
| 5.2 | A Summary of Key Research Findings | 32 |
| 5.3 | Conclusion | 34 |
| 5.4 | Recommendations | 35 |
| 5.4.1 | Recommendations for Action | 35 |
| 5.4.2 | Suggested Further Research | 37 |
| REFERENCES | | 38 |
| APPENDICES | | 42 |

LIST OF TABLES

| | |
|--|----|
| Table 4.1: Response Rate | 20 |
| Table 4.2: Level of Education of Library Staff | 21 |
| Table 4.3: Positions Held by the Respondents | 22 |
| Table 4.4: Years of Service of Library Staff | 22 |
| Table 4.5: The Frequencies in the Use of Libraries | 25 |
| Table 4.6: Enhancement of Work Performance to Library Staff Members | 26 |
| Table 4.7: Security Conditions of Information Resources before and after Application of Library Electronic Security Systems | 27 |
| Table 4.8: Access to Information Resources | 27 |
| Table 4.9: Challenges of Safeguarding Information Resources | 29 |

LIST OF FIGURES

| | |
|---|----|
| Figure 4.1: Performance of Library Electronic Security Systems..... | 26 |
|---|----|

LIST OF ABBREVIATIONS AND ACRONYMS

| | |
|---------|--|
| CCTV | Closed-Circuit Television |
| CD-ROM | Compact Disk - Read Only Memory |
| COSTECH | Tanzania Commission for Science and Technology |
| ICT | Information and Communication Technology |
| NM-AIST | Nelson Mandela - African Institution of Science and Technology |
| MLIM | Master of Arts in Library and Information Management |
| OPAC | Online Public Access Catalogue |
| OUT | Open University of Tanzania |
| RFID | Radio Frequency Identification |
| SLADS | School of Library, Archive and Documentation Studies |
| SPSS | Statistical Package for Social Sciences |
| SUA | Sokoine University of Agriculture |
| TCST | Tanzania Commission for Science and Technology |
| TUDARCo | Tumaini University Dar es Salaam College |
| UDSM | University of Dar es Salaam |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Security of information resources has been a major challenge for librarians from the ancient times. The major roles of libraries today might not be limited to acquisition of information resources and processing them but also to devising methods for protecting such information resources from being stolen and mutilated. According to Pearson (2007) theft and mutilation of information resources are the foremost obstacles associated with the preservation, conservation and storage of information resources among the librarians.

Tyson (2007) argues that, modern technologies have affected the life style on societies. According to Dawe (2017), the manual security by using guards and library staff cannot cure the issue of protecting information. Using guards and library staff to protect information resources has proved to be ineffective and expensive. For example, according to Metili (2013), in 1999, the United Kingdom used £ 100 million per year for paying guards to protect information resources which imposed a substantial financial drain on the limited library budgets. Hottest (2012) revealed that the library replaced over a thousand staff each month, for the security purposes but instead the damage continued and a lot of staff time was spent to identify and locate the damaged information resources.

Person (2007) argues that, the technology and sophistication of electronics have dramatically expanded over the years. For example, the use of cameras on mobile phones and the internet have changed every user of it. A few years ago, mobile phone

was a luxurious commodity but today it is a vital commodity. These gadgets have been beneficial to the community as they provide less workload, more efficiency in accomplish tasks.

Such development in modern technologies has also brought challenges on security of information resources through incorporation the characters that allow efficiency and have been integrated to curb security challenges. According to (UNESCO, 2015), in the previous days, the manual security focused on physical check while the electronic security practiced very basic functions. With the invasion of modern technologies, the security professionals nowadays regard application of electronic security systems based upon solving challenges (Connaway & Powel, 2010).

1.2 Statement of the Problem

Library is one of the vital organs of information dissemination in any society. It plays important role in the society's development by bringing appropriate information, which meets users' needs. The fundamental business of any library in a higher learning institution is the facilitation of information resources in support of research activities of any higher learning institution. Chimah (2013) also asserts that usage of information resources is of fundamental importance to library users in satisfying their information needs. In view of this assertion, the goal of any library in higher learning institution is to ensure maximum usage of information resources.

Nevertheless, despite the important roles of libraries in societies, libraries have continued to face challenges of insecurity of information resources. According to Kahn (2008), there were theft, mutilation and vandalism in libraries, archives, historical

societies, and museums highlighted on newspapers and radio every week. While libraries and their respective institutions have continuously been putting effort to improve their collections, theft, mutilation and vandalism poses a great threat to information resources (Rasul and Singh, 2011). This challenge has become rampant in recent years and it is considered as one among the factors for higher operating cost in higher learning institutions. The information resources are under serious threat of misuse through act of theft, mutilation and vandalism particularly by students and staff (Akussah and Bentil, 2010).

According to Muneja (2010), the above scenario of theft, mutilation and vandalism also exists at the University of Dar es Salaam (UDSM) and Nelson Mandela - African Institution of Science and Technology (NM-AIST) libraries in Tanzania. Although the library electronic security systems have been in use at the University of Dar es Salaam (UDSM) and Nelson Mandela African - Institution of Science and Technology (NM-AIST) libraries for protecting information resources, there are no sufficient evidences of the study that has been undertaken to ascertain their effectiveness in addressing the loss of information resources. Such study would have given light to the two libraries on the advantages and disadvantages of such systems and its findings would have acted as a learning platform to other libraries and information centers that wish to use such systems. In the same view, the aim of this study was to assess the effectiveness of library electronic security systems in higher learning institutions.

1.3 Objectives of the Study

The study was based on general and specific objectives.

1.3.1 General Objective of the Study

The general objective of the current study was to assess the effectiveness of library electronic security systems in Tanzania with specific reference to UDSM and NM-AIST libraries.

1.3.2 Specific Objectives

The specific objectives of this study aimed:

- (i) To assess the application of the electronic security systems at UDSM and NM-AIST libraries;
- (ii) To evaluate the effectiveness of electronic security systems in the libraries under study;
- (iii) To identify pros and cons of using electronic security systems in the libraries and,
- (iv) To identify the challenges of using of library electronic security systems.

1.4 Research Questions

This study was guided by the following questions:

- (i) What are the key issues in the application of library electronic security systems?
- (ii) How effective are the library electronic security systems in safeguarding the information resources in higher learning institutions in Tanzania?
- (iii) What are the challenges of using the library electronic security systems? And
- (iv) What are suggestions about the application of the library electronic security systems?

1.5 Significance of the Study

Globally, libraries use electronic security systems to safe guard their information resources. The assumption is that despite using electronic security systems to safe guard their information resources, much is unknown in terms of its broader and longer time benefits to both the institutions using them and its users. The findings from this study will shade light on many pertinent aspects of the use of library electronic security systems in Tanzanian libraries and information resources.

University, college and school librarians can use the findings from this study to devise concrete strategies to curb the challenges of insecurity of information resources. Moreover, the findings of this study will influence policy makers in the higher learning institutions in Tanzania, thus providing adequate funds for the libraries to purchase more information resources that are required to facilitate the provision of effective and efficient library electronic security systems.

1.6 Limitations of the Study

The major limitations of the current study were finance and time. It would have been more appropriate to cover all the higher learning institutions in Tanzania but, this study covered UDSM and NM-AIST libraries only due to financial and time constrains. The researcher faced some limitations of the university calendar when undergo data collection process. This was due to the fact that during data collection, the universities were closed for annual academic break whereby some of students and staff members were away for the annual leave. Therefore, it was difficult to distribute the research questionnaires and conduct interviews to both students and staff members. However, the researcher worked out the plan to ensure smooth data collection process and its quality.

1.7 Definition of the Key Terms

1.7.1 Library

UNESCO (2015) defined library as is a curate collection of sources of information and similar resources, selected by experts and made accessible to a defined community for reference or borrowing, often in a quiet environment conducive to study.

1.7.2 Electronic Material

According to Dawe (2017), an electronic material is a device which transmits; change the electric current passing through the electronic device. The functionalities are conducted when using electronic devices.

1.7.3 Security System

According to Gupta and Madhusudhan (2018) security refers to actions that are taken to protect, or to ensure that only people who granted permission to enter it or leave it. It is also a stable and relatively predictable environment in which an individual or group may pursue its ends without disruption or harm and without fear of such disturbance.

1.7.4 Electronic Security Systems

According to Dawe (2017) electronic security systems refer to a sophisticated range of products that provide security against pilfering and unauthorized access. In this context the electronic security systems are associated with the library and they are characterized by four technology platforms such as magnetic stripe, weigand, proximity, and contact-less smart card.

1.7.5 Higher Learning Institutions

Hendrickson et al. (2013) defined higher learning institutions as universities, colleges, and further education institutions, which are offering and delivering higher education.

They include traditional universities and professional-oriented institutions, which are called universities of applied sciences or polytechnics.

1.8 Chapter Summary

This chapter discussed the subject under which the study is hosted mainly the assessment of the effectiveness of library electronic security systems in higher learning institutions. It also examined the challenges facing the systems and suggestions concerning the better ways of operating the systems. As the academic libraries spend the resources, in acquiring information resources, the plans should be put in place to ensure effective usage of information resources in order to benefit the information users whom the information resources are meant for. The security of information resources should be carried out to ascertain if there are any challenges faced by the users and appropriate ways of addressing them.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This study covered an assessment of the effectiveness of library electronic security systems in higher learning. This chapter presents literature related to the use of library electronic security systems globally, regionally and in Tanzania. It intends to build on the key issues around the topic, theoretical, methodological, empirical and relevant issues regarding the application of library electronic security systems.

2.2 Conceptualization of Library Electronic Security Systems

Library electronic security systems are devices that are used with the help of electrical apparatus to secure information resources. They assist libraries to protect information resources from theft, mutilation and vandalism (Odaro, 2011). For instance some of electronic security systems which have been applied in libraries are Closed-Circuit Television (CCTV), 3M, Radio Frequency Identification (RFID) systems and alarms.

2.3 Development of Library Electronic Security Systems

According to Uma, Suseela and Babu (2010) the security measures are critical challenges to the management, and the choice of measures taken will have to reflect the needs whilst not compromising the ease of access to information resources. Once a measure has been chosen, there is a set of features with regards to the choice of a particular type or make of security measure. In choosing the electronic security systems, the cost, supporting services, expertise are the factors that would be taken for consideration.

Ferdinand, Parick & Nneke (2015) noted that the security of information resources is important to its effective utilization. As technology growth, the demand is also increasing. According to Chimah and Nwokocha (2013), the rapid growth of information resources the outcome of the gaining of knowledge and skills that gives the need to organize information resources and gives maximum security for these information resources.

2.4 Types of Library Electronic Security Systems

According to Kumbhar and Veer (2016) library has various security systems from its establishments. The electronic security systems were made by technological support such as electronic anti-theft devices, visual cameras, smoke detection and alarm system at entrances, exits and stack areas in the library. They can help in preventing the theft, mutilation and vandalism of information resources in the library.

Maidabino (2010) further noted the following types of electronic security systems: electronic recording, RFID system, 3M exit detection, alarm systems, moisture sensor, glass break sensor, fire /smoke sensor, biometrics, smart card, and air conditioner for humidity control. Once information resources would not been checked out while taken out of the library will be detected by security gates as an authorized information resource.

2.5 Application of Library Electronic Security Systems

The application of electronic security systems particularly in Africa has helped to control unethical practices in libraries. Odaro (2011) noted that after applying electronic security systems at the Covenant University, Ota Nigeria, books loss rate

has decreased. Gupta and Madhusudhan (2018) noted that in the context of the security of information resources in Tanzania, the most effective method to minimize related crimes such as mutilation, theft and vandalism, disruptive behaviour of patrons, book mis-shelves in the libraries is the use of alternative preventive measures and security devices.

2.6 Needs and Importance of Library Electronic Security Systems

According to Dawe (2017) information resources are expensive to secure and preserve in the library. They are rare to find them once disappear. Gupta and Madhusudhan (2018) argued that the information resources can be affected not only by theft, mutilation and vandalism but also by disasters such as fire, floods and damage from poor handling or uncondusive environment. The institutional repository has to provide the smart security policies for its collections that curb all challenges in protecting its information resources.

According to Schmidts and Lian (2009) it is necessary to know that theft, mutilation and vandalism can be stopped, information resources may be not found if the resource is rare to replace. Therefore, the electronic preventive measures are necessary and indeed, the effective plans for preventing theft, mutilation and vandalism of information resources are needed.

2.7 Challenges Facing Library Electronic Security Systems

Electronic security systems are vital for efficient management of library. Loss of information resources is a serious challenge of most of libraries across the globe and in the same vein to higher learning institutions. Based on the magnitude of the problem,

Ogbonyomi (2011) observed that the offenders are the one who are familiar with the collections.

In Africa, Tanzania in particular, the application of modern library electronic security systems is still new but it is currently being recognized by many as important tool for library existence. Despite this recognition, there are also challenges of security measures, which face academic libraries. Such challenges cause complaints among library users.

Nihuka (2015) argued that although some libraries especially those in developing countries appear to be well infrastructure in protecting their information resources, but currently Tanzania still faces some challenges. Such unsatisfactory progress is exacerbated by the challenges such as lack of organized security programs, effective data gathering, absence of training and education on managing and operating library electronic security systems. Others challenges include unreliable electrical power services to the library buildings, poor library budget, lack of funds for operating the electronic security systems and absence of full automation of library materials.

2.8 Measures for Protect Information Resources

Cherry (2014) argued that the libraries could put efforts in order to secure the remaining documents because collections found in libraries are very expensive and measures should be taken to protect the loss of those collections. All information resources have to be labeled in a way that recognizes them clearly to belong to a certain institution.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methodology, which was used for this study. The research methodology is the description of the methods to be used in carrying out the study. This chapter presents the research design, area of study, target population and sample size, sampling technique, data collection methods, data quality control, instruments, data analysis, data processing, issues of validity and reliability, and ethical considerations.

3.2 Research Design

A research design is a logical and systematic plan, which is prepared for directing a research study. It specifies the methodology and techniques to be adopted for achieving the set objectives (Pruzan, 2016). Moreover, it describes the purpose of the study and the kinds of questions being addressed, the techniques to be used for collecting data, approaches to select samples and how the data will be analyzed.

3.3 Research Approach

Chetty (2016) describes research approach as a plan and procedure that consists of the steps of broad assumptions to detailed method of data collection, analysis and interpretation. It is therefore based on the nature of the research problem being addressed. The research approach is essentially classified into two main types, namely quantitative and qualitative approaches.

In this study, the researcher used two main types of research approach which are quantitative and qualitative research approach. Quantitative approach was necessary in order to enable the researcher to use the measure of central tendency and dispersion as well as frequencies and percentages in data analysis. Qualitative research approach entailed the collection of data in more than one study area and at a time. The current study therefore generated the data in quantitative and qualitative forms.

3.4 Study Area

The study was conducted at the University of Dar es Salaam (UDSM) and Nelson Mandela - African Institution of Science and Technology (NM-AIST) libraries. UDSM is located in Dar es Salaam Region while NM-AIST is situated in Arusha Region. The two universities' libraries were selected because they both have electronic security systems in place and in library services delivery. UDSM library was established in October 1961, and succeeded to get the electronic security devices (3M Detection System) in a year 2005 (<http://www.udsm.ac.tz/web/index.php/institutes/library>). NM-AIST library was established in 2011 and acquired the electronic security systems known as Anti-theft Detection in the same year (<http://www.nm-aist.ac.tz/index.php>).

3.5 Study Population

According to Rose (2016) a study population refers to individuals that share features in common that are of interest to the researcher. In this study the sample was drawn from the students, library staff, heads of libraries, deans, and heads of departments who normally access and use libraries. The referred groups were expected to provide in-depth and comprehensive information in relation to electronic security systems.

3.6 Sample and Sampling Procedures

According to Wikipedia (<https://en.wikipedia.org/wiki/search=a+sample+means&go=1>), a sample is a set of objects from a bigger population that includes all such common characteristics that satisfy a set of well-defined selection criteria. A total of 100 respondents from UDSM and NM-AIST were involved in this study. The respondents were comprised of thirty (30) students, thirty eight (40) library staff, ten (10) deans, and twenty (20) heads of departments from both universities. In terms of sampling technique used in this study, Pickard, (2013) has defined it as the selection of some part of an aggregate or totality of what the population is made. Sampling technique is one of the best systematic techniques of choosing a group of individuals. It is a way which is used to select the respondents (sample) from a bigger group in order to establish the basis for estimating or predicting the prevalence of unknown pieces of information, situation or outcome regarding the bigger group. This study employed purposive and convenience sampling techniques for selecting the sample for this study.

3.7 Data Collection Methods

The researcher used the following methods to elicit appropriate data for this study.

3.7.1 Questionnaire

According to Gatara (2010), a questionnaire is an ordinary list of questions that one develops for respondents in order to solicit particular type of information. The questionnaires were used to elicit the data for this study because their advantages overwhelm other data collection methods. It is considered to be relatively inexpensive and suitable for collecting data from the respondents.

The questionnaires were administered and completed by respondents. The structured questionnaires with both closed and open-ended questions were distributed to seventy (70) respondents at each university. The questionnaires were distributed to students at the entry points while the questionnaires for staff members were distributed in their respective sections/ offices.

3.7.2 Interview Guide

These are a set of questions used during the interview sessions in order to capture the issues related to the study. This supplemented information obtained through the questionnaires. The interviews were conducted to forty (40) library staff, ten (10) deans and twenty (20) heads of departments from each university.

3.7.3 Observation Guide

This tool is qualitative and involves the direct observation of social phenomena in their natural settings (Selvam, 2017). The issues which were relevant to the study were such as; library materials and other library services aimed to establish potential areas for investigation. The researcher observed the physical functionality of electronic security systems in place especially their accuracy, speed, robustness, readability and conveniences.

3.8 Data Analysis Procedure

The process of data analysis involved making sense out of the text and image data, conducting different analysis, moving deeper and deeper to understanding the data, representing the data and making an interpretation of the larger meaning of the data.

This involved undertaking analysis of raw facts into a form that is suitable for future use. In order to process the collected data from questionnaire, interview, observation and document review, the data were organized through editing the collected data to overcome errors and incompleteness. The data were processed, coded, and analyzed using the Statistical Package for Social Sciences (SPSS) software. Data analysis processes were involved manually by transferring the responses from the questionnaires into SPSS software and spreadsheet.

3.9 Validity and Reliability of Data Collection Instruments

3.9.1 Validity

Selvam (2017) noted that, validity is the confidence that a given finding shows what is supposed to show. This refers to the degree of accuracy and meaningfulness of inference based on study results. The validity of the research instruments which were used in this study was reviewed by information professionals and other stakeholders. The research instruments contained evidence in that the items and domains of the study were appropriate and comprehensive in relation to its intended measurements, concepts and use. This validation was important in ensuring that the instrument should be subjected to the best criterion for data collection, analysis and presentation.

3.9.2 Reliability

According to Selvam (2017), reliability is the confidence that a given empirical finding can be reproduced. If the study yields the same results having been repeated on the same circumstances, same population, using the same methods, it is reliable. A pilot study was conducted by the researcher by visiting the University of Dar es

Salaam (UDSM) and Nelson Mandela - African Institution of Science and Technology (NM-AIST) libraries in order to determine the reliability of the research instruments.

The pre-testing of the questionnaires, suggestions from different consultancies, discussion with staff and reading of various documented reports were taken into account to ensure the data reliability and validity. Pretesting of the questionnaires to a small group of students drawn from different courses was done for the purpose of rectifying inconsistencies, ambiguities, clarity, coherence of the questions, and relevance of the questions to the research.

3.10 Ethical Issues

Creswell (2009) describes ethical issues in research as the moral principles guiding research. The ethical issues allow conduct the research in a way that goes beyond mere adoption of the most appropriate research methodology by include conducting research in a responsible way and morally defensive way. The ethical issues under this research included confidentiality and anonymity of the identities of the respondents and other information concerning the electronic security systems in use.

The researcher ensured that ethical behavior is fostered throughout and every precaution was taken into account during the design of instruments for data collection purposes. The researcher explained the purpose of research to the respondents and asked for their full consent. The acknowledgement of all sources of information was done to give credit to the work of the authors cited in this work.

The ethical issues in this research included:

- (i) Confidentiality about the information that was gathered from the respondents.
- (ii) Ensuring that respondents' personalities were not exploited and
- (iii) Use of secured data for academic purpose only.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF THE FINDINGS

4.1 Introduction

The purpose of this study was to assess the effectiveness of the library electronic security systems in higher learning institutions in Tanzania with references to the University of Dar es Salaam (UDSM) and Nelson Mandela - African Institution of Science and Technology (NM-AIST) libraries. The study sought to achieve four objectives which aimed to assess the application of the electronic security systems at UDSM and NM-AIST libraries; evaluate the effectiveness of electronic security systems; identify pros and cons of using electronic security systems and, identify the challenges of using of library electronic security systems where the data for this study were collected using the questionnaire, observation, and interview. The results from the study are presented in sections below.

4.2 Response Rate

The study had a sample of 100 respondents who were selected among the students pursuing different courses, library staff, heads of libraries, deans and heads of departments in two universities namely: the University of Dar es Salaam and Nelson Mandela - African Institution of Science and Technology. The study collected data from the sample groups using questionnaire, interview and observation methods. All 100 respondents completed and returned the questionnaire timely. Therefore, there was a 100% response rate from the participants. The analysis of the responses was done

using the Statistical Package for Social Sciences (SPSS). Findings are presented using in table 4.1.

Table 4.1: Response Rate

| Responses | Frequency | Percent |
|-----------------------------|------------------|----------------|
| Returned questionnaires | 70 | 100 |
| Non-returned questionnaires | 0 | 0 |

Source: Research findings (2019)

This response rate was considered sufficient to establish the generalization of the findings regarding the effectiveness of library electronic security systems in higher learning institutions with specific reference to UDSM and NM-AIST libraries.

4.2.1 Demographic Information of the Study Sample

The study also sought the demographic information of the respondents. This was important in understanding the background and the needs of the respondents. This study involved 100 respondents; 30 students, 40 library staff, 10 deans, and 20 heads of departments from each University. The students were drawn from different faculties and involved first year to fourth year students. The staff members were drawn from various sections/ offices, deans and heads of departments were drawn from some colleges. NM-AIST library respondents were sampled from reader services, cataloguing, classification section, ICT section, special collection and periodicals sections. UDSM library respondents were drawn from reference, social sciences, law, science and engineering, East Africana and acquisition sections. The distribution of the

respondents from each library enabled the researcher to compare the findings obtained from both UDSM and NM-AIST libraries.

4.2.2 Level of Education of Respondents

Out of forty respondents who participated in the study, 6 (15%) respondents had certificate in librarianship, 10 (25%) respondents had diploma in librarianship, 14 (35%) respondents had bachelor degree, 6 (15%) respondents had master degree, and 4 (10%) respondents had doctorate degree. Table 4.2 provides the summary of the respondents' academic qualifications.

Table 4.2: Level of Education of Library Staff (N=40)

| Category | Frequency | Percent |
|-----------------|------------------|----------------|
| Certificate | 6 | 15 |
| Diploma | 10 | 25 |
| Bachelor | 14 | 35 |
| Master | 6 | 15 |
| Ph.D | 4 | 10 |

Source: Research findings (2019)

The findings revealed that the level of education of the library staff was sufficient to help them to manage and protect information resources hence quality services to users.

4.2.3 Positions Held by Respondents

Out of forty respondents who responded to research questions, 2 (5%) were senior librarians, 8 (20%) respondents librarians, 14 (35%) respondents were library officers, and 16 (40%) were library assistants as indicated in table 4.3.

Table 4.3: Positions Held by the Respondents (N=40)

| Positions | Frequency | Percent |
|--------------------|------------------|----------------|
| Senior Librarians | 2 | 5 |
| Librarians | 8 | 20 |
| Library Officers | 14 | 35 |
| Library Assistants | 16 | 40 |

Source: Research findings (2019)

4.2.4 Work Experience of Respondents

The researcher wanted to know library staff work experience in relation to the usage of electronic security systems. The findings showed that the working experience of respondents were as follows: 3 (7.5%) respondents had between 1 - 5 years of working experience, 4 (15.2%) respondents had between 6 - 10 years of working experience, 6 (13.0%) respondents had between 11 - 15 years of working experience, 10 (25%) respondents had between 16 – 20 years of working experience, 10 (25%) respondents had between 21 - 25 years of working experience, and 7 (17.5%) respondents had between 26 - 30 years of working experience. Table 4.4 provides summary on the respondents working experience.

Table 4.4: Years of Service of Library Staff (N=40)

| Category | Frequency | Percent |
|-----------------|------------------|----------------|
| 1 - 5 | 3 | 7.5 |
| 6 - 10 | 4 | 10 |
| 11 - 15 | 6 | 15 |
| 16 - 20 | 10 | 25 |
| 21 - 25 | 10 | 25 |
| 26 – 30 | 7 | 17.5 |

Source: Research findings (2019)

The study also sought information on the years of service among the respondents. This was important in understanding the working experience of the respondents in relation to provision of the services to library users. The study findings indicate that the library staff members have rich work experience with adequate skills in using library electronic security systems.

4.3 Application of the Electronic Security Systems

The first objective of this study was to assess application of the electronic security systems in the libraries under study. The respondents were asked different sets of questions to assist in the assessment of the application of the electronic security systems. Their responses are summarized below.

4.3.1 Reasons for Using Library Electronic Security Systems

The study findings revealed that the application of library electronic security systems in the higher learning institutions in Tanzania was geared to improve the library manual security systems and safeguard information resources.

The findings further revealed that all the interviewed respondents including the heads of libraries, deans and heads of departments from both UDSM and NM-AIST libraries revealed that security measures prompted libraries management to apply the library electronic security systems for protection of information resources.

4.3.2 Awareness of Electronic Security Systems

All respondents reported that they were aware of the use of electronic security systems in the libraries as they had seen the detecting machines installed at the main entrances of the library buildings.

The total of 30 (30%) students and 38 (38%) library staff members admitted that their libraries use electronic security systems as demonstrated by detecting machines at the main entrances of the library buildings. The total of 2 (2%) heads of libraries, 10 (10%) deans and 20 (20%) heads of departments from both UDSM and NM-AIST libraries admitted that their libraries use electronic security systems and that the system has lasted for fourteen years of services at UDSM and eight years of services at NM-AIST respectively.

4.4 Effectiveness of Electronic Security Systems in Safeguarding Library Materials

The second objective of this study aimed at finding out the extent to which effective are the library electronic security systems in safeguarding the information resources in higher learning institutions in Tanzania. Their responses are summarized below.

4.4.1 Frequencies in the Use of Libraries

The aim of this aspect was to evaluate the effectiveness of the electronic security systems in the libraries under study as determine by the following aspects: frequencies of use of libraries, performance of library electronic security systems and access to information resources. The performance of the library electronic security systems is checked against the frequencies of use and access to information resources.

The study sought to establish the frequencies of use of library services among students. This was important in ascertaining whether or not the students could provide reliable information concerning access and use of information resources.

Out of thirty respondents who responded to the question regarding the frequencies of use of information resources, 20 (66.6%) students revealed that they used library everyday/ almost every day, 5 (16.6%) students revealed that they used library twice a week, 4(13.3%) students revealed that they used library weekly, 1(3.3%) student revealed that used library once in more than a week. Table 4.5 indicates the summary on the frequencies in the use of libraries.

Table 4.5: The Frequencies in the Use of Libraries (N=30)

| Category | Frequency | Percent |
|--------------------------|-----------|---------|
| Everyday/Almost everyday | 20 | 66.6 |
| Twice a week | 5 | 16.6 |
| A week | 4 | 13.3 |
| Once in more than a week | 1 | 3.3 |
| Never | 0 | 0.0 |

Source: Research findings (2019)

The findings revealed that the 30 (100%) students visited the two libraries frequently and they attribute this to high standards of various services provided in these libraries. The referred services are such as internet, lending information resources, photographic services, electronic resources, photocopy and readers' services. Whereas other respondents such as students indicated that they hardly use the library services often due to scarcity of some relevant information resources which are crucial to their course programs, while others respondents noted that they did not have interest.

4.4.2 Performance of Electronic Security Systems

With reference to figure 4.1, 41 (58.5%) respondents noted that the performance of library electronic security systems was excellent, 19 (27.1%) respondents admitted that

the performance was good, 8 (11.4%) respondents noted that the performance was moderate, and 2 (2.8%) respondents reported the performance was bad.

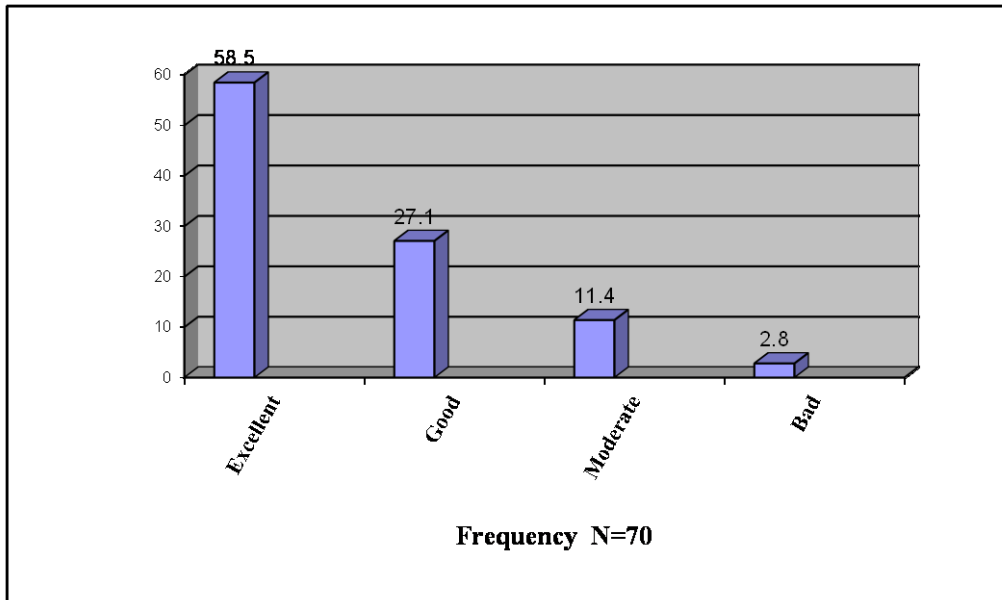


Figure 4.1: Performance of Library Electronic Security Systems

Source: Research findings (2019)

With regard to application of the electronic security systems in facilitating individual works' performance in the library. Thirty seven (92.2%) respondents admitted that the system enhances their work by reducing costs and saving time while 3 (7.8%) respondents disagreed that they did not facilitated their work as they need much concentration when using them. Table 4.6 provides summary on work performance to library staff member.

Table 4.6: Enhancement of Work Performance to Library Staff Members (N=40)

| Answers | Frequency | Percent |
|---------|-----------|---------|
| Yes | 37 | 92.2 |
| No | 3 | 7.8 |

Source: Research findings (2019)

4.4.3 Security Conditions of Information Resources Materials before and after Application of Library Electronic Security Systems

This area addressed the third objective of the study. The respondents were asked to compare the situation before and after the introduction of electronic security systems in protecting information resources. With reference to Table 4.7, 68 (97.1%) respondents revealed that positive were noted since the introduction of library electronic security systems in their libraries while 2 (2.9%) admitted that there were still damages and loss of information resources as indicated in Table 4.7.

Table 4.7: Security Conditions of Information Resources before and after Application of Library Electronic Security Systems (N=70)

| Answers | Frequency | Percent |
|----------------|------------------|----------------|
| Yes | 68 | 97.1 |
| No | 2 | 2.9 |

Source: Research findings (2019)

4.4.4 Access to Information Resources

Respondents were asked if they used to locate information resources in shelves having been searched in the library catalogue. With reference to Table 4.8, 25 (83.3%) respondents agreed that they were able to get the information resources in the shelves having searched them from OPAC and 5 (16.6%) respondents disagreed that they were not able to get information resources in the shelves having searched them from OPAC as indicated in table 4.8.

Table 4.8: Access to Information Resources (N=30)

| Category | Frequency | Percent |
|-----------------|------------------|----------------|
| Accessible | 25 | 83.3 |
| Not accessible | 5 | 16.6 |

Source: Research findings (2019)

Based on Table 4.8 it is clearly indicated that the majority of respondents were able to get physical information resources in the shelves having searched them from OPAC. Finding the information resources in the shelves was attributed to the fact that they were well processed and arranged in the library's shelves.

4.4 Pros and Cons of Using Electronic Security Systems in Libraries

The third objective of this study was to identify the pros and cons of using electronic security systems in libraries.

The study findings revealed that accessibility of information resources such as books, journals, newspapers, research projects, conference proceedings, government publications, theses and dissertations, as areas that raised work performance to library staff members to a higher point in protecting information resources and providing opportunities in reducing costs and saving time hence they are easily available in the libraries. The dis-advantages mentioned included the high budget in running costs such as electrical costs hence it is using electricity power all the time, and high costs on providing training to library staff members and users.

4.5 Challenges that Exist Using of Library Electronic Security Systems

This part addressed the fourth objective regarding the challenges of using the library electronic security systems.

With reference to Table 4.9, 25 (35.7%) respondents reported that the absence of user education and training programs on managing and operating library electronic security

systems as amongst the challenges of using the library electronic system where as 18 (25.7%) respondents noted insufficient reliable electrical resources services in the library buildings. A total of 12 (17.1%) respondents reported lack of commitments among library staff members when doing their works whereas 6 (8.5%) respondents noted poor library budget and lack of funds for the operations of library services. Moreover 4 (5.7%) respondents reported absence of full automation of information resources while 3 (4.2%) and 2 (2.8%) respondents reported poor library rules and regulations and poor control and lack of close supervision of the library electronic security systems respectively. Their responses are summarized in table 4.9.

Table 4.9: Challenges of Safeguarding Information Resources (N=70)

| Category | Frequency | Percent |
|---|-----------|---------|
| Absence of user education and training programs | 25 | 35.7 |
| Insufficient electrical resources services | 18 | 25.7 |
| Lack of commitment among library staff | 12 | 17.1 |
| Poor library budgets and funds | 6 | 8.5 |
| Absence of full automation of information resources | 4 | 5.7 |
| Poor library rules and regulations | 3 | 4.2 |
| Poor control and lack of close supervision | 2 | 2.8 |

Source: Research findings (2019)

4.5.1 Training on the Use of Library Electronic Security Systems

Respondents were asked if they had ever attended any training on the use of the library electronic security systems. With regard to training on the use of library electronic security systems, the study findings revealed that all 40 (100%) respondents had not attended any training on usage of library electronic security systems. Furthermore, they

were not conversant with the systems as they only received the orientation which was given when the systems were installed.

4.5.2 Key Challenges Facing Library Electronic Security Systems

The researcher also asked heads of libraries, deans and heads of departments on the technical challenges facing library electronic security systems and how they solved such challenges. The study findings revealed that the respondents reported the fault of fuses and relays as the most common challenges in using of library electronic security systems. The respondents recommended re-checking of library electronic security systems frequently, reporting the technical challenges to the university management, procurement of new spare parts for repairs and maintenances for the system to work smoothly.

4.6 Maintenance of the Systems

The respondents were also asked to state how they maintained their electronic security systems. The study findings revealed that experts from different vendor companies need substantial amount of money in order to maintain the systems.

4.7 Suggestions on the Ways to Make Library Electronic Security Systems to Operate Efficiently

The library electronic security systems must provide conditions for efficient performance of library works and improved services delivery to library users. In response to this, the respondents were asked to suggest the best ways to make library electronic security systems operate efficiently. As per study findings, the following responses were suggested the best ways for smooth operations of library electronic security systems.

- (i) User training and education programs on managing and operating library electronic security systems;
- (ii) Ensuring reliable electrical resources for the library buildings;
- (iii) Ensuring commitment among library staff;
- (iv) Provision of adequate library budget for operations;
- (v) Ensuring full automation of information resources;
- (vi) Observing library rules and regulations;
- (vii) Ensuring control and close supervision of the library electronic security systems and,
- (viii) Offering electronic resources and services.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The aim of this study was to assess the effectiveness of the library electronic security systems in higher learning institutions in Tanzania. This chapter presents conclusions and recommendations drawn from the data collected, analyzed and interpreted in chapter four.

5.2 A Summary of Key Research Findings

The intention of this chapter was to provide an overview of the research data presentation, analysis and discussion of the findings. The results showed that the most common challenges that were facing higher learning institutions in Tanzania in using library electronic security systems in secure and protect library services and resources included: absence of user training and education programs, insufficient of electrical resources services, lack of commitment among library staff members, poor library budgets and funds, absence of full automation of information resources, poor library rules and regulations, and poor control and close supervision. The suggested solutions to overcome these challenges included; provision of user training and education to library staff and users incorporate security in day to day library activities. Libraries should have security unit so that to ensure services and resources available in the libraries are well accessed and optimally utilized by the users.

Findings show that library electronic security systems have improved services on collection development, by increasing the number of information resources. However,

the study further established that there are operational problems related to its use such limited caused by poor library management.

The findings further revealed that challenges are not directly connected to library electronic security systems but rather library management. These have manifested themselves into absence of user training and education programs, lack of reliable electrical resources, lack of commitments among library staff members, poor library budgets for running and maintenance of library electronic security systems, absence of full automation of information resources, poor library rules and regulations, poor control and close supervision.

The findings revealed that the rate of performance of library electronic security systems is excellent. The performance was observed in the decreased rate of the loses of information resources have been highly decreased since the introduction of library electronic security systems to higher learning institutions libraries specifically UDSM and NM-AIST compare to the situation before the applications.

The findings further revealed that library electronic security systems raised work performance among the library staff members in relation to manual security in protecting information resources by providing opportunities in reducing costs and saving time. Findings clearly indicate that the enhancement of work performance leads to good services performed to higher learning institutions libraries specifically UDSM and NM-AIST.

The findings indicate that the presences of library electronic security systems are effective on protecting information resources in higher learning institutions libraries.

However, through personal observation and interviews with heads of libraries, deans and heads of departments, a researcher noted that there was weakness on protecting information resources by libraries management for example at the check points.

Findings further revealed that library users were aware of the existing library rules and regulations but ignoring them especially those related to destructions of information resources.

However, the failure to access information resources on shelves could be attributed to other reasons such as; demand that exceeded supply which means due to increased students enrolment which has not gone hand in hand with increased information resources, mis-shelving which occurs as results of poor processing of information resources, lack of search skills due to failure of attending user education and training programs. The respondents noted failure to access information resources was not caused by the failure to perform electronic security systems.

The findings revealed that library staff members were not well trained and able to deal with electronic security systems in providing better services to library users except they have attended other different trainings which are not related to the systems. Library staff members were using theirs personal skills and experiences to operate the systems.

5.3 Conclusion

The findings revealed that library electronic security systems itself did not have any problem in safeguarding information resources, but problems were on libraries

management which manage and control those library electronic security systems. This calls for constant awareness of what is happening within and around the library buildings in order to avoid loss of information resources that is caused by negligence of the management and the staff.

5.4 Recommendations

In view of the study findings, the following are recommendations of the study. The referred recommendation are categorized into two categories namely recommendations for action and recommendations for further research.

5.4.1 Recommendations for Action

Libraries should invest in improve themselves on training and education programs especially on security and provision of library electronic security systems. The proper instructions and orientations should also be provided to library users. Absence of user training and education programs conducted to our libraries has led to poor usage of information resources in the libraries.

The government should supply reliable electrical power to higher learning institutions in order to guarantee better performances of library electronic security systems. The reliable electrical power will ensure proper function of electronic resources such as computers, printers, photocopiers, and televisions which are highly used by library users.

Library staff should mind regarding information resources as public possessions because with such mindset they would not be able to put much effort on protecting

them from theft, mutilation, and vandalism as well as, reporting offenders to the management. Also library staff members should not be too lax on the subject of theft, mutilation and vandalism of information resources.

The libraries should be allocated with enough funds to support the growth of their collections and library staff members training on the importance of protection of information resources. In similar vein, the library users should be enlightened on the importance of protection of information resources. The funds should be available for buying equipment for maintaining and repairing library electronic security systems.

The library managements should go hand in hand with managing library staff members to know their performance on the preservation of information resources from theft, mutilation and vandalism with the assistance of library electronic security systems. In order to guarantee close supervision and proper of library staff members on the services they deliver to library users.

Lastly, it is recommended that, libraries should heavily invest in electronic resources and improve services provision culture so as to cope with the growing number of library users across the libraries in Tanzania. Improvement of services should be among other factors consider staff attractive remuneration and other incentives in order to encourage staff accountability and value their profession. This may reduce mutilation of information resources in case of scarcity of information, electronic databases, electronic journals, electronic books, CD-ROMs, films, televisions and videos.

5.4.2 Suggested Further Research

The researcher recommends the following as grey areas for further research.

Firstly, there is a need to replicate this study after the duration of approximately five years in order to establish whether or not the issues arising as a result of this study have been addressed in order to enhance the library electronic security systems in higher learning institutions in Tanzania.

It will be necessary to carry out a comparative study focusing on electronic security systems in other related institutions that have population diversity so as to find out what might be the users' preferences and dislikes. This will also assist in finding best practices that may be beneficial to the higher learning institutions in Tanzania. There is a need to study how the library automation link with library electronic security systems have advantages over either library automation only or having library electronic security system alone.

REFERENCES

- Akussah, H., and Bentil, W. (2010). Abuse of Library Materials in Academic Libraries: A Study of University of Cape Town. *African Journal of Library, Archives & Information Science*. 20 (2):103-112.
- Cherry, D. (2014). *The Basics of Digital Privacy: Simple Tools to Protect your Personal Information and your Identity Online*. New York: Elsevier Inc.
- Chetty, S. (2016). The Case Study Method for Research in a Small-and Medium-Sized Firms. *International Small Business Journal* 15(1): 73-85.
- Chimah, J. N., and Nwokocha, U. (2013). Information Resources Retrieval and Utilization for Effective Research in Tertiary and Research Institutions. *Asian Journal of Humanities and Social Sciences*. 1(3): 47.
- Connaway, L. S. and Powel, R. R. (2010). *Basic Research Methods for Librarians*. Santa Barbara, CA: Libraries Limited.
- Creswell, J.W (2009). *Research Design: Qualitative, Quantitative and Mixed-Method Approach*. Chicago: American Library Association.
- Dawe, M. (2017). *Electronic Security Systems: Technical Specification & Design Guidance Document*. London: UCL.
- Ferdinand, O. A, Patrick, I. O, and Nneka, O.T. (2015). Library and Information Resources' Security: Traditional and Electric Security Measures. *International Journal of Academic Research and Reflection*. 9(1): 21-23 Retrieved from <http://www.idpublications.org>.
- Gatara, T. H. (2010). *Introduction to Research Methodology*. Nairobi: The Olive Marketing and Publishing Company.

- Gupta, P., and Madhusudhan, M. (2018). *RFID Technology in Libraries: A Review of Literature of Indian Perspective*. New Delhi: University of Delhi.
- Hendrickson, R., Lane, J., Harris, J., and Dorman, R. (2013). *Academic Leadership and Governance of Higher Education: A Guide for Trustee, Leaders and Aspiring Leaders of Two-and Four -Year Institutions*. Sterling, Virginia: Stylus Publishing.
- Hottest, A., Rusek, B., and Sharples, F. (2012). *Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories*. Washington: The National Academies Press.
- Kahn, M. B. (2008). *The Library Security and Safety Guide to Prevention, Planning and Response*. Chicago: American Library Association.
- Kumbhar, K. N. and Veer, D. K., (2016). *Study of Security System used in College Libraries. International Journal of Research in Library Science*. 7(2): 11-13
- Maidabino, A. A. (2010). Collection Security Issues in Malaysian Academic Libraries: An Exploratory survey. Retrieved from <http://www.webpages.unidaho.edu/~mbolin/maidabinongah.htm>. 1 (2): 77.
- Metili, L. S. (2013). Challenges in Automating Tanzania Academic Libraries. Retrieved from: http://www.inflibnet.ac.in/caliber2013/ppt/1_3.pptx.acc
- Muneja, P. (2010). A Reflection of Tanzania Libraries in the Digital Age: Challenges and Prospects. A paper presented as a keynote address during the annual conference for the Tanzania Library Association (TLA) held in February, 2010 in Mbeya, Tanzania.

- Nihuka, A. (2015). *Security Management for Prevention of Theft, Lost and Damage of Information Resources in University Libraries: A Case of TUDARCo Library*. Dar es Salaam: TUDARCo.
- Odaro, O. (2011). *Electronic Security Systems in Academic Libraries: A Case Study of Three University Libraries in South-West Nigeria*. Ota: Macmillan Nigeria Publishers. Retrieved from <http://iclc.us/cliej/cl32osayande.pdf>
- Ogbonyomi, A. (2011). *Preservation Policies and Conservation in Academic Libraries: A Report of the Cambridge University Library Conservation Project*. British Library and Information. Research Report no.9.
- Person, R. L. (2007). *Electronic Security Systems: A Manager's Guide to Evaluating and Selecting System Solutions*. Amsterdam: Butterworth-Heinemann.
- Pickard, A. J. (2013). *Research Methods for information (2nd ed.)*, Chicago: Neal-Schuman.
- Pruzan, P. (2016). *Research Methodology: The Aims, Practices, and Ethics of Sciences*. New York: Springer International Publishing.
- Rasul, A., and Singh, D. (2011). The Role of Academic Libraries in Facilitating Postgraduate Students' Research. *Malaysian Journal of Library and Information Science*. 15 (3): 75-84.
- Rose, G. (2016). *Visual Methodologies: An Introduction to Researching with Visual Materials 4th ed.*, London: Sage Publications Ltd.
- Selvam, S. G. (2017). *Empirical Research: A Study Guide*. Nairobi: Paulines Publications Africa.
- Schmidts, A., and Lian, S. (Eds). (2009). *Security and Privacy in Mobile Information and Communication Systems*. Turin, Italy: Springer.

- Tanzania Commission for Science and Technology, (2012). *Survey Report on the Existing IT Infrastructure, Related Environment and User System Requirement for the EMIS and Electronic Library System*. Dar es Salaam: COSTECH.
- Tyson, D. (2007). *Security Convergence: Managing Enterprise Security Risk*. London: Butterworth-Heinemann.
- Uma, V., Suseela, V. J., and Babu, V. N. (2010). *Electronic Security System in University Libraries with Special Reference to IGM Library, University of Hyderabad. A Journal of Library and Information Sciences*. Retrieved from <http://www.researchgate.net/publication/318725678>.
- UNESCO, (2015). Empowering Information Professionals: A training programme on information and communication technology. Introduction to Library Automation Student's Text. Retrieved from http://www.unescobkk.org/elib/publications/ICTEIP/MODULE2/ICTEIP_MOD2_ppt/ICTEIP_MOD2_L1.pdf
- Verbauwhede, I. M, R. (2010). *Security Integrated Circuits and Systems*. London: Springer Science & Business Media.

APPENDICES

Appendix I: Self Introduction Letter

Dear Sir/Madam,

My name is Comfort S. Komba, I currently undertake a research titled: *“An Assessment of Effectiveness of the Library Electronic Security Systems in Higher Learning Institutions in Tanzania”: A Case Study of UDSM and NM-AIST Libraries*”, as part of my Master’s Degree Programme. You are kindly asked to tick or fill in the responses in the questionnaire provided and return the same to the person who gave it to you. Your cooperation and opinion will be highly appreciated.

Any information presented in this questionnaire will only be used for the purpose of this study.

Thank you in advance for your cooperation and support.

Regards,

Comfort S. Komba

MLIM, OUT

E-mail: comfort794@gmail.com

Mobile: +255 757 182 876

Appendix II: Questionnaire for Students

1. Name of institution.....
2. Name of library user (optional).....
3. (i) How often do you use the library?
 - (a) Everyday/ almost every day ()
 - (b) Twice a week ()
 - (c) A week ()
 - (d) Once in more than a week ()
 - (e) Never ()
- (ii) Give reasons for your answer in part 3 (i). For example: I do not have enough time, the library does not have relevant information resources

4. (i) Are you aware of library electronic security systems?
 - (a) Yes ()
 - (b) No ()
- (ii) If Yes, in simple description, how does it work?

- (iii) If your answer to question (4 i) is (a), please explain if the electronic security systems help in safeguard library materials?

5. (i) Have you ever found information resource in a catalogue but missing in shelves?
 - (a) Yes ()
 - (b) No ()

(ii) If Yes, what are the responses given by librarians about the missing items?

.....

.....

.....

6. Are the library electronic security systems relevant?

.....

.....

.....

7. If you have ever experienced the challenges of the systems, what would you recommend as the alternative strategy in order to improve library services?

.....

.....

.....

8. Are other students conversant with the systems and their advantages? What do they say about such systems?

.....

.....

.....

Appendix III: Questionnaire for Library Staff

1. Name of institution.....
2. Name of staff (optional).....
3. Section/office.....
4. Level of education.....
5. Position held.....
6. Years of service in the library.....
7. (i) Does your library use electronic security system?
 - (a) Yes ()
 - (b) No ()
 - (c) I do not know ()

(ii). If your answer to the question (7 i) is (a), for how long?

.....

.....
8. How do you rate the electronic security systems' performance in your library?
 - (a) Excellent ()
 - (b) Good ()
 - (c) Moderate ()
 - (d) Bad ()
9. Please give your comment for your response in question (8) above.

.....

.....

.....

10. (i) Does the electronic security systems in the library facilitate your work?

(a) Yes ()

(b) No ()

(ii) If your response to question (10 i) is (a), how?

.....

(iii) If your response to question (10 i) is (b), why?

.....

11. Do you know how the library electronic security systems work?

(a) Yes ()

(b) No ()

12. Have you ever attended any training on the use of the library electronic security systems?

(a) Yes ()

(b) No ()

13. How do you rate the theft of information resources in the library before and after the application of electronic security systems?

.....

14. What do you consider to be the weaknesses of the electronic security systems in this library?

.....
.....

15. What do you suggest to be the solutions to the weaknesses that you have mentioned?

.....
.....

Appendix IV: Interview Guide for Heads of Libraries, Deans and Heads of Departments

1. Name of institution.....
2. Name of staff (optional).....
3. Section/office.....
4. Level of education.....
5. Position held.....
6. Years of service.....
7. What prompted you to apply library electronic security systems?
.....
.....
.....
8. What was the situation before the application of 3M detection systems/anti-theft detection and how is the situation now?
.....
.....
.....
9. How do you rate the efficiency of the electronic security systems?
 - (a) Excellent ()
 - (b) Good ()
 - (c) Moderate ()
 - (d) Bad ()

10. (a) What are the key challenges facing the electronic security systems in the library?

.....

(b) How do you solve these key challenges?

.....

11. Suggestions the best ways to make the library electronic security systems operate efficiently.

.....

12. How was the electronic security systems acquired?

.....

13. Was there any training of staff after the acquisition of electronic security systems?

(a) Yes ()

(b) No () If No, how did they learn to use the system?

.....

14. Do the staff appreciate the advantages of electronic security systems?

(a) Yes ()

(b) No ()

If Yes, how is the electronic security systems advantageous?

.....

If No, what are their concerns/complaints?

.....

15. Who paid for the electronic security systems?

.....

16. How do you maintain the system?

- (a) Through service contract ()
- (b) Adhoc use of the existing contractors in the market ()
- (c) Others (Please, specify).....

17. Is there any real cost saving on the part of the university (before and after)?

- (a) Yes ()
- (b) No ()

18. Based on the response in question 17, what is the nature of the saving (in terms of staff turnover or any other means (Please, specify)

.....

Appendix V: Research Clearance for UDSM

THE OPEN UNIVERSITY OF TANZANIA

DIRECTORATE OF POSTGRADUATE STUDIES

P.O. Box 23409
Dar es Salaam, Tanzania
<http://www.openuniversity.ac.tz>



Tel: 255-22-2668992/2668445
ext.2101
Fax: 255-22-2668759
E-mail: dpgs@out.ac.tz

Our Ref: PG201702600

29th August, 2019

Director of Library Services,
University of Dar es Salaam,
P. O. Box 35091,
Dar es Salaam.

RE: RESEARCH CLEARANCE

The Open University of Tanzania was established by an Act of Parliament No. 17 of 1992, which became operational on the 1st March, 1993 by public notice No.55 in the official Gazette. The Act was however replaced by the Open University of Tanzania Charter of 2005, which became operational on 1st January, 2007. In line with the Charter, the Open University of Tanzania mission is to generate and apply knowledge through research.

To facilitate and to simplify research process therefore, the act empowers the Vice Chancellor of the Open University of Tanzania to issue research clearance, on behalf of the Government of Tanzania and Tanzania Commission for Science and Technology, to both its staff and students who are doing research in Tanzania. With this brief background, the purpose of this letter is to introduce to you **Mr. KOMBA, Comfort Solanous Reg No: PG201702600** pursuing **Master of Library and Information Management (MLIM)**. We hereby grant this clearance to conduct a research titled *"An Assessment of Effectiveness of Library Electronic Security Systems in Higher Learning Institutions in Tanzania"*. He will collect his data at Kinondoni District in Dar es Salaam Region from 1st September, 2019 to 30th September, 2019.

In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic) of the Open University of Tanzania, P. O. Box 23409, Dar es Salaam. Tel: 022-2-2668820. We lastly thank you in advance for your assumed cooperation and facilitation of this research academic activity.

Yours Sincerely,

Prof. Hossea Rwegoshora
For: VICE CHANCELLOR
THE OPEN UNIVERSITY OF TANZANIA

Appendix VI: Anti-Plagiarism Report

Master Dissertation

ORIGINALITY REPORT

| | | | |
|------------------|------------------|--------------|----------------|
| % 25 | % 18 | % 1 | % 23 |
| SIMILARITY INDEX | INTERNET SOURCES | PUBLICATIONS | STUDENT PAPERS |

PRIMARY SOURCES

| | | |
|----------|---|------------|
| 1 | Submitted to University Der Es Salaam Student Paper | % 4 |
| 2 | Submitted to Eiffel Corporation Student Paper | % 3 |
| 3 | repository.out.ac.tz Internet Source | % 3 |
| 4 | www.sacids.org Internet Source | % 1 |
| 5 | pdfs.semanticscholar.org Internet Source | % 1 |
| 6 | Submitted to Federal University of Technology Student Paper | % 1 |
| 7 | Submitted to Institute of Accountancy Arusha Student Paper | % 1 |
| 8 | erepo.usiu.ac.ke Internet Source | % 1 |
| 9 | Submitted to Kenyatta University Student Paper | % 1 |