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USE OF FIRE ALARM SYSTEM AND ITS EFFECTS ON SECURING INFORMATION RESOURCES IN UNIVERSITY LIBRARIES IN BENUE AND NASARAWA STATES

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Abstract
This study investigated use of Fire Alarm System and its effects on securing information resources in university libraries in Benue and Nasarawa States. Descriptive survey design was used for the study. The population of this study was 356 library staff from nine (9) university libraries in Benue and Nasarawa States. Multi-stage sampling technique was used to select respondents for this study. Four (4) university libraries in Benue and Nasarawa States with population of 136 library staff (30) Professionals and 106 Non-Professionals) purposively sampled. Two research instruments were used for data collection with a Cronbach Alpha coefficient of 0.86 and 0.81 respectively. Mean and Standard Deviation were used to analyze the research questions and Chi-Square was used to test the hypotheses at 0.05 level of significance. Findings indicated that using Fire Alarm System has significant effects on securing information resources in university libraries. Using Fire Alarm System is effective in securing information resource in university libraries. The study recommended that training for library management and staff of the university libraries to improve their attitudes toward using the security gadgets, availability of adequate technological support services, provision of adequate funds, and constant power supply can promote the use of Fire Alarms System in securing information resources in university libraries in Benue and Nasarawa States.
Keywords: Fire, Alarm, Secure, University, Resources, Information Library

Introduction
University library is a library established by a university regardless of the size of the building or volume of its collection. University libraries are established to assist universities to perform their functions and roles by selecting, acquiring, processing, securing and preserving their information sources, which are then made available to users. The university library is created to acquire and conserve knowledge, preserve cultural heritage, provide information, aid education, and research and advance new knowledge. These objectives of the university library cannot be achieved if their information resources are not adequately secured. The roles of the university library cannot be over-emphasized and this underscore the fact that the library has comprehensive and functional information resources to serve the information needs of its users.

Libraries have put in efforts to secure its resources for a long time. These efforts are as old as the library itself. These efforts ranging from the provision of security guards, provision of photocopying machines, and regular stocktaking to regular monitoring and inspection of storage are ongoing. These efforts seem not to have prevented the loss of information resources through decay and deterioration of information resources in the library. This calls for a proactive effort by the library and library management to provide security for their information resources to prevent the undesirable from happening to the library and its resources. University libraries in Benue and Nasarawa States are not left out in this challenge. One of the proactive measures employed by university libraries is the provision of information security (InfoSec). Information security sometimes referred to as InfoSec, is the act of defending information and information bearing materials from unauthorized access, use, disclosure, modification, perusal, inspection, recording or destruction. It includes all methods used to keep information resource from being adulterated in any form (Omosekejimi, Ijiekhuamhe & Ojeme, 2015). InfoSec is basically divided into two forms; the physical form and the electronic form. The physical form includes; site design, building design, security personnel and use of security hardware such as keys and padlocks, security gates, fences, and physical barricades. Electronic form of InfoSec is the application of electronic devices to help manipulate some security hardware like Radio Frequency Identification System (RFID), Close-Circuit Television (CCTV), barcode and 3M security gates (Omosekejimi, Ijiekhuamhe & Ojeme, 2015).

There are various security gadgets that can be used for securing information resources in the library. These gadgets are deployed in various university libraries. Studies and interactions with some university libraries by the researcher have shown that some of the security gadgets used in university libraries in Benue and Nasarawa States includes Perimeter Security, lock and keys, Closed-Circuit Television (CCTV), Radio Frequency Identification Technology, barcode and Fire Alarm System (FAS). An important security gadget used in libraries for securing information resources is the Alarm Systems. Alarm systems are of various types. There are external alarm systems and the internal alarm system. The external alarm system according to Ozowa, Aba and Aba (2016), is programmed to make a loud noise that could raise suspicion thereby preventing people who want to enter the premises stealthily. Another component of the alarm system is the internal alarm system. This type of Alarm System is used to dictate security risk from within the library. Example of this type of internal Alarm System is the Fire Alarm System (FAS). Fire Alarm System (FAS) is one of the important internal alarm systems used in university libraries. The Fire Alarm System (FAS) is an active fire protection system that controls the fire alarm modules in a building. It is composed of an alarm initiating device (smoke detectors and or heat sensors). It includes alarm notification appliances (sirens or devices that produce loud noises), fire control units (sprinkler systems or fire extinguisher systems), power supplies and wirings. The Fire Alarm System (FAS) can be set off automatically by smoke detectors, heat detectors or it can be set off manually. The system in a Fire Alarm System (FAS) works using sensors. These sensors are set to detect certain levels of heat or smoke that could be an indication of fire. It has a loud bell or a siren sometimes accompanied by blinking or flashing lights for individuals who might have hearing problems, and blasts to alert occupants in the building.

Using a Fire Alarm System (FAS) is when a FAS is performing the required role on a timely base. Use refers to the situation whereby the FAS are functional and

are working on a timely basis. This may not be the case in many university libraries in Nigeria in general and university libraries in Benue and Nasarawa States in particular. Personal observation and preliminary study in university libraries in Benue and Nasarawa States has shown there are situations where some FAS may not be said to be in use as they are not functional due to various reasons. What would have prevented them from being used is a situation that needs to be investigated. Using Fire Alarm Systems (FAS) has proved to be effective in securing information resources. FAS helps to reduce loss of can be effective in the reduction and prevention of loss of information resources to fire inferno and other natural disasters in the library. Security threats affecting libraries in Benue and Nasarawa States includes theft, mutilation and natural disasters which are commonly reported across board as they have experienced loss due to natural disaster.

Statement of the Problem

Well secured information resources help the library to perform its functions better, university libraries in Benue and Nasarawa States, library authorities have no choice but to protect their resources from natural disasters using all positive means possible, a feat which Fire Alarm Systems (FAS) have proved to be of immense help when properly deployed. Using security gadgets like Fire Alarm System (FAS), Perimeter Security and Close Circuit Cameras (CCTV) to secure information resources has proven to be effective in securing information resource in university libraries. These critical importance of using security gadgets especially (Fire Alarm Systems) cannot be said of university libraries in Benue and Nasarawa States as effects of using this security gadget in these libraries in Benue and Nasarawa States can yet be ascertained due to dearth of information.

From interactions with library professionals and other staff in university libraries in Benue and Nasarawa States, these libraries are losing their information resources at an alarming rate. If necessary, actions are not taken, at the rate in which university libraries in Benue and Nasarawa States are experiencing this loss, they may fail to effectively perform their roles to their users' community. This situation calls for proper investigation; this study is based on the seeming absence of empirical studies on the effect of using Fire Alarm Systems on securing information resources in university libraries in Benue and Nasarawa States. What then are the effects of using Fire Alarm Systems (FAS) on securing information resources in university libraries Benue and Nasarawa states?

Objectives of the Study

The objectives of the study are to:

1. Determine the effects of using Fire Alarm System (FAS) on securing information resources in university libraries.
2. Identity factors militating against the use of Fire Alarm System on securing information resources in university libraries.

Research Questions

Two research questions were raised to guide this study:

1. What are the effects of using Fire Alarm System (FAS) on securing information resources in university libraries?
2. What are the factors that can militate against the use of Fire Alarm System (FAS) on securing information resources in university libraries?

Hypothesis

One null hypothesis was formulated and tested at a 0.05 level of significance:

HO_1: Using Fire alarm System has no significant effect on securing information resources in university libraries.

Review of Related Literature

Every action aimed at safe guarding information resources in the library is termed information security. It is in this light that Uma, Suseela, and Nireekshana (2010) define information security in the library as any action taken to safeguard the library and its information resources. This may include using various methods like environmental control method, shelving space, physical method (like security gadgets) and chemical treatments (Mwantimwa, 2017). Omosekejimi, Ijiekhuamhe, and Ojeme (2015) viewed information security, sometimes shortened to InfoSec, as the act of defending information and information bearing materials from unauthorized access, use, disclosure, disruption, modification, perusal, inspection, recording or destruction. It is a general term that can be used regardless of the form the data or information may take (electronic, physical, or otherwise). Another definition forwarded by the Committee on National Security (CNS, 2018) looked at information security as protection of information bearing materials such as books and non-book materials and information systems from unauthorized access, use, disclosure, disruption, modification or destruction. The CNS further pointed out that information security includes all protective efforts to prevent destruction. There are two features in library security systems. These are the physical and electronic. Omosekejimi, Ijiekhuamhe, and Ojeme (2015) assert that the features of a library security systems are classified into two namely, physical features and electronic features. Physical features include site design and building design. Electronic features are availability, authenticity, and integrity.

The physical features which include, site designs, building designs and security personnel forms the first or primary phase of security for the library. Site design refers to how the planned site for the location of a library is designed. Site planning and landscape design issues are usually considered when planning for a safe and secure library. Akor, (2015) asserted that site design should include the proper location of the site where libraries are to be built. Libraries should not be located in a swampy and waterlogged environment. It is further advocated that libraries should be located in a place where access to it will be easy for the community it serves. Another aspect to be considered in the physical feature is the building design. Building design refers to how the physical structure of a library is planned even before it is built. Areas to be given special consideration in building as far as security of a library is concern are exterior entrances, archive, and special collection storage spaces, special collection reading areas, and children library. Other areas are critical building component locations such as electrical switch gear, communication and security equipment and building control centre, public toilets, loading docks, mailrooms, and shipping/receiving areas as well as stairwells including, office locations and roof access. These generally pose a threat when discussing security issues in the library and needs be appropriately addressed in the design if securing the resources in the library is a point of consideration. The third component of the physical feature is Security Personnel**.** Security personnel according to, Advanced Fire and Security, (2019) refer to people who are positioned in the library to provide security for both library and its security. It is advisable that security personnel posted to library should be on permanent basis. It is advised that they should not be redeployed to other departments within the institution because it may affect their knowledge of the library routine which may lead to compromise of library procedures.

The second feature of library security is the Electronic Features of the Library Security system. Electronic features of library security are mainly categorized into three which are availability, authenticity, and integrity. Availability means that the

physical materials such as books carrying the information, the computer systems used to store and process the information, the security controls used to protect it, and the communication channels used to access it must be functioning correctly. Omosekejimi, Ijiekhuamhe, and Ojeme (2015), opined that for any information resources security system to serve its purpose, the resources, the system and the information contained in them must be available when they are needed. Availability means that the information resources in the library holdings must be available when needed. Authenticity in electronic feature of a library security system is to validate that both parties involved in the exchange of information and information bearing materials are those who they claim to be. Omosekejimi, Ijiekhuamhe, and Ojeme (2015), maintain that it is necessary to ensure that information bearing materials or documents (electronic or physical) are genuine. The third feature is Integrity**.** The integrity of the information security system means maintaining and assuring the accuracy and consistency of the data or information over its entire life-cycle. Integrity means that data or information cannot be modified in an unauthorized or undetected manner. In securing information resources, data integrity is very crucial. Integrity can be viewed as a special case of consistency as understood in the classic model of information transaction processing. Integrity is violated when a message is actively modified in transit (Gregory n.d).

Fire Alarm System (FAS) and its Effects on Securing of Information Resources in University Libraries

Fire Alarm System (FAS) is one of the internal systems used in the library. The FAS use heat or smoke detector to detect fire or excessive heat. There are two types of fire detectors. These are the optical detector and the ionization detector. The optical detector according to Advanced Fire and Security (2019) detects fire by using light sensors (infrared LED). When heat or smoke particles pass through the chamber of the optical detector, it scatters light that triggers the alarm. In the ionization detector, if the particle enters the chamber of the ionization detector it will reduce air ionization inside the chamber of the ionization detector and trigger the alarm (The Advanced Fire and Security 2019).

Fire Alarm System (FAS) has significant effect in securing information resource in the library. The Advanced Fire and Security (2019) identifies six effects of a fire security system (FAS) in their guideline to why the need for Fire Alarm System. Generally, the legal requirement for a Fire Alarm System (FAS) relates to the protection of life and information resources. The effects of using FAS in securing information resources in libraries are that it: provides for the safety of occupants in university library including staff and patrons; make provision for their evacuation or refuge during a fire or other emergency; provide fire department with early notification of a fire in a library and to direct them to the area of risk; reduce loss of information resources and other properties in the library as observed by Bhatia (2019). Library properties have considerable intrinsic value and fire detection systems are required incentives to prevent their loss.

Another effect of the use of Fire Alarm System (FAS) on securing information resource in university libraries as asserted by Bhatia (2019) is a reduction in damage to building because early detection of fire can reduce the extent of damage to the library building and its resources. FAS could be on even when the building is unoccupied; this will ensure that if anything goes wrong, help can be called on a timely base. This will reduce the rate of destructions caused by the fire outbreak. The use of

FAS in securing library resources reduces the amount of business loss and minimizes risk to the public and emergency rescue personnel.

Methodology

The descriptive survey research design was used for this study. The area of study was Benue and Nasarawa States. The general population of this study is made up of three hundred and fifty-six (356) library staff drawn (Professionals-63 and Non-Professionals 293) from the nine (9) university libraries in Benue and Nasarawa States (this includes two Federal owned, two state owned, two privately owned as well as three study centers of the National Open Universities in both states). Using multi-stage sampling techniques four university libraries having a population of two hundred and six (206) staff (forty-seven professionals (47) and one hundred and fifty-nine non-professionals (159) was purposely sampled. One hundred and thirty-six (136) respondents were drawn from the sampled population using the Taro-Yamane formula. Two instruments titled "Security Gadget Use Checklist" (SGUC), and "Security Gadget Use and Effect(s) Questionnaire" (SGUEQ) with an alpha coefficient of 0.87 and 0.82 respectively were used as instruments for data collection. Mean and standard deviation was used to analyze the research question while chi square was used to test the hypothesis.

Data Analysis and Interpretation

Data collected for this study are presented in simple table. They are analyses and interpreted accordingly using simple means and standard deviation.

Research Questions 1: What are the effects of using Fire Alarm System (FAS) on securing information resources in university libraries?

Table 1: Frequency, Mean Score and Standard Deviation of the Effects of use Fire Alarm System (FAS) on Securing Information Resources in University Libraries.

S/N	Options	SA	A	SD	D	Mean	SD	Decision
1	Fire Alarm System (FAS) prevent mutilations of printed materials.	10	9	43	33	2.30	1.70	Rejected
2	Fire Alarm System (FAS) prevent users from tampering with ICT connection.	36	5	39	26	2.48	1.52	Rejected
3	Perimeter security prevents unauthorized removal of information resources.	40	5	27	34	2.48	1.52	Rejected
4	Fire Alarm System (FAS) prevent disasters in the library.	28	57	16	6	3.02	.780	Accepted
5	Fire Alarm System (FAS) prevent loss of lives and properties in the library.	53	36	14	3	3.31	.809	Accepted
6	Cluster mean/ SD					2.718	2.28	Accepted

Response on the effects of Fire Alarm System (FAS) on securing of information resources in university libraries in Benue and Nasarawa States shows a mean score of 2.71 and a standard deviation of 2.28. This means that respondents agreed that Fire Alarm System (FAS) prevents the loss of life and property in the library and prevents disasters in from happening in university libraries in Benue and Nasarawa States. Using FAS have the effect of securing information resources in university libraries.

Research Question 2: What are the factors that militate against the use of security gadgets in securing information resources in university libraries?

Table 2: Frequency, Mean, and Standard Deviation of Factors that Militates against the Use of Security Gadgets in Securing Information Resources in University Libraries.

S/N	Options	SA	A	SD	D	Mean	SD	Decision
1	Poor attitude of staff and management of the library towards the use of security gadgets.	23	67	14	2	3.05	.653	Accepted
2	Inadequate technological support and maintenance services.	37	58	5	6	3.19	.770	Accepted
3	Inadequate fund.	23	47	19	17	2.72	.983	Accepted
4	Inadequate power supply.	17	43	30	16	2.58	.936	Accepted
5	Lack proper technical know-how on security gadgets by library staff.	37	61	4	4	3.24	.698	Accepted
6	Cluster					2.96	1.04	Accepted

Responses on factors that militates against the use of Fire Alarm Systems (FAS) in securing information resources in university libraries in Benue and Nasarawa States, shows a cluster score of 2.96 and a standard deviation of 1.04 this shows that respondents agreed that poor attitude of staff and management of the library towards the use of FAS and inadequate technological support and maintenance services militates against the use of Fire Alarm System in securing information resources. Others factors are poor power supply and lack of proper technical know-how on security gadgets by library staff militates against the use of FAS in securing library resources in university libraries in Benue and Nasarawa States. Attitude of staff and management of the library, poor power supply among others are factors that militate against the use of FAS by university libraries in Benue and Nasarawa State in securing information resources.

HO_1: Using Fire Alarm System (FAS) has no significant effect on securing information resources in university libraries.

Table 3: Chi-Square result of there is no significant effect of using Perimeter Security on Securing information resource in university libraries in Benue and Nasarawa States.

Chi-Square Tests

S/N		Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
1	Pearson Chi-Square	133.009	39	.000	-	
2	Likelihood Ratio	131.302	39	.000	-	
3	Fisher's Exact Test				.-	
4	Linear-by-Linear Association	44.803	1	.000	.-	.-
5	N of Valid Cases	131				

Chi-Square test on the Null hypothesis that stated that using Fire Alarm System (FAS) have no significant effect on securing information resources in university libraries showed that there is a significant effect of using Fire Alarm Systems (FAS) in securing information resources in university libraries in Benue and Nasarawa States. The Chi-Square result showed that value of the Chi-square statistics is 133.009; the asymptotic or critical value is .000 (P) an alpha value of .005. The result P, .000 is less than the alpha value of .005, making it significant. The null hypothesis is therefore rejected since the difference between the P value (.000) and the alpha value (0.05) is statistically significant. There is a significant effect in the use of Fire Alarm Systems on securing information resource in university libraries in Benue and Nasarawa States ($P = .000 < \alpha .005$).

Conclusion

This study investigated the use of Fire Alarm System and its effect on securing information resources in university libraries. Two (2) research questions guided the study. One hypothesis was formulated for the study and tested at 0.05 levels of significances. Some key variables were explained which include using Fire Alarm System (FAS) and its effects on securing information resource in university libraries in Benue and Nasarawa States. Data collected were analyzed using mean and standard deviations to answer the research questions while the Chi-square method was used to test the hypotheses at a 0.05 level of significance.

Findings of this study showed that Fire Alarm System (FAS) prevents loss of life and property in the library, and prevents disasters in the library. Poor attitude or negative attitude of management and staff of the library, inadequate technological support and maintenance service, inadequate funding and unstable power supply including lack of technical know-how of library staff were factors militating against the use of Fire Alarm System in securing information resources in the university libraries. Using Fire Alarm System is significant in securing information resources in the library.

Recommendations

Based on the findings from this study, it is recommended that library and the university management should encourage and ensure that available Fire Alarm Systems are used in their library this can be achieved by:

1. Providing stable and uninterrupted power supply in order to maintain the electrically and other ICT based equipment in the library. This could be achieved by using alternative source of power supply.
2. Ensuring proper maintenance of Fire Alarm System in the library to enhance their usability and longevity by Library managers and library staff.
3. Federal and State Governments, including private organizations that fund libraries should endeavor to install Fire Alarm Systems (FAS) in their libraries and make available adequate funding which should be provided for the library to acquire, install and maintain security gadgets.

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