A COMPARATIVE STUDY OF ELECTRONIC SECURITY SYSTEMS OF ACADEMIC LIBRARIES IN SELECTED PUBLIC AND PRIVATE UNIVERSITIES IN SOUTH-WEST, NIGERIA

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ABSTRACT

Purpose: *This study was conducted to compare the impact of the usage of Electronic Security Systems (ESSs) in selected public and private universities in South-West, Nigeria.*

Design/Method/Approach: *The survey research design of ex-post facto type was used for this study. Library personnel in South-West Universities in Nigeria constituted the study population. The study sampled four Universities (University of Lagos, Akoka, Lagos (UNILAGi), University of Ibadan, Ibadan (UI), Covenant University (CU), and Babcocki University) in South-West, Nigeria, using purposive sampling technique. Sixty-seven Librarians and 130 Para-professionali library staff (62 in UNILAG, 51 in UI, 44 in CU and 40 in BU) were sampled using simple random sampling technique, totaling 197 respondents. Instrument used for this study was questionnaire. The ESSQ was used for data collection while a reliability coefficient of 0.83 was obtained through Cronbach alpha of testing reliability. Mean, standard deviation, frequency count, percentage and Independent T-test were used for data analysis.*

Findings: *The results showed that the impact of ESSs in academic libraries in South-West Universities, Nigeria was considered to be positive. The findings also indicated that the condition of the Closed Circuit Television (CCTV) camera was good and it was ranked highest, followed by electronic security gate and RFID, whereas biometrics was poor in ALs. The result likewise confirmed that magnitude of loss of library materials through theft, mutilation and vandalism was extremely high. The result equally revealed that there was significance difference of ESSs in academic libraries across the selected public and private Universities in South-West, Nigeria.*

Implication: *It is suggested that the various public and private Universities that are yet to deploy the use of electronic security systems in their libraries should embrace the systems, or they will always have theft, mutilation and vandalism of their library materials.*

Originality/Value: *The study recommended that the academic libraries that are yet to deploy the use of ESSs should do so, because the manual methods of safeguarding library collections are inefficient. There is the need to carry out further study about the deployment of ESSs in other regions in Nigeria.*

Keywords: *Library Security; Academic Libraries; Mutilation of Library Materials; Vandalism; South-West, Nigeria.*

Paper type: *Empirical research*

Introduction

Academic libraries are crucial to Higher Institutions of Learning (HIL), established to meet the information needs of students, staff and faculty in tertiary institutions. The International Federation of Library Associations and Institutions (IFLA) state that institution of higher education libraries is essential to the running of the universities and the achievement of their academic missions. Academic libraries provide both published and unpublished materials for library users in the HIL. Academic libraries are therefore expected to improve teaching, learning, research and community services which are their primary focus. To fulfill the missions and visions of universities, there is the need for academic libraries to support the academic objectives of the institutions. The

libraries of HIL are located within the institutions whose collections are basically for all the faculties and departments. The major role of the academic library is to assist and support research, learning and teaching that goes on in the HIL.

The security of academic library collections has deep influence on the existence of the libraries, hence, security is an imperative and multifaceted problem in contemporary societies. Edem (2010) looked at security as a guarantee of the future happiness and liberty from danger. Security therefore refers to a process designed to safeguard something against hazard. The rate at which crimes are perpetrated in the academic libraries in both public and private universities, call for an overall and immediate attention in order to prevent the perpetrations of such crimes in academicS libraries (Cordelia, 2019).

Carey (2008) described library security as the activities provided to safe and secure library resources. Library security is significant because it guarantees the safety of library collections against unlawful removal and harm (Lavanya, 2017). Observations from literature show that resources in academic libraries are no longer safe in many of Nigerian higher institutions. This has become a major concern and threat to the library, library staff, students and the immediate communities where these libraries are established. However, insecurity of resources in academic libraries is not only peculiar to public universities but also a challenge to private universities. The resources in the academic libraries of either public or private universities could be exposed to dangers where there is insecurity of library collections (Musa, Asom and Matthew, 2019). The issue of disruptive behaviour on print and non-print resources seems to be a major security challenge that has befallen academic libraries in Nigerian universities. Gupta and Madhusudhan (2017) revealed that one of the serious problems that has troubled library administrators is the increasing number of the different ways of security issues in libraries, such as mutilation of materials, library materials theft, intentional mis-shelving of books, use of other patrons' library cards, among others. Ezeabasili and Obiora (2018) observed that Nigerian academic libraries have suffered thoroughly in the hands of the theft of materials, mutilation, and vandalism, among others.

Some public and private universities appear to adopt manual methods to reduce the anti-social behaviours in the libraries. However, the problem is still continuing. Nath (2021) suggested that electronic security systems could serve as the lasting solution to the security issues being encountered by academic libraries in the university system. The ESSs (electronic security systems) are devices that are used with the help of electrical gadgets to safe-guard library materials. These systems support libraries to reduce unethical behaviours in the libraries. Nath also identified different ESSs installed in libraries, among them are Closed Circuit Television (CCTV), IP surveillance, fire detection and alarming systems, access control systems, intruder alarms and detectors. Each electronic security system plays significant role in securing resources of academic libraries. The future of academic libraries in both private and public universities could be secured if electronic security systems are installed.

Although Nigerian academic libraries vary from each other in many aspects, they share certain essential things in common. For instance, they have the same basic purposes and organisational arrangements; they are expected to carry out the same activities. However, the primary focus of this study is to examine the impact or effect of the use of ESSs such as Closed-Circuit Television

(CCTV) cameras, Radio Frequency Identification (RFID), biometrics and electronic security gates to secure library libraries in public and private universities in South-West, Nigeria.

The CCTV is one of the ESSs in curbing theft, mutilation and vandalism of library resources. The CCTV cameras is the use of video cameras to watch the activities of the library form different areas within the library with the aid of monitors. These types of devices are needed in academic libraries to monitor activities of library users so to as detect theft, and other unethical activities. Kumar (2014) observed that a CCTV camera is expected to be used in academic libraries to monitor the activities of library users against unethical practices. This would reduce the common mischievous activities of users in the libraries.

The RFID (radio frequency identification system is another electronic security system used in academic libraries in developed and some developing countries. It is the leading ESS in Europe and used by many libraries around the world (Gupta and Madhusudhan, 2017). The RFID is a technology that allows the electronic and wireless labeling and identification of objects, humans, and animals. Muir (2007) showed that the potential benefits associated with the use of the RFID in the security of library materials.

Biometrics is also an electronic security device which seems to checkmate the library users in the academic system. Biometrics are computerized devices used in identifying an individual or authenticating the identity of an individual based on behavioural characteristics. It is used to prevent the stealing or illegally taking away of library materials. Shafagat (2016) stated that libraries need biometric technologies for the control of library users.

The electronic security gates likewise serve as electronic security systems that are deployed in academic libraries. These machines are expected to safeguard library resources. They have a combination of audio and visible alarms, as well as sensors for magnetic strip in each library book in both private and public universities. The magnetic strips are not easily removed, but only desensitized when library materials have been duly checked out and re-sensitized when the materials are returned (Perrault, 2006). These electromagnetic strips are programmed alongside the security gates which have inbuilt sensors that cause the alarm systems to trigger when library books not properly processed or checked out or are being taken out illegally (Harwell, 2014).

Furthermore, extant studies within and outside universities in the Nigerian context have been conducted to investigate the success or impact of the use of ESSs in academic libraries in curbing anti-social behaviours (Song, Yusuf and Mairiga, 2018; Festus and Cordelia, 2019 and Nath, 2021). While some previous studies were carried out on the use of ESSs in academic libraries in Federal, State, private universities (Chowdhury, 2006; Musa, Asom and Matthew, 2019; Opeke, Ikonne and Adewoyin, 2019), however, very serious effort has not been made empirically to compare impact of electronic security systems usage in academic libraries of private and public universities in South-West Nigeria. It is therefore, what this study sets out to investigate.

Statement of the Problem

Library security is a difficult but a main issue to library heads. It appears that the safety of library patrons, staff, library personnel, and the library collections are all at stake without the deployment of the electronic security systems in both public and private

universities in Nigeria. Libraries have security problems and the magnitude of this security problem varies from one university library to another. Stealing of library materials, mutilation of materials and vandalism have not been properly check-mated with the use of the traditional methods of safe-guarding the library resources. The deployment of ESSs is the modern way to secure library collections in this time and age, hence, this study. Cognate studies conducted within and outside the Nigerian universities have examined showcased the positive impact of the use of ESSs and the security challenges faced by university libraries still relying on the traditional ways/methods to secure their collections.

Objective of the Study

The general objective was to compare ESSs usage in academic libraries in selected public and private universities in South-West, Nigeria. Specifically, this study found the effect of ESSs usage in academic libraries, investigate the extent of loss of library materials, and examined significant differences of ESSs in academic libraries across the selected public and private universities in South-West, Nigeria.

Research Questions

The study achieved the following three research questions.

1. What is the impact of electronic security systems in academic libraries in South-West universities in Nigeria?

2. What is condition of ESSs in academic libraries in South-West universities in Nigeria?

3. What is the extent of loss of library materials in academic libraries in South-West, Nigeria?

4. What is significance difference between public and private universities in terms of ESSs usage in South-West, Nigeria?

Literature Review

The ESSs are electrical gadgets that are adopted to safe library materials, they also support libraries to reduce library materials theft, mutilation and vandalism. Some main ESSs that can be of huge usefulness to academic libraries include CCTV cameras, 3M library security systems, RFID system, among others (Osayande, 2011). These devices have been confirmed and reliable in the developed countries. There is no need for them to incur expenses on library materials all the time since ESSs are in place to help in curbing security threats.

Previous studies have suggested the usage of ESSs in academics in controlling the issue of theft, mutilation and vandalism in academic libraries, since the manual methods of checking library patrons' excesses have been showed to be ineffectual and unfavourable (Rajendran and Rathinasabapathy, 2007). Madhusudhan and Gupta (2014) analyzed the behaviour with the opinions of the users towards RFID systems. The study revealed that majority of users were aware of the RFID systems and its components. However, majority of the library users were not using smart cards.

Awuku (1995) compared library situations in four African countries (Ghana, Nigeria, Zambia and Botswana). The study recommended that higher productivity and the realization of organisational aims and purposes can be attained through the drive of subordinate library staff.

Chowdhury (2006) used South Africa and Bangladesh to compare two university libraries' management (University of the

Western Cape and Dhaka University). A sample of the two university library users, librarians, and library staff were selected. Documentary sources of information, interview, observation and questionnaire were the main instruments used for data collection. The researcher revealed that there was problem of inadequate financial support for both university libraries. The two academic libraries still use a large proportion of non-professional staff and the library service was in anxious need of staff. However, the difference between the two universities libraries was significant.

Iroaganachi and Izuagbe (2018) studied a comparative analysis and the effect of Electronic Information Resources (EIRs) use on academic staff research productivity in selected Federal, State and private universities in South-West Nigeria. The study used survey design of correlational type. Proportionate size to sampling technique was used to sample 10% of 3,339 academic staff (334). Instrument used was questionnaire while descriptive and inferential statistics were used for data analysis. The result showed that academic staff in the private universities had better motivation for Electronic Information Resources use for research in relation to their peers in both Federal and State universities. The finding also revealed that all academic staff in the six universities captured confirmed that Google Scholar was the most utilized EIRs database for research output. The result likewise revealed that the common impact of EIRs use in fostering academic staff research output is better in State universities in comparison to private and Federal universities.

Abioye and Adeqwu (2013) adopted the descriptive survey design of the ex-post facto type to investigate the security risks involved in the management in selected academic libraries in Osun State, Nigeria. The

population comprised of the heads of the libraries of the selected institutions. The study found that the most dominant security risks in the libraries were stealing/theft of library materials, mutilation of library materials, defacing, misuse/mishandling of library materials, among others. Ezeabasili and Obiora (2018) used eleven librarians to investigate the impact of ESSs in the security of information resources in Federal University Libraries in Southern Nigeria. The key finding is that, the ESSs were adequate to check threats to information resources in libraries studied, only that they were not used on a regular basis.

Cravey (2001) stated that a young female student was held, for ripping off some pages from library materials at the Ohio State University's library. Similarly, Oyesiku, Buraimo and Olusanya (2012) showed that the most and very common disruptive behaviour of the library patrons was theft of library materials, and illegal removal of some pages of library books. Sharma (2017) confirmed that the most common delinquent acts in any academic library are that, significant pages of the books are either completely ripped off or mutilated and books are constantly being stolen by deviant library clienteles.

Hampwaye (2022) carried out empirical study on the assessment of the security systems in selected institutions. List of documents, observation, checklist and interview guides were the main instruments used for data collection. The study revealed significant differences among academic libraries in Zambia, in applying the organisational security measures due to several challenges, such as insufficient funds for security systems, incompetent personnel and lack of security policies.

However, there are still lacunas to be filled in electronic security libraries in public and

private universities in South-West, Nigeria. Most of studies conducted on ESSs in academic libraries were done in developed and developing countries but it seems that there were no studies that conducted comparative studies of the use of ESSs in academic libraries of public and private universities in Nigeria. It is on this note that, the present study is expected to offer a meaningful contribution.

Methodology

Survey research design of ex-post facto type was adopted. The population for this study consisted of the Librarians, Para-professional library staff, Heads of libraries and Information Technology personnel of selected universities in South-West, Nigeria. Purposive sampling technique was employed to sample four universities (University of Lagos, Akoka, Lagos (UNILAG), University of Ibadan, Ibadan (UI), Covenant University, Ota, Ogun State (CU), and Babcock. The study sampled 67 Librarians and 130 Para-professional library staff (62 in UNILAG, 51 in UI, 44 in CU and 40 in BU), totaling 197 respondents, using simple random sampling technique. Instrument used for this study was questionnaire titled, "Electronic Security Systems Questionnaire (ESSQ)". The ESSQ was used for data collection while a reliability coefficient of 0.83 was obtained through Cronbach alpha statistics of testing reliability. The data collected were analysed using mean, standard deviation, frequency count, percentage and Independent T-test.

Result and Discussion of Findings

1. What is the impact of electronic security systems in academic libraries in South-West universities, Nigeria?

Table 1: Impact of Electronic Security Systems in Academic Libraries

S/N	Statements	N	MEAN($\bar{x}$)	Std D	Decision
1	Theft of library materials decrease significantly	197	4.1	0.9	Accepted
2	Users are mindful on how they use library resources because they are being monitored	197	4.1	0.9	Accepted
3	The installation of ESSs in ALs have reduced book mutilation	197	2.42	0.7	Unaccepted
4	Money used for changing stolen books are now being used for other things	197	3.7	1.1	Accepted
5	The use of ESSs have eased the job of library	197	3.9	1.1	Accepted
6	Promote effectiveness and efficiency in securing library materials	197	4.2	0.9	Accepted
7	Damaging of library books have stopped since the installation of ESS	197	2.3	1.2	Unaccepted
8	Violence against library users by library personnel have reduced with the use of ESS	197	3.9	0.9	Accepted
	Grand Mean		3.58		

***Decision Rule if mean is less or equal to 3.0 = Unaccepted; above 3. 0 = Accepted**

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Table 1 revealed the mean scores and grand mean of responses on the impact of ESSs in academic libraries in South-West Nigerian universities. Data in the table showed that the responses to items 1, 2, 4, 5, 6 and 8 indicated positive impact, while the responses to items 3 and 7 indicated negative impact. Above all, the grand mean of 3.58 showed that the impact of ESSs in academic libraries in South-West Nigerian universities was considered to be positive. The result is in line with finding of Ezeabasili and Obiora (2018) who found that ESSs were adequate enough to check threats to information resources in libraries studied, only that they were not used on regular basis.

2. What is condition of electronic security systems in academic libraries in South-West Nigeria?

Table 2: Condition of Electronic Security Systems

Electronic Security Systems	Closed-Circuit Television (CCTV)	Radio Frequency Identification (RFID)	Biometrics	Electronic Security Gate
Mean	4.1	2.3	1.8	3.7
St. Deviation	1.1	1.3	0.8	0.9
Rank	1st	3rd	4th	2nd

The result in table 2 revealed the condition of electronic security systems (CCTV, RFID, biometrics, among others) in academic libraries in South-West Nigerian universities. This revealed that CCTV (4.1+_1.1), electronic security gate (3.7+_0.9), RFID (2.3+_4.58) and biometrics (1.8+_0.8). This shown that condition of CCTV was good and it was ranked highest, followed by electronic security gate and RFID systems whereas biometrics was poor in academic libraries investigated. The result of this study is consistent with the submission of Madhusudhan and Gupta (2014) who analysed the behaviour of users towards RFID systems and the study revealed that majority of users were familiar with the RFID and its components. However, majority of the library users were not using smart cards because of the lack of information.

3. What is the magnitude of loss of library materials in academic libraries of universities in South-West, Nigeria?

Table 3: Magnitude of Loss of Materials

	Strongly Agree (%)	Agree (%)	Undecided (%)	Disagree (%)	Strongly Disagree (%)	Mean (SD)
Some pages of books are ripped off completely	75 (45.7)	62 (37.8)	9 (5.5)	11 (6.7)	7 (4.3)	4.1 (1.1)
Cover pages of materials are always being removed	40 (24.4)	59 (36.0)	29 (17.7)	23 (14.0)	13 (7.9)	3.5 (1.2)
	25	53	28	32	26	3.1

Reference and serials materials are greatly affected	(15.2)	(32.3)	(17.1)	(19.5)	(15.9)	(1.3)
Library collection has drastically reduced (as far as number of copies are concerned)	24 (14.6)	36 (22.0)	52 (31.7)	36 (22.0)	16 (9.8)	3.1 (1.2)
Grand Mean			3.5			

Note: Extremely High-3.00-5.00, Extremely Low-below 3.00.   **Note**. Figures in parenthesis are percentages

The result in Table 3 shows the magnitude of library materials loss. Majority of the participants confirmed that some pages of books are ripped off completely ($\overline{x}$ = 4.1). Other vandalism acts include cover pages of materials being removed ($\overline{x}$ = 3.5), reference and serials materials being affected ($\overline{x}$ = 3.1), and library collection drastically reducing ($\overline{x}$ = 1.2). However, the grand mean of 3.5 was above the threshold of 3.0 which indicated that magnitude of loss of library materials was extremely high. The result is in line with the finding of Cravey (2001) who observed that a young female student was held for ripping off some pages from library materials at the Ohio State University. The finding of this study is similar to the result of Oyesiku, Buraimo and Olusanya (2012) who confirmed that the most and very common disruptive behaviour of the library patrons was theft of library materials, and illegal removal of some pages of library books. The finding of this study also aligned with finding of Sharma (2017) who affirmed that the most common delinquent acts in any academic library, are that, significant pages of the books were either completely ripped off or mutilated and books were constantly being stolen by deviant library clienteles.

H$_{01}$: There is no significance difference of the use ESSs in academic libraries in public and private universities in South-West, Nigeria.

Table 1: T-Test Comparison of ESSs in academic libraries in Public and Private Universities

Variables	N	Df	Mean	Std deviation	t$_{cal}$	P$_{value}$	Remark
ESSs in Academic Libraries in Public Universities	113		20.51	5.12			
		195			1.96	.020	Sig
ESSs in Academic Libraries in Private Universities	84		19.79	4.71			

p<0.05

Independent t-test was used to establish universities difference in terms of ESSs usage in academic libraries. The result revealed that, there was significant difference in terms ESSs in academic libraries (t= 1.96; df= 195; p<.05). This shows that the mean of public Universities (mean= 20.51, SD= 5.12) is significantly different from that of private universities (mean =19.70, SD=4.71). Therefore, it can be concluded that public universities did better in the area of ESSs in academic libraries than private universities. Thus, the null hypothesis was rejected. The results revealed that there was significance

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difference of ESSs in academic libraries across the selected public and private universities in South-West, Nigeria.

The finding of this study is in line with result of Iroaganachi and Izuagbe (2018) which showed that academic staff in the private universities have greater motivation for Electronic Information Resources (EIRs) use for research in relation to their peers in federal and state universities. The result also revealed that the general impact of EIRs use in fostering academic staff research productivity is greater in state universities in comparison to private and federal universities.

The finding is similar to the finding of Chowdhury (2006) who used South Africa and Bangladesh to compare management of two university libraries (University of the Western Cape-UWC and Dhaka University-DU). The study indicated that the problem of inadequate financial support is true for both University libraries, and is the main cause amongst other weaknesses. However, the perceived difference between DUL and UWCL was significant.

H02: There is no significance difference of Closed-Circuit Television (CCTV) cameras in academic libraries across the selected public and private universities in South-West, Nigeria.

Table 2: T-Test Comparison of CCTV in academic libraries in Public and Private Universities

Variables	N	Df	Mean	Std deviation	t_{cal}	P_{value}	Remark
CCTV in Academic Libraries in Public Universities	113		19.76	4.00			
		195			1.92	.000	Sig
CCTV in Academic Libraries in Private Universities	84		19.62	3.84			

p<0.05

Independent t-test was used to examine universities difference between public and private universities in terms of CCTV in academic libraries. It was found that, there was significant difference in terms of CCTV in academic libraries (t= 1.92; df= 195; p<.05). This means that the mean of public universities (mean= 19.76, SD= 4.00) is significantly different from that of private universities (mean =19.62, SD=3.84). Therefore, the null hypothesis was also rejected. The results indicated that there was significance difference of CCTV in academic libraries across the selected public and private universities in South-West, Nigeria. The finding of this study tallies with finding

of Hampwaye (2022) who found significant differences among higher institutions' libraries in Zambia in applying the organisational security measures due to several challenges, such as lack of security policies, incompetent staff and inadequate funds for security systems.

Conclusion

The study concluded that condition of CCTV in selected universities in South-West was good, while the condition of biometrics was reported to be poor in academic libraries. It was established that ESSs usage in academic libraries in South-West universities, Nigeria,

had positive impact. This implies that the devices serve as alternative solution of manual way of curbing the menace of theft, mutilation and vandalism of library information resources, thereby providing maximum security to library information resources. It was also established that the rate at which library materials are taken way without returning them is very rampant and extremely high. It can equally be concluded that public universities did better in the area of ESSs usage than private universities.

Recommendations

Effort should be made by university libraries' stakeholders to keep on using electronic security systems in the academic libraries since that is the only way to protect library users and resources. The study also recommended that university librarians should install CCTV cameras in every cranny and corners of the academic libraries in order to curb unethical practices in academic libraries.

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