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

Mambo, H. L. & Comfort, K.
Open University of Tanzania and University of Dodoma
Henry.mambo@out.ac.tz &comfort.komba@out.ac.tz

ABSTRACT

This paper assessed 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 paper were to assess the application of the electronic security systems; 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 paper adopted quantitative and qualitative research approaches. Findings indicated that the performance of library electronic security systems face the challenges such as; poor libraries management, absence of users training and education programs, unreliable electrical power resources, lack of commitments among library staff, poor library budgets and inadequate funds. Based on the findings, it was concluded that the electronic security systems in the university libraries 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 adequate 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

INTRODUCTION

The major roles of libraries today might not be limited to acquisition of information resources and processing them but also devising methods for protecting such information resources from being stolen and mutilated. According to Ferdinand (2015), information security, sometimes is the practice of defending information and information bearing materials from unauthorized access, use, disclosure, disruption, modification, perusal, inspection, recording or destruction. Pearson (2007) is of the view that security of information resources has been a major challenge for librarians from the ancient times. He further elaborates that 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. According to Hottest (2012) library has 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 developments in modern technologies have 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 Connaway & Powel, (2010) the advent of modern technologies has made the security professionals to regard application of electronic security systems for solving routine challenges in their workplaces.

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 to support teaching, research and consulting activities of any higher learning institution. 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 which were 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 pose a great threat to information resources (Rasul and Singh, 2011). According to Akussah and Bentil, (2010) this challenge has become rampant in recent years and t is considered as one among the factors for higher operating costs

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. 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, still, there are no sufficient evidence of studies that have been undertaken to ascertain their effectiveness in addressing the loss of information resources.

Objectives

Generally, this paper intends to assess the effectiveness of library electronic security systems in Tanzania with specific reference to UDSM and NM-AIST libraries. The specific objectives are to assess the application of the electronic security systems at UDSM and NM-AIST libraries; to evaluate the effectiveness of electronic security systems in the libraries; to identify pros and cons of using electronic security systems in the libraries; and to identify the challenges of using of library electronic security systems.

Research Questions

The following basic questions guided development of the paper. These are as follows; what were the key issues in the application of library electronic security systems, how effective were the library electronic security systems in safeguarding the information resources in higher learning institutions in Tanzania, what were the challenges of using the library electronic security systems, and what were suggestions about the application of the library electronic security systems.

Review of Related Literature

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.

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.

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) has noted that after applying electronic security systems at the Covenant University, Ota Nigeria, books loss rate as 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; mutilation, theft and vandalism, disruptive behaviour of patrons, book mis-shelves in the libraries is the use of alternative preventive measures and security devices.

Needs and Importance of Library Electronic Security Systems

According to Dawe (2017) information resources are expensive to secure and preserve in the library. Information resources are rare to find once they 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 un-conducive 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.

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) has argued that although some libraries especially those in developing countries appear to have good infrastructure in protecting their information resources, but currently Tanzania still faces some challenges such as; 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.

Methodology

Quantitative and qualitative research approach was used for data collection. University of Dar es Salaam (UDSM) and Nelson Mandela - African Institution of

Science and Technology (NM-AIST) libraries were used as case studies. 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. The sample was drawn from the students, library staff, heads of libraries, deans, and heads of departments who normally access and use libraries. The respondents comprised of thirty (30) students, thirty eight (40) library staff, ten (10) deans of faculties, and twenty (20) heads of departments from both universities.

Data presentation, analysis and discussion of the Findings

The sample of 100 respondents who was selected from 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. Questionnaire, interview and observation methods were used to collect data. 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 basing on their objectives are discussed as follows:

Application of the Electronic Security Systems

The first objective was to assess application of the electronic security systems in the libraries. This part focused on the reasons for using library electronic security systems. 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. 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. In case of awareness, 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 NMAIST 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. The second objective 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. The aim of this aspect was to evaluate the effectiveness of the electronic security systems in the libraries as determined by the following aspects: frequencies of use of libraries, performance of library electronic security systems and access to 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. 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. In terms of the performance of Electronic Security Systems, 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.

Performance of Electronic Security Systems

According to figure 4.1, 41 (58.5%) respondents noted that the performance of library electronic security systems following installation of the electronic system 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.

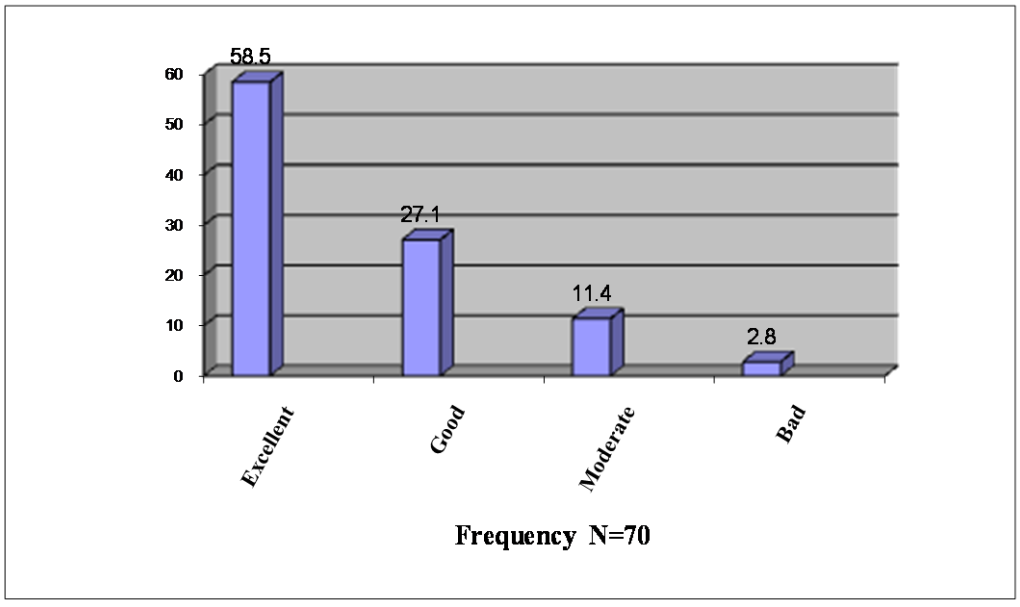

Figure 1: Performance of Library Electronic Security Systems

Source: Research findings (2019)

The third objective was to identify the pros and cons of using electronic security systems in libraries. 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. The fourth objective addressed challenges of using the library electronic security systems. Results showed that 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.

Table 1: 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)

Conclusion and Recommendations

The results showed that the most common challenges that were facing higher learning institutions in Tanzania in using library electronic security systems to 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 further showed that library electronic security systems have improved services on collection development, by increasing the number of information resources. However, the paper further established that there are operational problems related to its use such limited caused by poor library management. The findings also 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 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 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 were 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. 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.

Conclusion

The findings revealed that library electronic security systems itself did not have any problem in safeguarding information resources, rather, 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. 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 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.

Recommendations

In view of the above findings, it is proposed that 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 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.

REFERENCES

Connaway, L. S. and Powel, R. R. (2010). *Basic Research Methods for Librarians*. Santa Barbara, CA: Libraries Limited.

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

Gupta, P., and Madhusudhan, M. (2018). *RFID Technology in Libraries: A Review of Literature of Indian Perspective.* New Delhi: University of Delhi.

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.

Muneja, P. (2010). *A Reflection of Tanzania Libraries in the Digital Age: Challenges and Prospects*. A paper presented as a key note address during the annual conference for the Tanzania Library Association (TLA) held in February, 2010,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.

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.

Rasul, A., and Singh, D. (2011). The Role of Academic Libraries in Facilitating Postigraduate Students' Research. *Malaysian Journal of Library and Information Science*. 15 (3), 75-84.

Schmidts, A., Lian, S. (Eds). (2009). *Security and Privacy in Mobile Information and Communication Systems.* Turin, Italy: Springer.

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* 4(7),13-20