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Gladness Kotoroi

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Constraints Facing African Academic Libraries in Applying Electronic Security Systems to Protect Library Materials

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ABSTRACT

This article reviews published literature to identify factors that impede the application of electronic security systems (ESSs) in protecting library materials in African academic libraries. The information for the study was gathered through a review of online literature from databases, namely ProQuest, EBSCO, Emerald, Library Literature, Research Gate Information, and Google search engine. The scope of the literature covered the time when African academic libraries began to use ESSs to protect their collections to the present. It covered only literature that addresses the challenges that hinder African academic libraries from utilizing ESSs to protect library materials. Information was collected by reading the abstracts and conclusion of the online documents. In the beginning, a total of 91 articles were collected as a population of the study. However, only fifty-four (54) articles were found to be relevant to the area of the study. Basic keywords and advanced searching, namely truncations, headings, Boolean operators, electronic security systems, academic libraries, security, African Libraries, theft and mutilation were also used to get relevant literature on the topic from peer-reviewed and scholarly resources. Based on the findings of the reviewed literatures it is concluded that African academic libraries undergo nearly the same challenges where most of which can be addressed because they are generated by the managements, library staff and the environment in which the libraries operate rather than the ESSs. The researcher recommends that African academic library managements should cope with the technological changes so as to compete with the market demand. With that regard, the reported ESSs challenges facing African academic libraries should be aggressively addressed in order to make the application of ESSs effective. Equally, another study should be carried out to inform about the ramifications of not addressing electronic security systems.

Keywords: Electronic security system, materials, academic libraries, security, African libraries, theft and mutilation.

INTRODUCTION

New development in digital technologies over the years has brought a lot of transformations to traditional library work (Hussain & Ahmad, 2021). Academic and research libraries around the world, including those in the underdeveloped nations have incorporated technology into all of their internal operations and activities. An academic library is considered to be the foundation of any

higher learning institution, as all activities such as learning, teaching, research and consulting rely on the materials available in the library (Ifijeh, 2014; Idris, Hassan & Abdul-Qadir, 2013). Correspondingly, it has been enlightened by Ozowa (2016) that, “the library is important because it assists users in obtaining information resources for reading and report writing, as well as to improve students' academic performance.” Mutula (2008) and Hoskand and Stilwell (2011) on the other hand concur that academic institutions of higher learning devote a lot of financial resources to offer necessary information resources for their libraries in an environment of reduced budgetary provisions and inadequate funding. Along with that, library professionals are not only responsible for operating services but also to ensure that library resources are safe and in good condition (Gupta, 2019). Security issue in academic libraries however, is not a peculiar phenomenon (Osayande, 2019). Security systems in libraries began in ancient times, immediately after the discovery of libraries in the world in the 7th Century BC to avoid the loss and damage of information resources (Abduldayan, 2019 & Watstein, 1983). Due to technological advancement, libraries are now able to provide multidimensional information and services that cannot be protected from theft and mutilation using traditional methods. Because of the increasing number of materials, academic libraries were forced to shift to modern security systems (ESSs). Although the majority of African academic libraries managed to install and use ESSs to restrain theft and mutilation of library materials, various factors still deterred the application of the systems. These may emanate from technological, personnel and organizational factors. Because of the significance of ESSs in the libraries, all these factors need to be addressed for the sake of effective application of the systems for library collection management security purposes. Electronic security systems are critical for efficient library management as they assist library managements in maintaining order and reducing or eliminating library material theft and unethical losses. The aim of the study is to present the descriptive literature reviews regarding challenges in the application of ESSs in academic libraries with an emphasis on the works of African libraries.

Protection of library materials in the collection using electronic security system services

Technology systems, particularly electronic security system services have been wired and integrated into all in-house functions and activities of academic and research libraries all over the world including in the developing countries. Academic library collections contain both printed and online resources which need to be protected. However, the current information environment is highly ICT- driven. Thus, there is a high level of dependence on new technological innovations to offer dynamic and cutting-edge information services that meet the changing needs of the users. For academic libraries to flawlessly deliver effective information services that meet up with the current challenges, there is a need of adopting and integrating new modern ways of protecting library materials. Nweke (2019) and Isebe (2014) hold that library materials theft and mutilation is a "Library Epidemic" desolating every academic library globally. The perseverance of the theft and mutilation of the library collection problem has impelled librarians to plan strategies to snatch the problem so as to remain with the current collections to meet their users' needs. However,

regrettably, the issue of library security remains mysterious despite the introduction of technology-driven security solutions (Kulkarni & Powdwal, 2008). Although the application of ICT services is tiresome due to technical issues, inadequate funds and human factor, it has to be carried out at any cost to ensure the security of the materials in the collection.

Application of electronic security systems in academic libraries

The role of university libraries in response to the needs and demands of customers is changing rapidly and becoming dependent upon technological solutions (Ondiek, 2013) and the primary role of academic libraries is to provide quality services to customers. This makes the appeal for ESSs an essential requirement in academic libraries (Gupter, 2021; 2017 & Ondiek, 2013). Most of the academic libraries in the modern world now rely on ESSs to prevent their resources and premises from theft and mutilation. Their faith is erected in the effectiveness and reliability of ESSs on the library materials security and their implementation. The application of ESSs is much vital as they provide protection to the library resources through involving techniques like alarm systems, access control systems, fire control systems, attendance record systems, environmental control, shelving space method, and physical and chemical treatment for natural damages of bindings (Nath, 2021). From accrued benefits for applying ESSs to protect library resources, professionals should adopt a better electronic system for the library security purposes. Gupta and Margam (2021) specified that security systems in academic libraries should function seamlessly without disturbing the main objectives of a library, i.e. providing user services with ease and simplicity. They also involve the protection of personnel (both staff and users), collections, equipment, physical facilities and other information resources from mutilation, theft, and physical attack. However, the effectiveness of electronic security systems in libraries depends on three main issues, namely regular maintenance, presence of experts and regular power supply. It is also explained by Li, Dai & Cui (2020) that “if an electronic security system performs its work effectively and efficiently it can lead to the reduction of theft, mutilation vandalism and illegal borrowing of reading materials.”

Different studies explain the effectiveness of library electronic security systems. Kombu (2020) recommended that “the installation of electronic security systems should go directly with its ability to perform work because most libraries continue to face damage and theft of reading materials as their electronic security systems do not work properly.” This implies that electronic security systems need to be operated effectively to minimize theft and damage to information resources. Another study by Osayande (2019) suggests that “the better way to deal with security in academic libraries is to embrace electronic security systems which will better ensure the effective security of library materials from theft, mutilation or other forms of crimes.” Komba (2020) also indicated that CCTV cameras and smoke detectors need to have air conditioning to control the temperature which can cause damage to library materials. These are few among many scholars who have indicated the advantage of the application of ESSs in academic libraries for security purposes. Kumar (2014) and Randall and Newell (2014) seconded the application of video surveillance or closed-circuit television (CCTV) cameras that they help to monitor movements in

the library; thus, enhancing the security of materials and personnel. It was also commented by Molner and Wagner (2004) that, “Radio frequency identification (RFID) system helps to track the movement of books and the library user(s) carrying them within the library.” Although many electronic gadgets are expensive, academic libraries should keep on applying them for the long-term expense of the alternative (loss of collections) as it is even more expensive (Martin, 2013). Another benefit of using ESSs in academic given out by Gupter (2021) is that electronic security systems have played a significant role in different aspects of life, including providing security to any subject under study, including a library environment. Nath (2021) also acknowledged that the adoption of ESSs in the library has led to a manifold increase in the overall safety of its collection, services and investments. This has helped librarians to act smartly against any theft or mutilation, and unauthorized physical and digital access of library materials by the users.

Types of ESSs applied by academic libraries for managing theft and mutilation of materials

Electronic security systems are the equipment that perform operations like access control and secure library materials (Nath, 2021). It is also provided by Rajendran and Rathinasabapathy (2007) that “electronic security systems (ESSs) are devices that are used with the aid of an electrical gadget to secure library materials.” Among the ESSs which libraries use in the libraries they include CCTV Surveillance Systems, IP Surveillance systems, Detection and Alarm Systems, Access control systems and RFID electronic security systems (Ekere, 2019; Nweke, 2019; Osayande, 2019 & Gupta *et al.*, 2017). Equally, Ezebasili (2018) and Osayande, (2011) commented that in Southern Nigeria there are some electronic security systems such as Radio frequency identification (RFID) systems, Perimeter and alarm systems, movement detectors, and fire alarm systems. These have been installed in the library because they are very useful to academic libraries in preventing theft of library materials. Furthermore, Komba (2020), acknowledged that “there are different types of electronic security systems which are used at the University of Dar es Salaam (UDSM) and Nelson Mandela - African Institution of Science and Technology (NM-IST) libraries including theft detecting machines at the entrance of the library to detect if the reader has gone out with library materials without permission from the staffs”. Below is a list and clarifications about some of the ESSs used by academic libraries to protect against theft and mutilation:

Radiofrequency identification (RFID)

Radiofrequency identification is an exciting and fast-growing technology for snowballing competence and refining viability and is an important area of study in today's information environment (Madhusudhan, 2010). The RFID system is generally used to describe any technology that uses radio signals to identify specific objects. In developing countries, according to Waddenkeri (2006), RFID technology is embryonic as one of the modern information 2.0 systems increasingly being adopted and implemented in libraries and information establishments to

increase the efficiency and quality of the delivery of information services to customers. Waddenkeri (2006) and Makori (2013) further detailed that, “among the various technologies, the radio frequency identification seems to be dominating in the information industry as a means to improve efficiency in library activities and services. In fact, this is one of the significant technologies of the new millennium that has invaded libraries. The use of RFID according to Nagalakshmi (2011) has been extended to libraries, keeping libraries efficient and competitive in a shifting environment. Libraries use RFID technology to increase the speed and convenience of their procedures and to improve the quality of their services (Boyd, 2018). Equally, Nisha (2018) elaborated that RFID is one of the tools in the academic library to manage and govern libraries’ resources. Similarly, Ondieki (2013) quantified that, barcoding and electromechanical (EM) technology was used for the security of information materials. Furthermore, Yavuz and Gözel (2016) indicated that, with the improvement of technological advances in recent years, RFID applications, whose history begins in the 1940s, have become quite popular decrement of their size and increment in their reading distance has led to the use of such technology in different areas commonly. Radio Frequency Identification (RFID) is an electromagnetic wireless system of communication that is used in libraries for identification and security purposes. Each RFID tag is attached to all items of a particular library and instantly responds with its unique item ID number which is the same as the accession or stock number used by many libraries. The RFID system helps library staff in security, stock-taking, and patrons self-service such as auto door, drop-box, self-check-in/out, and many more (Sungkur, Ozeer & Nagowah, 2021).

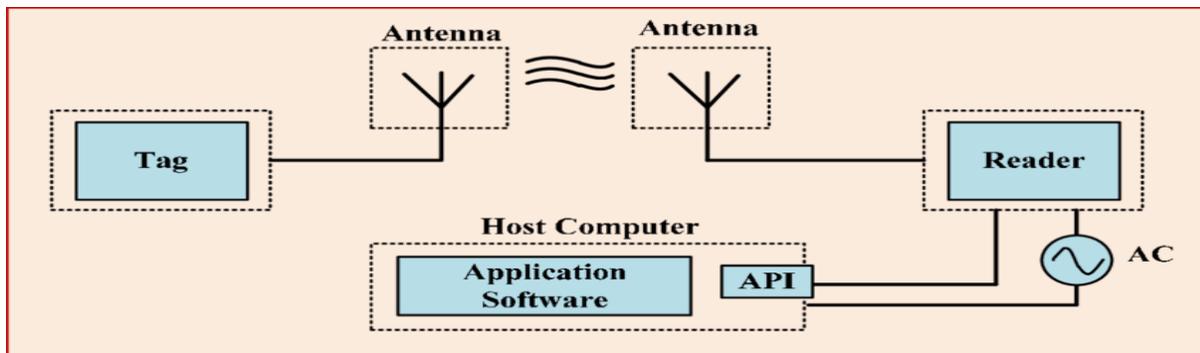


Figure 1: RFID System Components

Source: Doğan, Çağlar, Yavru, and Gözel (2016)

Closed Circuit Television (CCTV)

The important aspect pointed out by Gupter (2021) related to the kind of ESSs used in the library for the protection of library materials, is that, “the loss encountered can be enlisted, and necessary actions could be taken to prevent such kind of loss.” In an academic library, the CCTV system serves the twofold purpose of ensuring the safety and security of library collection and library staff and enforcing discipline among the users (Gupter, 2020; Lavanya, 2017; Gupta & Margam, 2021). This technology is useful to the library community because of its usage in various multi-purpose

tasks, which led to the improved security of collection. The system is a cost-effective device for enforcing safety and maintaining discipline in the library. It also reduces the requirement for library security guards (Pathak, 2019). Furthermore, it is recommended by Gupter (2021) that CCTV implementation improves service efficiency in libraries and enables more diversified applications and service modes. According to Madhusudhan (2010), CCTV can make personal and professional lives in the library more convenient. Also, Circo and McGarrell (2020) suggested that integrated CCTV programs might increase the reporting of minor crimes that were not reported before. The study of Circo and Mc Garrell (2020) further revealed that the inclusion of the latest CCTV system in studied libraries brings improvement in the security of the library materials and premises. It also increases the ease of doing a task while saving time, energy and money. The comfort, thus gained by the library professionals not only increases their efficiency but also improves their attitude toward the users/visitors. Therefore, it can be inferred that growth in the number of visitors could be related to the implementation of the latest security technologies as more resources are preserved from miscreants to be used by the seekers.



Electronic Resource Management (ERM)

An ERM system is the technique used by library professionals to trace the selection, acquisition, access, licensing, usage, evaluation, retention, and de-selection of library's electronic information resources (Breeding, 2018; Gul & Bano, 2019). The primary purpose of any robotic system is to perform some useful tasks that a human either cannot or would prefer not to do and to hopefully do it better, cheaper, safer, and more reliably (Everett, 2003). Electronic resource management (ERM) involves overseeing all aspects of ERs including operations and systems that are created to manage these resources in libraries from pre-selection activities to renewal or cancellation decisions (Bothmann and Holmberg, 2008; England & Miller, 2016).

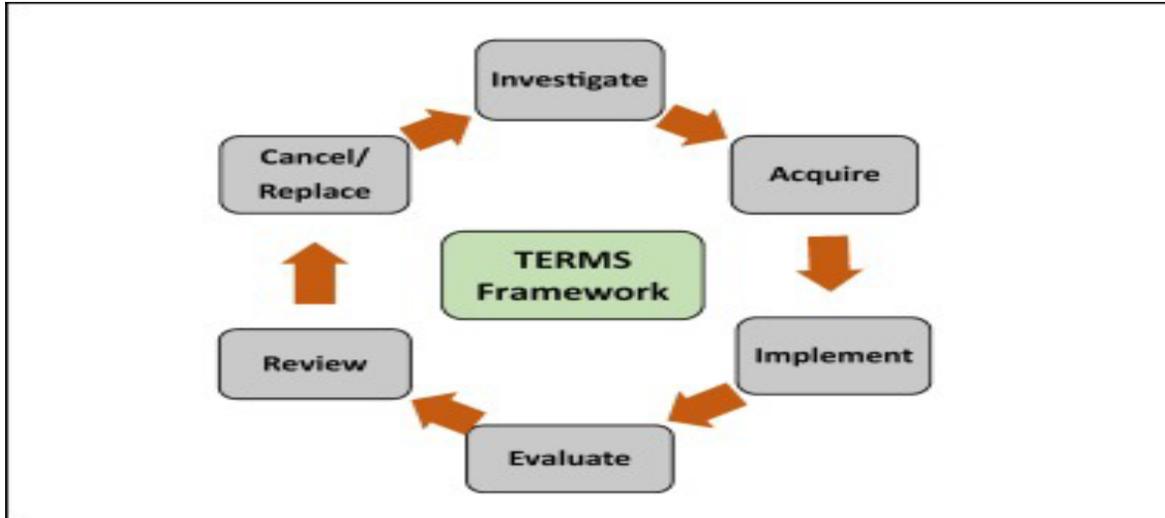


Figure 2: The TERMS Framework (Emery & Stone, 2013 a, b)

Challenges hindering the application of Electronic Security Systems in African academic libraries

In modern knowledge and learning environments, university libraries have to look for creative solutions in order to be relevant to the needs and demands of customers (Ondiek, 2013). Electronic Security Systems (ESSs) in libraries have made a significant improvement in the security of library materials and to track materials more effectively throughout the library (Gupta & Madhusudhan, 2017). Although the security of library material is essential to its effective exploitation or use due to knowledge expansion, compound factors disturb the protection of library resources. Previous studies have reported that application of ESSs emanate from human factors, organizational factors and technological factors (Masenya and Chisita, 2022; Mubofu *et al.*, 2022; Ngamba and Casmir, 2021; Chisenga, 2016 & Maidabino, 2010). This paper reviewed various types of literature relating to the application of ESSs in academic libraries and the challenges they are bumped into and eventually propose various methods that academic libraries can deploy to address the challenges.

A descriptive survey research design carried out by Ezeabasili (2018) aimed at examining the use of electronic security systems in Federal University Libraries in Southern Nigeria. Sample of the study comprised 111 librarians who were drawn from Federal Universities. The findings indicated that available electronic security systems in the researched libraries are not in regular use while others are no longer in use. The study further indicated that the main reasons for the low use of ESSs in the three universities include poor maintenance, inadequate funding and poor power supply.

Equally, Komba (2020) conducted a study anticipating 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 using quantitative and qualitative research approaches. Findings

indicated that the performance of library electronic security systems faces the challenges such as poor library management, absence of user training and education programs, unreliable electrical power resources, lack of commitments among library staff, poor library budgets and inadequate funds. In the same motive, Osayande and Odaro (2019) conducted a study focusing three university libraries in South-West Nigeria. The study findings designated that the three universities faced different challenges in operating electronic security systems including insufficient power supply, lack of enough budget, lack of skills and awareness of the importance of electronic security systems, and also lack of regular maintenance of electronic systems.

Similarly, Chioma and Nwosu (2018) steered a study using a sample of 111 librarians drawn from seven Federal Universities. The study aimed at investigating the impact of electronic security systems on the security of information resources in Federal University Libraries in Southern Nigeria. The study findings indicated that electronic security systems are an adequate check of threats to information resources in libraries studied, only that they are not used on regular basis. Even when they are not in use at all, their presence alone serves as a prevention against thieves. In the same manner, Odaro (2011) piloted a study which aimed at scrutinizing the effectiveness of electronic security systems in academic libraries with a focus on the selected university libraries in South-West Nigeria. A survey design was used and a participant observation method was also employed to measure how effective the electronic security devices are. The study unveiled that academic libraries have suffered adversely from security issues and other anti-social menace and that the installation of security devices would drastically improve the situation.

Odaro (2011) also suggested that the better way to deal with security in academic libraries is to embrace electronic security systems. That will better ensure the effective security of library materials from theft, mutilation or other forms of crime.

Ondiek (2013) carried out a survey research design to collect data, ideas, opinions, views and suggestions from the respondents drawn from various university libraries in Kenya. Data were collected using a web-based structured questionnaire, document analysis and participant observation. The findings showed that few university libraries in Kenya are using radio frequency identification technology to handle and support information services and activities. The study also found various problems hindering the adoption of the technology, such as lack of information communication technology (ICT) policies, lack of a business approach, limited market opportunities, lack of lobbying or negotiating skills, inadequate funding and budgeting, and lack of ICT competencies and skills. The study recommended that library ICT professionals, information professionals and other stakeholders should make tireless efforts to implement and use RFID technology with the view to building, strengthening, improving and supporting information work and activities in university libraries. It also identified the problems library management encounter in the process of utilizing AI, namely inadequate funds, technological barriers, job loss and so on. In conclusion, the researchers noted that the utilization of artificial intelligence (AI) in library and information centres is creating a new standard for effective and

efficient service provision in the library. However, there is low utilization of AI technology in academic libraries in developing countries, which is a result of the problems identified earlier.

Bhaskar, Tiwari and Joshi (2021) carried out a study to provide a systematic literature review on blockchain technology in education. Their aim was to offer a detailed understanding of the present scenario in terms of benefits, barriers, present blockchain technology application, and future areas where blockchain technology can be implemented in the other fields of education. The study identified the benefits, barriers and present application of blockchain technology in education. The analysis shows that blockchain technology in education is still a young discipline, but has a lot of potentials to benefit the educational sector at large. It further indicated that the application of the system in academic libraries is scalable, and security and cost still remain barriers and need attention from the professionals in the field.

Barfi (2015) conducted a study aiming at exploring the opportunities, experience, developments and challenges of academic library automation, with a perspective from Anglophone West Africa, namely Ghana Nigeria, Sierra Leone, Gambia and Liberia. Literature was triangulated with empirical data to determine whether responses are the same for all countries. Questionnaires were used for the empirical data at the same time the Systematic Literature Review (SLR) method was adopted for the secondary data. Findings revealed that the majority of the libraries were at different stages in the automation process. The findings indicated that challenges and opportunities from all researched institutions were similar. Some of the challenges that were discovered included poor internet connectivity, inadequate technical expertise to manage automated systems, lack of computers, poor cooperation, erratic power supply and inadequate project management skills.

Osayande (2019) conducted a study about impact of RFID (radio frequency identification) technology on libraries aiming to assess performance of RFID in libraries and provide guidance for researchers and practitioners in adopting RFID in libraries. The study found out that libraries face various challenges in implementing RFID in libraries, including high cost, frequency block, chances of removal of exposed tags exit gate sensor problems, user privacy concerns, reader collision, tag collision, and interoperability. Abioye & Adeowu (2013) investigated the security risk management in the selected academic libraries in Osun State, Nigeria using a descriptive survey design study and established that inadequate funding, shortage of staff/personnel, erratic power supply, and lack of institutional security policy/disaster plan were the challenges confronting security management in the libraries.

Ekere, Akor & Solomon (2019) investigated the use of ICT for security and theft prevention in two university libraries in Nigeria using 80 library staff of the two universities. The data were analyzed by using simple statistical tools like frequencies and percentages. The findings of the study revealed that all of the literate or skilled personnel that can operate, teach and instruct the use of telecommunication security systems are the main challenges affecting the application of ESSs. Yusof & Saman (2016) used a formal innovation-decision framework to analyze the literature on the use of RFID in libraries to identify common applications, potential benefits,

barriers, and critical success factors and indicated policy factors economic factors, technical issues, and personal issues as the main challenges for the application of RFID in the libraries

Ezeabasili and Nwosu (2018) correspondingly found out that the available electronic security systems are not in use in Federal University Libraries in Nigeria because of a lack of funding and poor maintenance Ozowa *et al* (2016) evaluated the use of electronic surveillance and modern technological security devices to detect book theft and mutilation at Francis Sulemanu Idachaba Library, University of Agriculture, Makurdi and found out that the main challenges affecting the application and effectiveness of electronic surveillance are insufficient funding budget allocated to the library, poor power supply and the high cost of installing ESSs.

Hampwaye (2022) investigated the types of security problems facing higher learning institutions libraries in Zambia; as well as security measures put in place by higher learning institutions libraries to mitigate against security problems. The study also assessed the effectiveness of the security systems used by these libraries. This study took an exploratory study approach and used the qualitative method. Respondents were selected using a technique known as purposive sampling. The study found significant differences in the application of organizational security measures among Zambian higher learning institutions and libraries due to several challenges such as lack of security policies, incompetent staff and insufficient funds for security systems. The findings also revealed that half of the higher learning institutions' libraries surveyed have implemented technological security measures, but that organizational measures and security device maintenance need to be improved.

METHODOLOGY

The purpose of this study was to identify factors that impede the application of electronic security systems in African academic libraries. The information for the study was gathered through a systematic review of literature (Xiao and Watson, 2019). Seven Steps were adopted where the selected articles and theses/dissertations are the ones published in local and foreign library and information science research journals. The first step was the formulation of the research problem, the second step was to develop the review protocol, the third steps was screening the literature found, the fourth steps was to assess the quality of the screened literature, the fifth step was to retrieve the literature, the six step was to analyze and the seventh step was to synthesize the literature and reporting the results. The researcher collected online literature from databases such as ProQuest, EBSCO and Emerald, Library literature, Research Gate Information, and Google search engine. Abstracts and conclusions were consulted to find the required literature for this study. After the completion of the review of the literature strategy, the researcher also performed five-step procedures to collect data. The first procedure involve a search which was carried out in electronic databases such as ProQuest, EBSCO, Emerald, Library Literature, Research gate, Semantic scholars, Google scholars, Google search engine, Taylor & Francis, SAGE Publications, and JSTOR, Eric. The second stage comprised evaluation of the studies related to the review

procedures. This was done by filtering the search based on the types of document whereby key words and titles techniques was adopted. Stage three embraced exclusion and inclusion of the documents where documents other than those written in English were excluded. In the stage four only those studies related to the subject area. It covered only literature that addresses the challenges that hinder Africa's academic libraries from utilizing ESSs. In the last stage the researcher manually excluded duplicated and non-English studies from the list. The scope of the literature covered the time when the academic libraries of Africa began to use ESSs to protect their collections to the present. The review of literature covered a period of six months starting from September 2022 to January 2023. A total of 54 studies were selected through this process for the review.

INCLUSION AND EXCLUSION CRITERIA

The inclusion and exclusion of the literature was grounded on the abstract and the conclusion of the selected articles that the researcher has read. Equally the conclusion of the sample size was also reached after the researcher came to the point of information saturation. It implies that the reviewed articles were giving similar information. Simultaneously, basic keywords and advanced searching such as truncations, headings, Boolean operators, electronic security systems, academic libraries, security, African Libraries, theft, and mutilation were also used to get relevant literature on the topic from peer-reviewed and scholarly resources. English-language studies were only selected. And duplicate articles and studies were also excluded. Thematic/content analysis was used to analyze data collected from semi-systematic review of the literature where the scope of the literature was limited.

PRESENTATION OF FINDINGS AND GENERAL DISCUSSION

The sole objective of the research was to investigate the difficulties academic libraries in Africa face in using electronic security technology to protect their collection items from damages and theft. The sample of the study included 54 reviewed literature and the findings were thematic/content analysis as indicated below.

Presentation of findings

The review of some literature discussed the challenges hindering the utilization of electronic security systems in Academic libraries to combat theft and mutilation. According to the findings of the reviewed works of literature of African academic libraries, challenges hindering academic libraries in Africa from using ESSs were nearly the same. Such challenges include poor library management, lack of user training and education programs, unreliable electrical power resources, lack of commitment among library staff, poor library budgets, and insufficient funds. This implies

that the problems are not with the ESSs themselves, but rather it is with the intuitional and human factors (library staff). It seems that they do not put much effort into supporting the use of the ESSs application in their libraries. Regarding the challenges mentioned, the managements of African higher learning institutions must change their mindset and recognize the importance of using ESSs due to the growing number of library users, which traditional methods cannot manage. Furthermore, the library's collection now includes both electronic and printed resources that must be electronically protected. This observation is parallel with the study findings of Mambo & Comfort (2022) who commented that the challenges of using ESSs are not directly connected to library electronic security systems but rather to library managements which is linked to the absence of user training and education programs, lack of reliable electrical resources, 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.

Further findings reported on limited funds as challenges preventing African academic libraries from utilizing ESSs to protect library materials. With a limited budget, the library cannot purchase current materials and maintain ESSs as they demand money to support. Library requires a sufficient budget to facilitate the acquisition of ESSs and equally conducting training to staff. The African higher learning managements should consider allocating more budget to the library to facilitate management of library material and other resources from dishonest users. Theft and mutilation directly affect material availability and this hampers effective service delivery. Consistently, since the allocated budget to the library is not enough to cater for library requirements, it is about time now for the African library managements to be creative and innovative to find ways of supplementing the budget rather than keeping on complaining about the deficiency. To supplement their budget they can write or respond to project funds proposals once they are announced by the country's donors.

The reviewed literature's findings indicated that other challenges stemmed from library staff who are not committed to using the system. As a result, they felt embarrassed while using the electronic security system to safeguard library materials. With this evidence, there is a need to find out ways for solving all the issues that cause library staff not be comfortable to using ESSs. Managements need to facilitate training for all library staff to strengthen their confidence in using electronic security systems.

Approximately, 95% of the reviewed literature for the purposes of this study provided possible solutions to combat the challenges. Burudi, Wasike & Ndegwa (2021) in their study titled, "Challenges facing academic libraries in utilizing mobile devices in access and use of information at Kenyatta university and university of Nairobi in Kenya" recommended that universities should establish mobile phone resource centers where mobile phone users can get technical assistance, as well as invest in good Internet connectivity covering the entire university area, including student residences, to enable access to library materials even from outside the libraries, thus decongesting the libraries, and to install adequate power sockets in and outside the libraries to allow mobile phone users to use the library resources through their phones. Chioma appraised the "Use of

Electronic Security Systems in the Security of Information Resources in Federal University Libraries in Southern Nigeria” and suggested that if libraries could overcome the challenges of using electronic security systems, threats to library information resources would be a thing of the past. Dzandza (2019) carried out a study in Ghana using the DeLone and McLean (2003) IS Success Theory to determine the impact of IS management on the quality of the IS, the use of the IS, and the benefits gained. The researcher used nine (30%) out of the 30 university libraries which are members of the consortium of academic and research libraries in Ghana (CARLIGH). A mixed method approach with questionnaires and interviews combined with content analysis of the university websites were used to gather data. Findings indicated that academic libraries in Ghana are making use of some ISs including ILS, DAM, social media and websites, among others, amidst a number of challenges. The research also revealed that the management of ISs affects the quality thereof. The quality of ISs affects use, and use affects the benefits gained from use. The researcher proposed an IS management standard guideline that Ghanaian academic libraries could adopt for using and managing ISs to enhance efficiency and better service delivery Usman-Philip, Ekere & Akor (2019) explored the use of ICT for security and theft prevention in two university libraries in Nigeria and recommended that the exploring and information experts should take out time to educate their parent organizations on the benefits associated with libraries and information Centre about the use of telecommunication security systems and devices that the library parent body can release adequate funds which will be used for the purchase of telecommunication security devices in the library. The issue of the challenges of using electronic security systems by academic libraries, particularly in African countries has been raised since African academic libraries started using ESSs to safeguard library materials.

Despite the recommendations provided by the researcher, the same issues are still upsetting African academic libraries. This suggests that the research findings, recommendations and suggestions probably from researchers are not used or implemented to assist the investigated institutions in solving the identified problems. This could be the reason why African academic libraries continue to face similar challenges. Another reason could be that researchers do not communicate the results of their findings to the institutions being studied for them to understand what has transpired. To bridge this gap, researchers should cultivate a culture of sharing the emerged findings with the investigated intuitions in order to brand research findings speaking to the investigated institution. Similarly, the researched institutions should cultivate a culture of putting the research findings that the researchers communicate at the end into action.

CONCLUSION

Based on the findings of the reviewed literature, it is evident that African academic libraries undergo nearly the same challenges where most of which can be addressed because they are generated by the management, library staff, and the environment in which the libraries operate rather than the ESSs. The study concludes that this is a serious problem that can deteriorate library

service provision because the collection will continue to have insufficient resources to meet the needs of users. This is a call to all African academic libraries to come up with a possible solution on how to effectively address the challenges to facilitate the effective use of ESSs, while taking into account the needs and benefits of using electronic security systems in protecting library collections.

RECOMMENDATIONS

Application of ESSs in academic libraries is inevitable due to technological changes. Thus, African academic library managements should cope with the technological changes so as compete with the market demand. With that regard, the reported ESSs challenges facing African academic libraries should be aggressively addressed in order to make the application of ESSs effective. The study further recommends that all African academic libraries should come up with a possible solution for how to effectively address the challenges to facilitate the effective use of ESSs while taking into account the needs and benefits of using electronic security systems in protecting library collections.

Areas for further study

The scope of the study was to identify the challenges that impede African academic libraries from utilizing ESS services. In this view, another study can be carried out to inform about the ramifications of not addressing electronic security systems.

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