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**Availability and Challenges of E-Resources as Determinants of E-Services Accessibility in  
University Libraries in Nigeria**

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**ABSTRACT**

*The study examined the availability and challenges of e-resources as determinants of e-services accessibility in university libraries in Nigeria. The study centered on the availability, challenges of e-resources and accessibility of e-services. Descriptive survey design was adopted for the study. The population of this study comprised of all registered university libraries in Nigeria. A stratified random sampling technique was used to draw 300 respondents. A structured questionnaire titled: "Questionnaire on Availability and Challenges of e-Resources as Determinants of e-Services Accessibility in Nigerian Libraries". The instrument passed through face and content validation by experts in the field and the reliability coefficient obtained was 0.86. The data obtained was analyzed using percentage and regression analysis. The result of the findings revealed that there is significant effect of e-resources availability on e-services accessibility in Nigerian libraries also there is significant relationship between challenges of e-resources and e-service accessibility in Nigerian libraries. One of the recommendations was that awareness and publicity programs should be mounted with the deliberate purpose of highlighting the leisurely potentials of e-resources and online information services to members of the university communities.*

**KEYWORDS: e-resources availability, e-services accessibility, challenges of e-resources, Nigerian libraries**

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**Introduction**

Information resources availability, accessibility and use are important factors in knowledge acquisition, learning and research. Indeed, every academic library regardless of size is expected to have adequate information resources available for its community for reading, learning and research. Aina (2004) stated that availability determines the speed at which an information output in any format is obtained. Therefore, good information resources should be received and retrieved to meet the desired need. The emergence of information and communication technologies (ICTs) has altered the packaging and delivery of information services in libraries and allied information agencies. These technologies have reduced the human exertions associated with librarianship, completely diversified information products, and

increased access to library services. As a result of these changes, there are now libraries in which most chores are electronically managed. These modern libraries are known by various names, especially, virtual library, online library, digital library and electronic library.

Electronic or online services (e-services) are, to a great extent, made possible by the introduction of electronic resources (e-resources). IFLA (2012) described electronic resources as those materials that require computer access, whether through a personal computer mainframe, or handheld mobile devices. The benefits derived by the availability of e-resources and provision of online information services are increasingly changing the way people access and use information in libraries. The greatest facilitators of the online environment and the specialized services associated with it are the World Wide Web (www) and the Internet. They provide the capabilities within which libraries digitize their information offerings, computerize their operations and electronically-archive their collections.

Online or electronic information services (e-services) make it possible for library patrons to be served from remotely-located databases through interactive communication with the help of computers and communication channels. Gbaje (2007) established that students will use more of the library if they can do their homework, access information, listen to music, watch movies and use the internet. The introduction and diversification of e-resources have given rise to a great change in library readers' services practices. An understanding of e-resources, its availability and its usage in the library would not only aid the planning of future services but will also encourage increased patronage among students and scholars. This study therefore provides an insight into the availability and challenges of e-resources as determinants of e-services accessibility in Nigerian libraries.

### **Statement of the Problem**

The aim of every academic library is to support the academic programs of the institution by providing relevant information with a view to respond to the ever-increasing information demands of the users which comprised the students and the academic staff of the university. However, the availability of e-resources and provision of online information services are increasingly changing the way people access and use information in libraries. This study therefore seeks to investigate the availability and challenges of e-resources as determinants of e-services accessibility in Nigerian libraries.

### **Purpose of the Study**

The general purpose of this study is to examine the availability and challenges of e-resources as determinants of e-services accessibility in Nigerian libraries. Based on this, the following specific objectives were identified:

1. To ascertain the extent of the availability of e-resources and its effects on e-services accessibility in Nigerian libraries.
2. To find out the extent of challenges of e-resources and its effects on e-services accessibility in Nigerian libraries.

### **Research Questions**

1. What is the extent of the availability of e-resources and its effects on e-services accessibility in Nigerian libraries?
2. What is the extent of challenges of e-resources and its effects on e-services accessibility in Nigerian libraries?

### **Hypotheses**

1. There is no significant effect of e-resources availability on e-services accessibility in Nigerian libraries.
2. There is no significant relationship between challenges of e-resources and e-service accessibility in Nigerian libraries.

### **Significance of the Study**

The findings of this research work will be beneficial to the Library and Information Science (LIS) practitioner, educators and researchers, the outcome of this study provides the data for measuring the impact ICTs and their comparison with information services in the traditional library setting. This study equally gives library patrons insight into the types of various e-resources available in Nigerian libraries, as well as exposes them to the academic, research and general, the relevance of e-resources and online information services. This survey will further provides insight to the numerous challenges associated with e-resources and accessibility of e-services in Nigerian libraries. Moreover, it will also add to the corpus of literature in electronic resources and services with reference to Nigerian libraries.

### **Review of Related Literature**

#### **Theoretical Framework**

##### **Technology Acceptance Model (TAM), 1993.**

Technology Acceptance Model is the most influential, empirically tested, widely used model of technology acceptance. It was developed by Davis in the year 1993. The purpose of TAM is to predict user acceptance of technology by using two technology related factors, perceived usefulness and perceived ease of use. Perceived usefulness (U) in TAM is the extent to which a user believes that the use of a system will enhance his or her performance. Perceived ease of use (EOU) is the extent to which a user believes that using the system will be effortless. According to TAM, both U and EOU significantly influence a person's attitude towards using the system (A). Davis et al. (cited in Dillon and Morris, 1996) explained that in a job situation, an employee's intention to use a system will be strictly based on the impact of the system on his or her work performance, irrespective of his or her attitude towards the system. In other words, an employee may dislike a system but may use it based on perceived increase in his or her job performance. TAM has been successfully tested on a wide variety of technologies including information systems computer applications. The implication of this theory to this work is that Nigerian universities and libraries are expected to provide e-resources associated with students' field of study, making it easy to access, as this will enhance its utilization by university students.

## Conceptual Framework

### E-resources Availability in Nigerian Universities

Availability of electronic information resources is about information being accessible as needed, when needed, where needed. The objective of availability is to enable access to authorized information or resources. Availability, in the context of a computer system, refers to the ability to a user to access information or resources in a specified location and in the correct format. Chandrasekhar (2006) observed that the availability of electronic resources which affects accessibility of e-services indeed depends on the availability of funds as well as the demand for their use.

The adoption of e-resources in libraries and the provision of online information services have been overemphasized as a result of its numerous importance in different spheres of life (Gbaje, 2007). These e-resources have a common feature of being used and sometime modified by a computer (Thanuskodi, 2012). Consequently, Akporhonor and Akpojotor (2016) observed that electronic resources are systems in which information is stored mechanically and made accessible through electronic systems in which information is stored electrically and made accessible through electronic and computer network.

Furthermore, the incursion of the electronic resources into library services in the educational sector provides the possibilities to solve most teaching, learning, research and overall information creation, organization, dissemination, preservation and conservation problems even more rapidly and accurately than hitherto conceived. This has eventually made the computer and other electronic systems the doyen of research as it continues to extract greater acceptance (Nwachukwu & Asom, 2015). However, Yelwa (2009) saw the use of online information services as an ideal way of providing global solution to challenges of the digital age. In summary, Nuhu (2014) concludes that the use of online services is very important in order to enhance creativity, innovation and development in Nigerian universities.

### Challenges of E-resources Availability in Nigerian Universities

Gbaje (2007) observed that the unstable nature of Nigeria's economy, political environment, government apathy towards information services, weak and uncoordinated information professionals, among others, constitute barriers to availability of e-resources and effective provision of online information services for scholarly attainment and research. The study by Ugboma (2006) found another major problem which is that basic knowledge of ICT was lacking. Separate studies by Adomi (2004) equally highlighted the fact that challenges of provision and use of electronic resources emanate mainly from lack of technical manpower, equipment, cost, electricity supply and lack of full installation of ICT in Nigeria.

It is obvious that academic libraries all over the world, and particularly in Nigeria, are challenged with issues such as paucity of finance to acquire information resources in electronic form, and even subscription to electronic resources; as well as inadequate number of competent library professionals suitable for the digital era (Urhiewhu, 2015). It is for these reasons that Mensah (2015) concluded that most libraries in Nigeria are yet to embrace ICT and automation.

## **E-Services Accessibility in Nigerian Universities**

Access is a general term used to describe the degree to which a resources, services, product, environment is accessible by as many people as possible. It can be viewed as the ability to access information with little or no stress. According to Aguolu & Aguolu (2002), resources may be available in the library and even identified bibliographically as relevant to one's subject of interest, but the user may not be able to lay hands on them. One may identify citations in indexes, but may not have access to the resources containing the relevant articles. The more accessible information services are, the more likely they are to be used. Readers tend to use e-services that require the least effort to access.

Advances in technology have enabled users to access electronic services in a variety of ways, to suit their needs and requirements. Osundina (2004) studied the relationship between accessibility and library use in institutions in Nigeria and notes that the problem of users is not the question of wanting to use the library, but whether or not the library can provide for their needs and whether there will be access to the information provided. Access is only as good as the resources that can be afforded (e.g., the number of computers and existence of network systems), the ability to work with the tools, and the network infrastructure that supports rapid and convenient connections. Therefore, when buying electronic information resources, librarians should conduct contract negotiations with vendors/ network providers to ensure the least restrictive access in current and future products.

## **Utilization of Electronic Information Services**

The advent of electronic information resources and services has been a blessing to libraries and information centers. The significant changes associated with electronic information services are the shift towards end user searching, leading to big increases in the total number of searches carried out. Awogbami et al (2000) reported the diffusion and achievements in the utilization of electronic resources and services in libraries. They stated that it has enabled libraries which could not have access to information online, to search in- house. The massive storage capacities in CD-ROMS are an example of electronic information resources that have enabled libraries to access instantly, easily and conveniently, a substantial amount of relatively current and retrospective information. Also, Blandy cited by Amankwah (2014) posited that to utilize the growing range of electronic information resources, users must acquire and practice the skills necessary to exploit them using a variety of online databases. According to Schutte (2004), utilization of electronic information resources and services has led to the shift from an emphasis of the book and journal collection to an emphasis on information services or from ownership to access. Whitmire cited by Aguolu & Aguolu (2002) observed that the use of electronic information services is also influenced by students' use of the library. The more a student uses the library the more familiar he becomes with its resources including its electronic information resources.

## **Research Methodology**

Descriptive survey design was adopted for the study. The population of this study comprised of all registered university libraries in Nigeria. A stratified random sampling technique was used to draw 300 respondents. Under the 6 Geographical zones in Nigeria, 5 university libraries were randomly selected where 8 students and 2 librarians were used, giving a total of 300 respondents

as the sample size. A structured questionnaire titled: "Questionnaire on Availability and Challenges of e-Resources as Determinants of e-Services Accessibility in Nigerian Libraries", which was developed in line with the research objectives, with reliability index of 0.86 was used to collect data from the respondents. The statistical tool known as student t-test was used to test the null hypotheses at 0.05 level of significance. The data collected were analyzed using bar charts, frequencies, simple percentage, bar charts, chi-square analysis and Pearson product moment correlation analysis.

**Result and Discussion**

**Research Question 1:**

The research question sought to find out the extent of e-Resources Availability and its effects on e-services accessibility in Nigerian university libraries?

**TABLE 1: e-Resources Availability.**

S/N	CD	VHE	HE	LE	VLE	Mean	D
1	Computer	13	10	-	-	3.6	Agree
2	Ups	10	8	5	-	3.2	Agree
3	Printer	3		10	10	1.8	Disagree
4	Photocopying machine	10	10	1	2	3.2	Agree
5	V-SAT	10	5	5	3	3.0	Agree
6	Internet server	10	5	5	3	3.0	Agree
7	Fax facilities	5	5	16	2	2.3	Disagree
8	Telephone facilities	3	2	15		2.5	Agree
9	Scanning machine	4	4	13	4	2.3	Disagree
10	CD-ROM	2		16	1	2.3	Disagree
11	Television	-	-	10	13	1.4	Disagree
Average score		6.4	4.5	8.7	3.5	2.6	Agree

**Source: researcher’s Field Survey (2016): Criterion Means = 2.5**

In Table 1 it is apparent that the availability of e-resources in the Nigerian University libraries is not very high but moderate. This deduction was made from the grand mean of 2.6. Hence, it can be concluded that the major e-library facilities/resources present in Nigerian university

libraries are computers (Mean = 3.6), UPS (Mean = 3.2), photocopiers machine(Mean = 3.2), V-SAT (Mean = 3.0), Internet servers (Mean = 3.0) and telephone facilities (Mean = 2.5). Others with short supplies are fax facilities (Mean = 2.3), scanning machines (Mean = 2.3), CD ROM (Mean = 2.3), printer (Mean = 1.8) and television (Mean = 1.4). Based on the extent of their availability, computers, photocopiers, Internet servers, and telephone services are easily accessible by students in Nigerian Libraries.

**Research Question 2:**

The research question sought to find out the extent of e-Resources Challenges and its effects on e-services accessibility in Nigerian University libraries?

**TABLE 2: Challenges to the use of e-Resources**

S/N	Challenges to Use of e- Resources	SA	A	D	SD	Mean	Decision
1	Problem of internet connection	10	5	3	5	2.9	Agree
2	Slow bandwidth	11	7	2	3	3.1	Agree
3	Inadequate facilities	8	10	2	3	3.0	Agree
4	Inadequate ICT skills of users	3	2	15	3	2.2	Disagree
5	Absence of trained personnel	2	2	16	3	2.1	Disagree
6	Absence of library ICT policy	8	8	4	3	2.9	Agree
7	Analogue nature of librarians	5	4	11	3	2.5	Agree
8	Poor financial state of the library	10	10	1	2	3.2	Agree
9	High cost of internet subscription	11	9	2	1	3.3	Agree
Average score		7.6	6.3	6.2	2.9	2.8	Agree

**Source: Researcher’ Field Survey (2016): criterion Mean = 2.5**

It can be concluded from the analysis in Table 2 that the challenges to the use of e-resources in Nigerian University libraries include the problem of internet connection, slow bandwidth, inadequate facilities, inadequate ICT skills of users, absence of trained personnel, absence of library ICT policy, analogue nature of some librarians, poor financial state of the library and high cost of internet subscription, respectively. The challenges to use of these resources directly affects its services accessibility.

**Hypothesis**

The null hypothesis states that there is no significant effect of e-resources availability on e-services accessibility in Nigerian libraries. In order to test the hypothesis simple regression was used to analyse the data, (see table 3).

**TABLE 3: Simple regression of the effect of e-resources availability on e-services accessibility in Nigerian libraries**

Model	R	R Square	Adjusted R Square	Std. error of the Estimate	R Square Change
1	.892 <sup>a</sup>	.796	.796	.82942	.796

**\*Significant at 0.05 level; df =298; N =300; critical r-value = 0.139**

The table shows that the calculated R-value 0.89 was greater than the critical R-value of 0.139 at 0.05 alpha level with 298 degree of freedom. The R-square value of 0.79 predicts 79% of effect of e-resources availability on e-services accessibility in Nigerian libraries.

This rate of percentage is highly positive and therefore means that there is significant effect of e-resources availability on e-services accessibility in Nigerian libraries.

It was also deemed necessary to find out the extent of the variance of each of the cases in the independent variable as responded by each respondent (see table 4).

**TABLE 4: Analysis of variance of the effect of e-resources availability on e-services accessibility in Nigerian libraries**

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	801.433	1	801.433	1164.986	.000 <sup>b</sup>
Residual	205.004	298	.688		
Total	1006.437	299			

- a. Dependent Variable: e-services accessibility.
- b. Predictors: (Constant), e-resources availability

The above table presents the calculated F-value as (1164.986) and the critical f-value as (000). Being that the critical f-value (000a) is below the probability level of 0.05, the corresponding calculated f-value (1164.986) is significant. This therefore means that there is significant effect of e-resources availability on e-services accessibility in Nigerian libraries.

The null hypothesis states that there is no significant effect of e-resources challenges on e-services accessibility in Nigerian libraries. In order to test the hypothesis simple regression was used to analyse the data, (see table 5).

**TABLE 5: Simple regression of the effect of e-resources availability on e-services accessibility in Nigerian libraries**

Model	R	R Square	Adjusted R Square	Std. error of the Estimate	R Square Change
1	.793 <sup>a</sup>	.629	.628	1.11884	.629



**\*Significant at 0.05 level; df =298; N =300; critical r-value = 0.139**

The table shows that the calculated R-value 0.793 was greater than the critical R-value of 0.139 at 0.05 alpha level with 298 degree of freedom. The R-square value of 0.629 predicts 63% of effect of e-resources challenges on e-services accessibility in Nigerian libraries.

This rate of percentage is highly positive and therefore means that there is significant effect of e-resources challenges on e-services accessibility in Nigerian libraries.

It was also deemed necessary to find out the extent of the variance of each of the cases in the independent variable as responded by each respondent (see table 6).

**TABLE 6: Analysis of variance of the effect of e-resources challenges on e-services accessibility in Nigerian libraries**

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	633.400	1	633.400	505.990	.000 <sup>b</sup>
Residual	373.037	298	1.252		
Total	1006.437	299			

- a. Dependent Variable: e-services accessibility.
- b. Predictors: (Constant), e-resources availability

The above table presents the calculated F-value as (505.990) and the critical f-value as (000). Being that the critical f-value (000a) is below the probability level of 0.05, the corresponding calculated f-value (505.990) is significant. This therefore means that there is significant effect of e-resources challenges on e-services accessibility in Nigerian libraries.

**Discussion of the Findings**

The results of the data analyses in tables 3 and 4 were significant due to the fact that the obtained R-value (0.89) and the calculated F-value as (1164.986) were greater than their respective critical-value at 0.05 level with 298 degree of freedom. The result implies that there is significant effect of e-resources availability on e-services accessibility in Nigerian libraries. The finding agrees with the opinion of Chandrasekhar (2006), who observed that the availability of electronic resources which affects accessibility of e-services indeed depends on the availability of funds as well as the demand for their use. The significance of the result caused the null hypotheses to be rejected while the alternative one was accepted.

The result of the data analysis in table 5 and 6 were significant due to the fact that the obtained R-value (0.793) and the calculated F-value as (505.990) were greater than their respective critical-value at 0.05 level with 298 degree of freedom. The result implies that there is significant effect of e-resources availability on e-services accessibility in Nigerian libraries. The finding agrees with the opinion of Gbaje (2007), who observed that the unstable nature of Nigeria’s economy, political environment, government apathy towards information services, weak and uncoordinated information professionals, among others, constitute barriers to availability of e-

resources and effective provision of online information services for scholarly attainment and research. The significance of the result caused the null hypotheses to be rejected while the alternative one was accepted.

### **Conclusion**

Based on the findings of this study, it was concluded that the availability of e-Resources in Nigerian libraries are faced with number of challenges which affects the accessibility of e-Services. It was also concluded that there is significant effect of e-resources availability on e-services accessibility in Nigerian libraries. And finally, there is significant relationship between challenges of e-resources and e-service accessibility in Nigerian libraries.

### **Recommendation**

Based on the findings discussed and conclusions reached in this study, the following recommendations were made:

1. Government should work out appropriate strategies to allocate fund to University libraries in Nigeria.
2. There is need for an improvement in the bandwidth available to University libraries in Nigeria. This will enhance Internet connectivity and quicken the speed of access to electronic databases and other online information services.
3. Nigeria can further come to the aid of high cost of ICT components by subsidizing the acquisition of e-resources, as well as the cost of Internet subscription.
4. Awareness and publicity programs should be mounted with the deliberate purpose of highlighting the leisurely potentials of e-resources and online information services to members of the university communities.

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