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Internet Adoption in Select Nigeria University Libraries

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Abstract
The paper examined the Internet adoption in Nigerian university library with emphasis on the extent to which computer networks aid the use of the internet to obtain academic information within the university library. It also determined the extent at which students use the internet to obtain academic information within the university library and to determine the cost, labour and maintenance of Internet adoption in the university library. A descriptive survey design was employed and the convenience sampling method was employed to select 132 samples for analysis. The analytical tools employed are simple percentages, frequency counts, Pearson Correlation and regression analysis via the Statistical Package for the Social Sciences (SPSS). The findings revealed that Local Area Network, Wide Area Network, Internet, Campus Area Network, and Networks were the existing computer networks available in selected Nigerian university libraries. The information services provided using internet include; digital library/ repositories, searching library data, searching scholarly content, file storage, building community power and library automation. The paper recommended that university libraries should be proactive. More academic research could only be achieved with effective internet adoption and integration into university libraries.

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Introduction

The growing rate of Internet adoption in the education sector has provided a new platform for Nigerian universities to widen access to education through the use of library-based electronic resources. From time of introduction of the Internet and its integration in the Nigerian university library, there has been a remarkable growth in the use of library (Oso & Adesua, 2017). The growth is not limited to the university environment alone. There is also "a growing acceptance among academics, education policy-makers and employer groups that the development of internet and integration is part of the role of higher education" (Odede & Enakerakpo, 2013:101). The introduction of the Internet has contributed to information explosion and has revolutionized the ways existing and new library users' source and use information. This, by now would have solved major traffic in the library as students are now hooked to the internet via the mobile phones which provides easy access to source information within the shortest period of time.

As a result of the introduction of internet adoption and its facilities in libraries, various users including university students and individuals can communicate with their peer groups, colleagues, friends, lecturers and download information needed to improve academic pursuit. This is evident as Quadri (2010) affirmed that any students who wish to excel in his or her academic career may find the internet significant to source for vital information needed. Consequently, searching for information, as well as utilizing information through the internet in libraries is a prerequisite for goals achievement and performance in the academia. University libraries in Nigeria are realizing the need to move from their isolated past into integrated systems and networked operations. University libraries in Nigeria are also trying their best to catch up with their counterparts in the developed world. Adopting and integrating library services with the internet will greatly benefit not only the library regulars but also the library staff members who are responsible for providing different information services in particular and library in general. But it is unfortunate that not much has been done in developing the facilities of computerization in academic libraries in Nigeria due to various reasons. Lack of adequate fund is a common phenomenon of University libraries in Nigeria. Due to the budget cuts, they are not in position to maintain consistency in their collection development activities.

The problem of managing libraries efficiently and effectively has been multiplying at a frantic rate. Added to this, insufficient staff, increasing work load and shrinking budget for libraries have put in a fix. It is a matter of experience that with the available staff and resources, manual and/or traditional operations and services are

found to be insufficient and ineffective vis-à-vis such alarming problems. Large library collections alone do not solve the problems of information need of the Nigerian university students since there is a permanent lack of the most recent high-quality information. New information technologies, especially through internet adoption and integration help to decrease the lack of information, but the implementation of these technological applications is very problematic in the Nigerian university libraries.

This paper therefore investigates internet adoption and integration in Nigerian university library. As a result, the paper aimed at examining the extent with which the computer networks aid the use of internet to obtain academic information within the university library. In the same vein, the paper determine extent at which students use the internet to obtain academic information within the university library and proffer solutions to the implications in terms of cost, labour and maintenance of internet adoption in the university library.

Statement of the Problem

The old traditions of library collection handling, the insufficient knowledge of the library staff on the usage of modern information technologies, and the poor financial situation of parent institutions are just some of the problems which create great obstacles in the implementation of new information technologies in the Nigerian university libraries (Qso & Adesua, 2017). Internet adoption and integration in Nigerian university library succeeds through the work performed by hardware, software, and people. The technological challenge is a big problem in library automation in Nigerian university library. The digital divide in the university libraries in Nigeria vary from the availability of infrastructure facilities for use of Information and Communication Technology (ICT), to skilled staff to handle the new technological challenges being faced by these libraries (Adegun, et al 2015). The emerging technology, changing conditions and user needs are continually redrawing the lines of innovations thereby providing the new challenges and opportunities. Upgrading of hardware and software in this situation becomes virtually impossible, because libraries today are faced with planning for internet, and or automation within a rapidly changing and uncertain technological environment. For university libraries the past was very difficult, the present is uncomfortable, and the future is uncertain (Odede & Enakerakpo, 2013). This is due to inadequate funding or poor funding of university libraries, especially the public universities.

Internet adoption and integration the Library will require both a substantial initial cost and on-going maintenance costs (Adegun, *et. al.,* 2015). When automation was first introduced in libraries, the main purpose was to decrease staff costs and to

increase the efficiency of internal operations (Yi and Hwang, 2013). This major financial investment should not be made in the hope of reducing library operating costs, but rather to improve access to the widely varied collections.

To a large extent, the existence of a University Wide Area Network (WAN) and a Local Area Network (LAN) within the library determines the success of computerization of library services. This is a major challenge to the universities in Nigeria. There is no reliable WAN as well as LAN in most of the universities and campuses. Campus LAN is most important setup to provide wider access to library and information services.

Research Questions

To guide this paper, the following research questions were answered:

(i)   to what extent do the use of internet obtain academic information within the university library?

(ii)   to what extent do students use the internet to obtain academic information within the university library?

Research Hypotheses

For the purpose of this paper, two null hypotheses were put forward:

Ho₁: The use of internet does not obtain academic information within the university library.

Ho₂: Students do not use the internet to obtain academic information within the university library.

Literature Review

Use of Internet and Academic Information within the University Library

Library network is a collective activity of linking users to the resources hosted on computers by means of telecommunication connections. This is the reason, why reviews of relevant literature show that a network is developed when a group of libraries and information centers have common interest to exchange information through computer and communication technology (Lihitkar, 2012). Significantly, Dhenavandah and Tamizhchelvan (2014) identified classification of Networks based on Utility criterion: Resource sharing network, Data sharing network communication and data exchange network. Resource sharing network main purpose is sharing of resources and other applications that are subordinate in nature, data sharing network provides access to unique databases from workstations situated at distance apart, while communication data exchange network allows users to exchange data, graph or documents and to communicate with each other using such devices as electronic mail, bulletin board amongst others. The state of library networking system depends on the availability and quality of electrical power and the type and distribution of electrical wiring in the

library through computer network observed by Eric (2012). Computers operate better and last longer when the computer network that powers the library is continuous and of consistent voltage.

Many libraries, especially academic libraries need sufficient supply of network to withstand the additional demand made by the computers (Kessler, 2013). Krubu and Osawam (2011) noted that the impacts of computer networks are felt by libraries in every aspect. They further added that computing technology, communication technology, and mass storage technology are some of the areas of continuous development that reshape the way libraries access, retrieve, store, manipulate and disseminate information to users. Gbaje and Aliyu (2014) however lamented that in developing countries particularly Nigeria, libraries started automating with an underdeveloped information and telecommunications infrastructure which include inadequate computer network. Similarly, the use of open source library automatism software often sees as a panacea for library automation in developing countries has been very gradual in Nigeria. Reason being the dearth of its skills required for both development and maintenance of open source software, it is expensive and high storage capacity which are poorly developed or beyond the financial reach of most academic libraries.

As more mid-sized libraries move to the cloud, the human resource implications for Information Technology (IT) departments are becoming clearer. Whether the size of a giving library's IT staff will need to change as it ascends into the cloud depends on current staffing and staffing shifts will take place: individuals who are working in IT today will need new skills, and certain jobs will shift from the enterprise to the cloud service provide posited by Geoffery (2013). It is of great importance that qualified and adequate staff be involved in the running and adoption of cloud computing. Inadequacy and incompetency of the staff might lead to ineffective utilization of cloud computing for library services according to Breeding (2012). He further observed that regular training and retraining is needed to have a positive outlook of the provision of relevant library services. Resolutions passed on all these issues are favourable although there are reservations on security.

Romero (2012) posited that the ability to stores seemingly endless number of documents, photos, and videos is enticing- the ability to access these things from any phones, tablet, or computer is what is driving the popularity to cloud computing. Despite its brilliance, cloud computing raises many concerns regarding maintenance. It seems very few people feel comfortable having personal, confidential information stored up in some "cloud'' of unknown location. Geoffery (2013) noted that because

cloud computing is invisible and intangible does not mean that it is not a safe way to store information. However, the major benefit of cloud computing is maintenance of data which is handle by cloud provider.

Students Use of Internet and Academic Information within the University Library

A library is known as a service unit within the university organization because it provides information materials useful to its students. Before the introduction of new technology, a tradition library was known to have a selection of acquired, stored and well-organized print media (books, journals, monographs) for students' information needs. Professional librarians, had the duty to ensure that the library collections contained the required information which met the needs of the users (Johnson, et al 2017). Services that were expected included but are not limited to: reference services, circulation services, inter-library loan services, indexing and abstracting services, bibliographic services including cataloguing, journal indexing amongst others (Tibenderana, 2018), selective disseminations services and book reserve services.

However, with the introduction of new technologies including the use of Internet in the last century such as Information and Communication Technology (ICT), all these services can be automated as E-library services such that university students can access them by means of networked computers through the web (Internet/Intranet) or a Local Area Network (LAN) (Odede & Enakerakpo, 2013). E-library services, is therefore defined as all library services which are provided by the means of new technologies include all the services listed in library automation, Internet services, university domain E-mail, online journals service, electronic books services, online catalogue, bibliographic database services, CD-ROM services, library website services, library mailing list server, document scanning services, electronic reference services, electronic information services, end-users training services, E-document delivery services amongst others (Romero, 2012; Tibenderana, 2018).

Examples of these are electronic databases that cover a wide range of full text journals, electronic books, electronic newspapers, monographs, conference proceedings and links to other networked libraries and organizations. In 2001, web-based and full-text databases which cover over 500,000 volumes of publications were provided to university libraries (Quadri, 2010). After that some university libraries have gone further to automate their library holdings thereby creating their own online catalogues and other bibliographic services. As a result of these advances, particularly the introduction of computers and other telecommunication technologies, there has been a significant change in the concept of a library and the library profession. Majority of

university libraries throughout the world embarked on automating their operations and services after the 1980s (Adegun, *et al.,* 2015).

The library is equipped with ICT infrastructure such as a network server and personal computers (PCs) connected through a Local Area Network (LAN) and in most cases connected to the World Wide Web with different parts of the library, faculties and administrative buildings of the university. According to Alan (1996), the electronic system is used to create bibliographic databases, control acquisitions, cataloguing and serials, effect bar-coded circulation, book reservation and recall system, Current Awareness Services (CAS), Selective Dissemination of Information (SDI), online literature searches of international databases through CD-ROMs and via Internet and support interlibrary loan services and Electronic Document Delivery Services (EDDS) (Tibenderana, 2018). Card catalogues are replaced with computer terminals. These changes have affected how library services are utilized and how they are provided. Leedy (2013) observes that the past was characterized by library patrons spending much of their time pouring through card catalogues and searching rows of stacks for material that may have been checked out by someone else. This process was time consuming. Library users knew a librarian as a source of assistance when the catalogue and guides were not useful. In addition, the library user often found vital information in a book located near the one he/she had used before, because library materials (books, journals) were organized by discipline.

With the use of computers and other communication networks, one can get the information required electronically from wherever it is located on the web. An information seeker is no longer confined to the walls of a library, (Kwak, et al, 2012; Yi & Hwang, 2013). As ascertained by Kwak *et al* (2012), the majority of university libraries in U.S. are now hybrid libraries, depending on both electronic and print media based on network and physical facilities. Many university libraries, including some in developing economies are part of campus-wide networks (Alan, 1996; Kiondo 2017; Martey 2014; Rosenberg, 2015), and are able to offer their patrons access to networked sources of information. The main role of a librarian is now to assist end-users in searching techniques and the use of technologies. Unlike the traditional library where users require the ability to read and write, skills acquired during schooling years, in an E-library services environment, users are required to adopt ICT, have some basic computing skills and have basic information searching skills; skills which are not necessarily acquired during schooling in most developing economies including Nigeria. Libraries in developing nations face a fairly similar set of challenges that limit their optimal provision of services and utilization. According to Adeyemi (2011), libraries in

developing economies are characterized by low technological development and low resource capacities such as finance, human and technological. In addition, the author highlights that evaluation studies of the services provided are not carried out because of a low level of awareness of the relevance and importance of evaluation studies, lack of finances to do them and shortage of qualified staff with the expertise to design and carry out such studies. The importance of evaluation studies in this context are that they are means to assess the extent of implementation and to determine the impact, effectiveness or utility of a specific library service(s). Their results provide feedback to library managers/scientists and other stakeholders on the extent of change in the targeted population based on particular interventions that have been put in place and can inform any changes that are needed to improve the service(s). Because of such conditions, it is difficult to carry out successful library evaluation studies in most developing countries Africa and Nigeria in particular.

Theoretical Framework

Technology Acceptance Model (TAM)

One of the well-known models related to technology acceptance and use is the Technology Acceptance Model (TAM), originally proposed by Davis in 1986. TAM has proven to be a theoretical model in helping to explain and predict user behavior of information technology (Legris, et al 2003). TAM is considered an influential extension of Theory of Reasoned Action (TRA), according to Ajzen and Fishbein (1980), Davis, Bagozzi, and Warshaw (1989) proposed TAM to explain why a user accepts or rejects information technology by adapting TRA. TAM provides a basis with which one traces how external variables influence belief, attitude, and intention to use. Two cognitive beliefs are posited by TAM: Perceived usefulness and perceived ease of use. According to TAM, one's actual use of a technology system is influenced directly or indirectly by the user's behavioral intentions, attitude, perceived usefulness of the system, and perceived ease of the system. TAM also proposes that external factors affect intention and actual use through mediated effects on perceived usefulness and perceived ease of use (Davis, *et al.*, 1989).

Technology Acceptance Model (TAM) generally appears to be able to account for 40 percent to 50 percent of user acceptance. TAM has evolved over time. TAM2 extended the original model to explain perceived usefulness and usage intentions including social influence (subjective norm, voluntariness, and image), cognitive instrumental processes (job relevance, output quality, and result demonstrability) and experience. The new model was tested in both voluntary and mandatory settings. The results strongly supported TAM2 and explained 60 percent of user adoption using this updated version

of TAM (Venkatesh & Davis, 2000). This paper adopted TAM2 as the baseline model in addition to TAM. Several studies have examined TAM as a model to explain how people adopt and use e-learning. Selim (2003) stated that there was a need to investigate TAM with web-based learning. He put forward the course website acceptance model (CWAM) and tested the relationships among perceived usefulness, perceived ease of use and intention to use with university students using the structural equation modeling techniques of the programme. Selim (2003) concluded that the model fit the collected data and that the usefulness and ease of use turned out to be good determinants of the acceptance and use of a course website as an effective and efficient learning technology.

The paper has gained supportive background information from the theory of Technology Acceptance Model (TAM). TAM remains one of the major theories of technology acceptance and its use. For instance, the theory is hinged on two components inherent in the subject matter areas of "perceived usefulness" and "perceived ease of acceptance". Hence, the paper investigated examined how students and lecturers perceive internet adoption and integration in Nigerian university library as useful and in utilizing it for research activities, as well as learning, and of course, if its use is easy within the universities.

Methodology

This paper employed the use of descriptive survey design to investigate internet adoption and integration in Nigerian university library. The study was conducted in selected universities in Lagos and their libraries were used as units of analysis. These universities include Pan African University, University of Lagos, and the Lagos State University. Simple random sampling technique was used to select one hundred and fifty participants from the three universities based on their availability, accessibility, convenience, as well as willingness. The research instrument was validated (face and contents) by experts in the department of library and information science, Adeniran Ogunsanya College of Education. The reliability test of the instrument was done using Cronbach Alpha at 5% level of significance. The result from the two tests showed some similarities thus attesting reliability of the instrument for this study. The instrument was administered and data collected with the help of two research assistants over a period of four weeks. One hundred and fifty (150) copies questionnaire were distributed. Specifically, fifty each was sampled amongst the selected institutions and only one hundred and thirty-two (132) copies of questionnaire were found valid for analysis. The data was collected, sorted, coded and analyzed using Pearson correlation

and simple regression. This was possible with the aid of Statistical Package for the Social Sciences (SPSS).

Table Showing Sample, Questionnaire Returned and Response Rate

Sample size	150.00
Completed and returned questionnaires	132.00
Response Rate	88.0%

Test of Hypotheses and Results

Hypothesis One

Ho₁: The use of internet does not obtain academic information within the university library.

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.875ᵃ	.765	.763	.602	.765	319.883	1	98	.000

a.   Predictors: (Constant), COMPUTER NETWORKS

From the model summary table, the value of R is 0.875 which is the correlation between observed and predicted values of the dependent variable (use of internet for academic information), the coefficient of determination (R-squared) value of 0.765 shows that the explanatory variable (use of internet) accounted for over 76.5% of the computer networks and use of internet to obtain academic information. Also, a brief look at the adjusted R-squared value of 0.763 indicates that after removing the effect of insignificant regressors (explanatory variable), about 76.3% variation in computer networks is still accounted for, by the independent variable (Use of internet). Concerning the Standard Error of the Estimate whose value is 0.602 is the root mean squared error.

Table 2: Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1(Constant)	-1.430	.289		-4.944	.000	-2.004	-.856
COMPUTER NETWORKS	1.252	.070	.875	17.885	.000	1.113	1.391

a.   Dependent Variable: USE OF INTERNET/ ACADEMIC INFORMATION

The constant is the Y intercept, the height of the regression line when it crosses the Y axis. In other words, this is the predicted value of computer networks when all other variables are 0. Considering the B; these are the values for the regression equation for predicting the dependent variable (use of internet/academic information) from the independent variable. The regression equation is presented thus:

Use of internet/ academic information = -1.430 + 1.252 computer networks.

Std. Error is the standard errors associated with the coefficients are 0.289 and 0.070 respectively. Lastly, the result also shows use of internet have significant effect on academic information because of 0.000 level of significance.

Table 3: ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	115.825	1	115.825	319.883	.000[a]
	Residual	35.485	98	.362		
	Total	151.310	99			

a. Predictors: (Constant), USE OF INTERNET

b. Dependent Variable: ACADEMIC INFORMATION

DECISION RULE:

Accept H_0, if $F_c < F_t$

Reject otherwise and accept H_1.

From the regression result, the value of our calculated F-statistic is 319.883.

Thus; F_c = 319.883

df = (K-1); (N-K)

Where K= 2, number of parameters; and

N= 99, number of observations.

df = 1;98

$F_{t\ 0.95(1;\ 98)}$ =3.964.

DECISION: Since, F_c(319.883) > F_t(3.964.) at 5% level of significance, we reject the null hypothesis (H_0) and conclude that the use of internet to obtain academic information within the university library is evident.

Hypothesis Two

Ho2: Students do not use the internet to obtain academic information within the university library.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.870a	.757	.755	.578	.757	305.649	1	98	.000

a.   Predictors: (Constant), STUDENTS

From the model summary table, the value of R is 0.870 which is the correlation between observed and predicted values of the dependent variable (use of the internet to obtain academic information), the coefficient of determination (R-squared) value of 0.757 shows that the explanatory variable (students) accounted for over 75.7% of university students while the remaining 24.3% variation in use of the internet to obtain academic information is explained by other exogenous variables that are excluded in the model. Also, a brief look at the adjusted R-squared value of 0.755 indicates that after removing the effect of insignificant regressors (explanatory variable), about 75.5% variation in use of the internet to obtain academic information is still accounted for by the independent variable (students). Concerning the Standard Error of the Estimate whose value is 0.578 is the root mean squared error.

Table 5: Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1 (Constant)	-1.199	.278		-4.318	.000	-1.750	-.648
UNIVERSITY STUDENTS	1.176	.067	.870	17.483	.000	1.042	1.309

a.   Dependent Variable: ACADEMIC INFORMATION

The constant is the Y intercept, the height of the regression line when it crosses the Y axis. In other words, this is the predicted value of use of the internet to obtain academic information when all other variables are 0. Considering the B; these are the values for the regression equation for predicting the dependent variable (use of the internet to obtain academic information) from the independent variable (students). The regression equation is presented thus:

Use of internet to obtain academic information = -1.199 + 1.176 university students.

Std. Error is the standard errors associated with the coefficients and are 0.278 and 0.067 respectively. Lastly, the result shows that university students have significant effect on use of internet to obtain academic information is very strong at 0.000 level of significance.

Table 6: ANOVA[b]

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	102.035	1	102.035	305.649	.000[a]
Residual	32.715	98	.334		
Total	134.750	99			

a. Predictors: (Constant), STUDENTS' USE OF INTERNET

b. Dependent Variable: ACADEMIC INFORMATION

DECISION RULE:

Accept H_0, if $F^c < F_t$

Reject otherwise and accept H_1.

From the regression result, the value of our calculated F-statistic is 305.649.

Thus; F^c = 305.649.

df = (K-1); (N-K)

Where K= 2, number of parameters; and

N= 99, number of observations.

df = 1;98

$F_{t\ 0.95(1;98)}$ =3.964.

DECISION: Since, F^c (305.649) > F_t (3.964.) at 5% level of significance, we reject the null hypothesis (H_0) and conclude that students do use the internet to obtain academic information within the university library.

Discussion of Findings

This section discusses findings in relation with the existing literature as reviewed. Therefore, the discussions of findings are as follows:

Hypothesis One: the use of internet to obtain academic information within the university library is evident: No wonder, Dhenavandah and Tamizhchelvan (2014) identified classification of Networks based on Utility criterion: Resource sharing network, Data sharing network communication and data exchange network. Resource sharing network main purpose is sharing of resources and other applications that are subordinate in nature, data sharing network provides access to unique databases from workstations situated at distance apart, while communication data exchange network allows users to exchange data, graph or documents and to communicate with each other using such devices as electronic mail, bulletin board amongst others.

Hypothesis Two: students do use the internet to obtain academic information within the university library: This is why, Quadri (2010) empathized that the introduction of the Internet has contributed to information explosion and has revolutionized the ways existing and new library users' source and use information. This, by now would have solved major traffic in the library as students are now hooked to the internet via the mobile phones which provides easy access to source information within the shortest period of time. As a result of the introduction of internet adoption and its facilities in libraries, various users including students and individuals can communicate with their

peer groups, colleagues, friends, lecturers and download information needed to improve academic pursuit.

Summary of Results

Results obtained reveal that Local Area Network, Wide Area Network, Internet, Campus Area Network, and Networks were the existing computer networks available in selected Nigerian university libraries. The justifications for the adoption of internet and integrating it in university library is to provide information to its students who are spread across the faculties/ departments and to equally make the information accessible and not location specific. The information services provided using internet adoption and integration in Nigerian university library is digital library/ repositories, searching library data, searching scholarly content, file storage, building community power and library automation. The implication in terms of cost, human resources, and maintenance of the internet adoption and integration in library in selected universities in Nigeria was mainly subjected to budgetary issues which lead to inadequate training of staff and the issue of recruiting the right staff to do the specific job.

Conclusion

During the past few years we have seen tremendous changes around the world in technological field. With the help of modern information technologies work can be done more effectively and efficiently than before with less labour force. Numerous organizations are managed to improve their productivity, efficiency and profitability using information technology. In order to increase productivity and profitability these advance IT can be used in any sector, organization and department. The library is the most important place to use such technologies to perform its work effectively and efficiently. Results obtained from the findings shows that university library adopt internet to provide library and information services to its students who scattered across the country where access to information must be unfettered and not location specific. And to enable Nigerian university librarians to get out of technology headaches such as computer viruses, system crashes, and loss of data, but save time, money, while simplifying workflow. The introduction of computers into libraries is impacting library and users' expectations. Establishment of the computerized system in the library is the felt need to serve the teachers, researchers and all readers of the university, colleges and the nation. Computerization will be useful to satisfy not only the readers but also to make the library operations fast, easy and transparent.

Recommendations

1. Internet adoption is very much needed in academic libraries. Librarians need to have thought and discussed integrated software for library automation for their respective libraries. Because there is a strong need to provide web-based library and information support services to end users for assisting them in achieving excellence in academic activities, Research and Development (R&D) work, consultancy and interaction with external environment.

2. To be successful in the present century, libraries have to be more proactive and more

   customer service oriented. The main challenges faced by most university libraries in Nigeria aretechnological challenges, lack of funds, lack of expertise, lack of training, lack of interest on library management, lack of national information policy, Local Area Network/ Wide Area Network (LAN/WAN), frequent breakdown of computers, internet link(s), as well as irregular power/electricity supply for the sustenance of the adoption and integration of internet into university libraries.

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