AWARENESS AND USE OF SCHOLARLY ELECTRONIC JOURNALS BY MEMBERS OF ACADEMIC STAFF: A CASE STUDY OF FACULTY OF AGRICULTURE, AHMADU BELLO UNIVERSITY, ZARIA.

By

OLOWU Labeshi Toby, SULIMAN Habiba, and ADEDOKUN Aderonke

Abstract

The purpose of this paper is to find out the awareness and use of e-journals by members of academic staff of the Faculty of Agriculture Ahmadu Bello University, Zaria. A questionnaire was used as the main method for data collection and was supplemented by interview and observation methods. The findings revealed that the level of use of scholarly electronic journals was high and the use of search engines such as Google was high amongst members of academic staff. It was further revealed that, scholarly electronic journals were mainly used by members of academic staff for research and academic purposes. It is however found that, lack of awareness and limited searching skills were the main factors which were militating against effective use of scholarly electronic journals. In order to improve and maximize the optimum usage of scholarly electronic journals by members of academic staff, the study recommends the following: the institution should employ proactive marketing strategies such as the use of calendars, newsletters, posters, workshops/training, flyers and brochures, website; conduct training on the use of scholarly electronic journals databases and subscribe to relevant scholarly electronic journals.

Introduction

Since the seventieth century the printed journal has been the backbone of scholarly communication. Nevertheless, with the emergence of internet and World Wide Web in the 1990s, the form of journals has been transformed into digital version that saves physical storage, enhance different searching capabilities and speed both access and delivery of articles to readers This event marked the paradigm shift in scholarly communication, from printed journals as the principle medium of communication to electronic journals. As a result of potential benefits offered by electronic journals, many academic libraries have embraced electronic journals and cancelled subscription to printed journals (Moyo, 2002; Mutula, 2007 and Thanuskodi, 2011).

Today, the use of electronic journals is becoming important among researchers and academic staff worldwide vis a vis printed journals. For example, in higher education, scholarly electronic journals have become essential tools for learning and research as they provide access to timely, high quality and relevant scientific information to scholars and researchers with a view to keep them abreast with new discoveries and developments. Moreover, members of academic staff use electronic journals to update their lecture notes as well as avoiding duplication of efforts. On the other hand, electronic journals have added enormous resources to the collection and improved services of the library, enhanced access to journal literature and decreased demand for

photocopy services as well as document delivery (Madhusudhan and Chirra, 2009 and Madhusudhan, 2010). However, in recent decades, the majority of researchers and academicians particularly in the developing countries have been deprived of access to the key research literature that is found mainly in expensive journals published in developing countries. This situation is due to reduced library budget which could not cope with the enormous journal subscription cost and inadequate distribution mechanism (Rosenberg and Raseroka, 2000; Rao, 2001; Moahi, 2002; Lwoga et al., 2007).

Nevertheless, enormous progress has been done in the last few years to ensure that scholars and researchers in Africa can access the growing quantities of information now produced in electronic format. Support has been provided in setting up the necessary network infrastructure and providing the requisite hardware and software. Also, negotiation with publishers have resulted in electronic journals and databases being made free or at heavily discounted prices through programmes like Access Global Online Research in Agriculture (AGORA), HINARI Access to Research Initiatives, The Essential Electronic Agriculture Library (TEEAL) and Programme for the Enhancement of Research Information (PERI), Online Access to Research on Environment (OARE) and a lot of training has taken place (Rosenberg, 2006).

History of Electronic Journal Publishing

The publishing revolution started five hundred years ago by Johannes Gutenberg with the printing press. The printing had gone into the next century, the World Wide Web (WWW) and Internet are without doubt introducing a new era in which the same kind of impact, if not greater, would be seen in the way we store, promote and distribute (or transmit) information. With the increasing popularity of the Internet, many developments have sprung up that enhance publishing (Ling *et al*., 1996). This trend needs to be traced for keeping abreast of development in publishing.

Evolution of electronic publishing can be traced back to 1970s when computers were first used to assist printing of abstracting and indexing services. It has since evolved along the technological growth for over four decades. The databases emerged online first in the late 1960s and Dialog became the first commercial online service in 1972 (Lancaster, 1995). By 1975, there were 300 publicly available online databases.

Creation and remote accessibility of online bibliographic databases are considered as very important landmark in electronic publishing. Sophisticated online databases were built

during the 1970s and the 1980s using high technology. The distribution of database management system link different remote systems using data files generated in the process of electronic photo typesetting of printed abstracting and indexing services and other primary journals (Arora, 2001).

With the recent advent of digital information systems and the Internet, the scope of publishing has expanded from traditional to electronic publishing. From 1970s, there was an interest in the use of electronic publishing not only because the traditional role of the scholarly publication. This role of reporting results quickly and as a formal record of peer reviewed scholarly achievement was under stress in the print world, because the two functions could be achieved better in the electronic environment (Oppenheim, 2008).

The first electronic publication came in the 1980s in the form of plain text e-mails. They were sent to the subscriber via a mailing list (Chitra, 2010). The period between 1985 and 1995 referred to as a period of digital revolution, involved a marked shift from analog to digital treatment of information.

The electronic distribution path was neglected as soon as new tools became available in the late 1980s and early 1990s. Later CD-ROMs appeared to be more effective medium for electronic publishing. This kind of publication was relatively successful Transnational Journal of Science and Technology April 2013 edition vol.3, No.4 ISSN 1857-8047 for a number of years and, for particular publications (encyclopedias, dictionaries, atlases, handbooks), are still in use (Pettenati, 2001).

The CD-ROM has a high reliability allowing the use of many different formats. It has excellent quality, pictures, figures, and long life at low cost support. However, CD-ROMs soon became unmanageable for libraries when each CD-ROM required the installation of a special client (software to read the CD-ROM) for each publication. In the 1990s, scholars realized that, the use of the world wide web would “accelerate research, enrich education, share the learning of the rich with the poor and the poor with the rich, make this literature as useful as it can be, and lay the foundation for uniting humanity in a common intellectual conversation and quest for knowledge” (Willinsky, 2002).

Then, in the years 1994–95 appeared the very first electronic journals (e-journal). The first e-journal to be distributed was Electronics Letters Online by IEE (Institution of Electrical Engineers). IEE distributed the journal via the Online Computer Library Center (*OCLC*)**;** OCLC

invented a client, called Guidon, to be installed on the reader‟s station. Guidon was an excellent tool, with a very rich functionality but unfortunately, not Web-based (Pettenati, 2001). It became outdated as soon as the Web was chosen for the distribution of e-journals.

Web distribution started in 1995–96 and recorded immediate success. It was possible to use the rich format PDF (Portable Data Format), to embed links in the text and to start to use multimedia tools. Now, electronic publications are already prepared for downloading into Personal Digital Assistants (PDAs); it is a sort of e-book device already present in our pockets for other uses.

A Brief History of Faculty of Agriculture, Ahmadu Bello University, Zaria.

The Faculty of Agriculture was established in October 1962 as one of the first sixFaculties of Ahmadu Bello University. Not until 1967 classes in the faculty of Agriculture werecarried out in temporary building in the main campus. It was considered wise, when considering staff availability, teaching and research needs of students and staff, that the Faculty should be sited at I.A.R so that its staff would help in the teaching and supervision of students while I.A.R research farms would be used for teaching and for research.

At the inception of the faculty and until the 1965/66 session, the faculty functions as a single unit, i.e. there were no departments. However, in the 1965/66 session four departments were established viz: Agricultural Economics and Rural Sociology, Animal Science, Plant Science and Soil Science. The following additional Departments were created; Crop Protection (1968) Agronomy (1970) and Agricultural Engineering (1975). However, in 1976 the Department of Agricultural Engineering was transferred to the Faculty of Engineering. B.Sc. (Agric) degree programme stated at the inception of the faculty which M.Sc. and Ph.D. degree programme started in 1973/74 sessions with the Department of Crop Protection pioneering. (ABU, 1987)

Some Database Subscribed to by Ahmadu Bello University.

S/N	Name	Subscribed Database	Username/Password
1	AGORA	Access to Global Online Research in Agriculture (AGORA)	Ask the Librarian
2	AJOL	Database of journals in Africa, covering the full range of Academic disciplines	Need Registration with AJOL
3	ARDI	Access to Research for Development and Innovation(ARDI).They provide access to scholarly literature from diverse fields of science	Ask the librarian for User Name and Password
4	ASCE	The American Society of Civil Engineers represent more than 150,000 membersof Civil engineering professionmin 177 countries.	Consult the Library for Username and Password
5	BMJ Publishing Group	Contained peer-reviewed journals focusing on biomedical research	Ask the librarian for User Name and Password
6	Ebrary	It is an online digital library of full texts of over 100,000 scholarly e-books. It is available at many academic libraries and provides a set of online database collections that combine scholarly books from over 435 academic, trade, and professional publishers. It also includes sheet music (9,000 titles) and government documents. Additionally, e-library offers a service called "DASH!" for customers to distribute their own PDF content online.	
7	EBSCOHOST Online Research Databases	For all Disciplines	Ask the librarian
8	e-Granary	The e-Granary Digital Library - also known as "The Internet in a Box" - provides millions of digital educational resources to institutions lacking adequate Internet access.	No User Name and Password
9	Hathtrust Digital Library	Digital Library is a digital preservation repository and highly functional access platform. It provides long-term	Ask the Librarian for help

		preservation and access services for public domain and in copyright content from a variety of sources, including Google, the Internet Archive, Microsoft, and in-house partner institution initiatives		
10	HINARI	Biomedical & Medical	Ask the librarian for User Name and Password	
11	JSTOR	Multidisciplinary science	Multidisciplinary	Open Access
12	Science Direct	For all Disciplines		
13	TEEAL	It is an Agricultural Database	Needs registration with the Library	

Objectives

The main objective of this study is to examine the awareness and use of e-electronic resources by Academic staff of Faculty of Agriculture, Ahmadu Bello University, Zaria, Nigeria. Some of the major objectives are:

1. To identify the types of electronic resources and services available in library;
2. To determine the awareness of electronic resources available in the library;
3. To study the purpose of use of the electronic resources and services available in the library by the Academic staff of the faculty of Agriculture, Ahmadu Bello University
4. To determine the frequency of use of electronic resources available in the library by the Academic staff members;
5. To examine the challenges faced by the Academic staff while accessing and using the electronic resources in the library;

Research questions

The following questions were raised to guide the study:

1. What are the different types of electronic resources available in the library?
2. Are the Lecturers aware of the types of electronic resources available in the library?
3. What is the purpose for which lecturers use electronic resources?
4. What is the frequency of use of electronic resources by Lecturers?
5. What are the challenges faced by Lecturers in their attempt to use electronic resources

Literature Review

Many studies have been carried out on awareness and use of electronic journals. In the 1990s when electronic journals were introduced, Majid and Mansoor (1996) in their study of Universities in Malaysia found that a majority of users were not aware of the CD-ROMs services which reflected the degree of effectiveness of the promotion activities in the library.

Baro et al. (2011) studied Delta State University and found that electronic scholarly journal databases were underutilized. Users cited lack of awareness of the existing resources as the primary constraint they had. Okelo and Magara (2008) supported this notion of underutilization and stated that the common obstacle in the use of electronic journals in higher learning institutions was lack of awareness about the resources.

Vasishta (2013) noted that promotion is the decisive factor in the effective use of sophisticated services such as electronic journals. He argued that, since electronic journal are developing as a new information platform, their promotion requires more than just notification.

Oyedapo and Ojo (2013) in a study on the use of electronic resources in Oba Fami Awolowo University observed very low usage of electronic resources. The major reason that contributed to low utilization of electronic resources was limited searching skills.

Manda (2005) added additional factors leading to underutilization of electronic resources which included lack of accessibility to computers connected to internet; low internet bandwidth and unreliable power supply.

Manda and Mukangara (2007) in study on gender analysis of electronic resources information resources use observed low usage of electronic scholarly journals databases and that the usage of search engine such as Google was high. Curley (1990) cited in Rahman and Ramzy (2004) and Kiondo (2007) concurred with these findings and maintained that the greater ease of use of the search engine through increased accessibility and availability, the greater the reported use of the resources.

Anaraki and Babalhavaeji (2013) found that the most obstacles to the use of library electronic resources were inadequate information about existence of these databases and lack of training.

Kinengyere (2007) and Majjid and Abazoza (1999) also noted that lack of information literacy training coupled with computer training were directly related to low usage of these

resources. Bowden (1994) maintained that users who were trained in information gathering and who had greater computer skills were more likely to utilize these services.

Achonna (2008) likewise noted that usage of electronic journals was low and users cited lack of skills to use the resources, power outage and inadequate computers as common obstacles towards usage of electronic resources.

Ajegbomogun (2007) posits that, while electronic journals have become essential tools for learning, research, teaching and consultancy, most of scholars and researchers are not fully utilizing them.

Rehman and Ramzy (2004) echoed the same sentiment by stating that although libraries have purchase and install the latest, most technologically advanced computerized information systems and procure expensive resources, these may not be optimally used due to lack of awareness or the lack of ability to use these resources among the users. Therefore, it is imperative for library professionals to ensure that such electronic resources are effectively exploited, through conducting training and employing proactive marketing strategy.

Wisniewski and Fichter (2007), Kinengyere (2007), Vasishta (2013) and Asemi and Riyahiniya (2007) have supported the notion of conducting information literacy training and increasing publicity of scholarly electronic journals to the users.

Methodology

The questionnaire-survey based method was used for this study to collect the necessary primary data as is the most common method used in social research and many similar studies conducted earlier have also used this method for data collection. This method is also preferred as it is less time consuming and more economical for a scattered population. In addition to the questionnaire method, interview and observation methods were also used to collect required information to the questionnaire method to bring more clarity to the data, which was essential and was used for analysis and interpretation of the data. The survey was designed to collect basic information about the level of awareness of the existing scholarly electronic journals, level of usage of scholarly electronic journals and the way forward. Data collection was made by directly administering questionnaires to members of academic staff in the faculty. A total of sample of 60 research scholars was chosen from Faculty of Agriculture.

Result and Discussion

The data collected by different methods were analyzed and interpreted and are presented here in tables and figures.

Response Rate

Out of the 128 respondents that were administered with questionnaires, a total number of 91(71%) questionnaires were duly returned by the researcher. While 37 (28%) were not recovered. This high rate of response could be attributed to the fact that the researcher followed up and reminded the academic staff of the Faculty of Agriculture on completing the instrument. The response rate of the academic staff of Faculty of Agriculture, ABU is provided in table 1 which shows the number of questionnaire administered, the number successfully filled and returned and the percentage of the questionnaire returned from each department sampled study.

Table 1: Response Rate

Population of the Study

S/N	Departments	Population
1	Agricultural Economics And Rural Development	27
2	Animal Science	46
3	Plant Science	27
4	Soil Science	31
5	Agronomy	45
6	Agricultural Engineering	22
7	Crop Protection	29
	Total	**227**

Data Analysis

This section present the analysis and discussion of the data collected for the study. Effort was made to answer all the research questions raised in the study. The analysis was based on the data collected from the respondents; this is shown in tables and percentage to ensure accurate representation of the results. Below is the findings and discussion.

Awareness Level of Electronic information Databases by Academic staff in the Faculty of Agriculture ABU, Zaria

Information, no matter how well packaged, does no realize its value until it is well known and put to use.

Table.1: Awareness Level

Databases	**Highly aware**		**Not Aware**	**Total**
AGORA	70	11(89%)	12(14%)	93
Medline	-	1(1.4%)	70 (98.6%)	71
Agris	1	1(1.61%)	60 (96.8%)	62
Agricola	1	23(26.4%)	67 (73.6%)	91
Hinari	12	30(46.2%)	49(53.8%)	91
Scielo	-	0 (%)	82(100%)	82
Biomed central	1	0 (3.03%)	33(97.1%)	34
Biosis	-	11 (12.2%)	79(87.8%)	90
TEEAL	24	50(86%)	10(10%)	84
VetCD	-	-	57(100%)	57
BeastCD	-	-	43(100%)	43
Others specify	-	-	-	-

From the table above, table.1 shows that the Academic staffs of the Faculty of Agriculture were highly aware of AGORA which has the highest rate of 81(89%), followed by TEEAL 74 (86%). However, the electronic resources with lower rate were Vet CD and Beast CD respectively.

Frequency of Use of Electronic Information in the Agricultural Complex, ABU Zaria

Out of those who responded in affirmative on awareness of databases, were asked how frequently they use these resources. The question was framed in time scale such as daily, weekly, monthly, annually and not at all. The result is presented in Table 2.

Table.2 **Frequency of Use of Electronic Information**

Response Type	**Number of Response**	**Percentage (%)**
Daily	23	5.3
Weekly	51	56
Monthly	6	6.6
Annually	8	8.8
Not at All	-	-
Total	**89**	**76.7**

From the analysis of data presented in the Table.2, it could be seen that 6(6.6%) of the respondents do use the electronic databases monthly, 51(56%) use the electronic database weekly while 23(5.3%) use the electronic databases daily while no response for not at all.

This is based on the fact that the faculty of agriculture, ABU, is connected to internet which runs on daily basis and also subscribed to some databases which are updated. Depending on the database, new records may be added daily, weekly, monthly or quarterly. Collectively, use of electronic databases by the respondents as outlined above tally with the study by Rogers (2001) in which he revealed that the number of Faculty respondents reporting weekly and monthly use of e- journals increases from 36.2% in 1998 to 53.9% in 2000. This shows 17.7% increases in the number of users. The result also supports Rusch-Feja and Siebeky(1999) findings from a study on Evaluation of usage and acceptance of electronic journals. They revealed that e-journals were being used regularly (….weekly and monthly) despite the various disadvantages associated with the electronic format.

Similarly, the findings support a study by Jagboro (2003) on the use of internet in Nigerian University. The study revealed a convergence of weekly users of electronic Databases. It is interesting to note that there is a significant progress in the acceptance and the use of electronic information resources. Libraries should therefore, be effective at integrating print and e-resources in a standardized form according to users' needs for a wide range of scholarly work.

The respondents were further asked to indicate if they interact with the system personally or through an assistant. The result shows a very high level of the knowledge of the use of

electronic information system by the respondents as 63(69.2%) of them use the system without assistance while 28(30.8%) do not interact with the system personally. This corroborates the finding of Ramlogen and Tedd(2001) that "majority 146 (72.5%) of 200 respondents expressed high confidence (i.e. almost or only occasionally need help"). In a similar study on use of resources by researchers in university libraries with special reference to electronic media, Handel (2003) reports that all the 84 respondents used for the study reported that they have a working knowledge of computer. In a related issue, the respondents were asked to indicate if they have access to the information they desired, 104 (70.7%) indicated in the affirmative, while 21 (14.4) indicated a no response.

Importance in the Use of Electronic Information Databases

Attempt was made to identify the usefulness of electronic information databases in the Agricultural complex especially as it relates to research work, teaching and learning. The researcher therefore, provided the respondents with lists of possible usefulness or benefits in the use of electronic information sources and was asked to indicate their level of acceptance of the usefulness. The data collected from the respondents is tabulated in table .4.

Table 4 Importance of the Use of Electronic Information Databases

Importance Of Using Electronic Database Sources	SA (%)	A (%)	U (%)	D (%)	SD (%)	Total (%)
Using electronic information reduces the time spend in using print information sources.	58.2	23.1	-	12.1	6.6	100
The quantity and quality of publication have improved tremendously as a result of electronic resources.	65.9	25.3	-	5.5	3.3	100
Electronic resources have become the most important information sources for research.	76.9	22.1	-	-	1.1	100
The use of electronic resources helps by providing orientation on a new topic such as starting a new research topic.	-	29.5	-	64.1	6.4	100
Eliminates the problem of geographic location in the transfer of information.	23.1	26.4	11.0	28.6	11.0	100
The output of a databases search is tailor-made based on the search term used.		12.9	-	48.2	3.53	100

Electronic resources are used for Research for report writing	17.2	28.7	-	46.0	8.05	100
Electronic resources are used for teaching purposes	69.2	28.6	-	2.2	-	100
Research for proposal writing	33.0	22.0		24.2	19.8	100

Importance is one of the crucial measures of how appropriate information resources or services are for a defined user group. An appropriate information resources or services should be able to provide relevant and organized information to meet the specific needs of enquiries for the advancement of research and learning. Electronic databases allow users to search exactly on the criteria they are interested in; it can also import large information from another database in a network in one operation in a short time. From the analysis, table 4.2.4 shows that the respondents agreed that the use of electronic resources for research purposes (99%) is of highest importance, followed by teaching purposes which has the response rate of (97.8%) and 91.2% respondents indicated that they use of the quantity and quality of publication improvement. However, output of database, providing orientation, eliminating the problem of geographical location in transferring of information and for report writing had low response which is below 50.

This implies that the use of electronic databases for research and teaching purpose and also improvement of publication are of utmost importance. Benefits highlighted by Ray and Day (1998) are that the information is obtained when it is wanted; the user selects only the information needed to answer the specific query. In addition, electronic information sources are often faster than consulting print indexes, especially when searching retrospectively, and they are straight forward when wishing to use combinations of keywords.Similar discoveries were reported by Jagboro (2003) that information from electronic sources provides orientation on a new topic such as starting a new research topic. Ochs (2005) reveals that electronic resources help in providing orientation on a new topic.

The implication of these findings is that electronic databases open up the possibility of searching multiple files at one time, a feat accomplished more easily than when using printed equivalents. Therefore, it could be said that electronic information databases among researchers and lecturers in the Faculty of Agriculture has far-reaching benefits. It is being use to support research, teaching and learning.

Challenges Encountered in the use of electronic Databases.

One of the objectives of this research is to identify challenges that are hindering the effective use of agricultural information databases by researcher and lecturers in the faculty of agriculture. The response is presented in table 4.2.5.

Table 5 Challenges Encountered in the use of Electronic Databases

Challenges Encountered in the Use Of Electronic Databases	SA (%)	A (%)	U (%)	D (%)	SD (%)	Total (%)
Slow Internet Services	47.3	22.0	-	6.6	4.4	100
High cost of printing of document	3.6	25.0	-	71.4	-	100
Insufficient computers	34.1	35.2	2.2	11.0	6.6	100
Power outages	54.9	34.1		19.8	22.0	100
Inadequate searching skills	11.0	13.2	33.0	34.1	7.7	100
Lack of awareness and promoting to users by librarians	37.4	47.3		26.4	11.0	100
Low level of computer literacy/ training	-	-		23.1	76.9	100
Lack of access to current up-to-date information	26.5	25.3		48.2	-	100
Irrelevant information	12.1	11.0		47.3		100
No access to full text of citation abstracts	22.0	12.1	25.3	44	29.7	100
Inappropriate information for users (western bias)	-	15.3		67.0	7.7	100
Others (Specify)	-	-	-	-	-	-

From table 5 above it could be seen that many challenges are affecting the use of electronic information services. The table shows that Power outages which accounted for 89.0% of the respondents are a major challenge affecting the use of electronic information resources. Another challenge as indicated by 69.3% of the respondents is slow internet services and 69.3% respondents indicated insufficient computers, while the other challenges rates above 50%. The prevalence of these challenges has also been reported in similar study such as Jagboro (2003). It was discovered that progress in the provision and use of Electronic information sources in

academic sector has been significantly slowed down. The result also falls in line with those of Lee and Isa (2001) who reported from a related study on accessing and sharing research information that the pressing factors hindering maximum utilization of these facilities include lack of adequate internet facilities, use of password to access some journals.

The implication is that these problems have constituted a hindrance to maximum utilization of electronic information resources by researchers and lecturers in the faculty.

Strategies on enhancing the effective use of electronic information databases

From the table below it is revealed that some of the strategies agreed by academic staff of faculty of agriculture provision of a standby power supply, faster internet, creation of awareness by librarians and provision of more computers rates above (80%). While the others like provision of up-to-date information, access to full text of citation abstract rates above rates above 50%. However, some strategies were rated below 50% by the respondents are reduced cost of printing, training on the use of electronic databases. The table is represented below.

Table.6 Strategies to enhance the Use of Electronic databases

Strategies on enhancing the use of Electronic Resources	SA (%)	A (%)	U (%)	D (%)	SD (%)	Total (%)
Faster Internet Services	46	25.3	-	11.0	-	100
Reduced cost of printing of document	12.1	22.0	-	54.9	8.8	100
More computer systems should be provided	22.0	28.0	-	18.7	-	100
Stand-by power supply should be made available	54.9	34.1	-	33.0	19.8	100
Training on the use of electronic databases	33.0	12.1	-	44.0	11.0	100
Creation of Awareness by librarians	49.5	23.1	-	16.5	-	100
Provision of Current and up-to-date information	15.4	39.6	-	45.1	-	100
Subscription of Relevant information	34.1	39.8	-	12.5	13.6	100
Access to full text of citation abstracts	37.6	43.5	-	14.1	4.7	100
Others (Specify)	-	-	-	-	-	-

From the table above it implies that that the academic staff agreed with the majority of the strategies on how to enhance the use of electronic database information.

Summary of the Findings

The following are the major findings arising from the study:

1. The study revealed that the Academic staff are highly aware of databases such as AGORA and TEEAL, and aware of Hinari, Agris, AGRICOLA, PubMed, Medline, Biomed Central, African Journals Online, Biosis, BeastCD, and VetCD.
2. The study also found that that 6.6% of the respondents do use the electronic databases monthly while 56% use the electronic database weekly.
3. In the area of importance of the use of electronic information databases, it was found that almost all the 91 of the respondent agreed that the use of electronic resources for research, teaching purposes, increase in quality and quantity of publications etc. is of utmost importance.
4. On challenges that affect the use and access to electronic information among the lecturers and researchers, the study revealed that 80.1% of the respondents agreed that power outages is a major factor affecting the provision of electronic resources.
5. With reference to strategies to enhance the effective use of the electronic databases, the study revealed that 82.8% of the respondents agree that faster internet services, reduced cost of printing and standby power supply be made available and also awareness should be made by librarians as this would enhance the use of electronic database.

Conclusion

In view of the findings of the study, it could be concluded that the provision of more Electronic database information will continue to have a great impact on research and teaching in the Faculty of Agriculture, ABU.

Libraries will attract greater patronage when high quality collections of electronic database information are made available. Thus, the role of librarians and information service personnel is being challenged to increase the awareness level and electronic information sources to facilitate the utilization of electronic database information.

The study concludes that electronic information resources are essential tools for empowering Academic staff of the Faculty of Agriculture, Ahmadu Bello University, Zaria.

Recommendations

Based on the major findings and conclusion of this study, the following recommendations are strongly made:

1. In view of the huge academic and research resources available through this medium and its usefulness to learning, teaching and research, it would be necessary for the library in the faculty of Agriculture to facilitate access through networking. This is one of the effective means of accessing sharing research information and will enhance collection development efforts and further encourage the libraries to provide more and varied electronic resources.
2. Greater publicity also needs to be given to the many and varied sources of electronic information available, especially those that are available at no cost, so that more lecturers and researchers become aware and make use of them.

References

Abah, C.O (1982). The Nature of Science and Science Education: Some Current trends. Journal of the Science Teachers Association of Nigeria. 20 (2) pp.108-114

Adams, J.A and Bonk, S.C (1995) Electronic Information technology and Resources: use by University Faculty and Faculty preference for related Library services. College and Research Libraries 6 pp.119-131

AFRICAN JOURNALS ONLINE. Retrieved 1st February, 2006 from http://www.ajol.info/Retrieved 1st June, 2006 from http://www/ncbi.nlm.nih.gov/entrez/query.fcgi

AGRICOLA-Retrieved 1st June, 2006 from http://agricola.nal.usda.gov

AGRIS-Retrieved 1st June, 2006 from http://www.fao.org/org/orgris/

Ahmadu Bello University, (1987), "A History of Ahmadu Bello University", Ahmadu Bello University Press, Zaria.

Ahenkorah –Marfar, Micheal (online resources) Recent trends in electronic Information delivery at the Kwame Nkrumah University of Science and technology Library. Journal of interlibrary loan Document Delivery and Electronic Reserves Vol. 16 issue 3.

Aina, R.F. (2009) Globalized database: Availability and utilization of internet resources for teaching and research by academic staff of Babcock University. Program on Policy, Conflict and Strategic Studies International Journal Series, 1, 10-20

Ajuwon G. A (2003) Computer and internet use by first year clinical and nursing students in a Nigerian Teaching Hospital. BMC Medical Informatics and Decision Making, 3(10) 112-154

Akuezuilo, E.O (1993) Research Methodology and Statistics 2nd ed. Nuel CentiAdda, Nigeria pp.8-9

Amune, S.A (1983) The Provision and Utilization of non-book materials in selected Nigerian University Libraries. Unpublished MLS Thesis. Ahmadu Bello University Zaria, Nigeria.

Anaraki, L. N., & Babalhavaeji, F. (2013). Investigating the awareness and ability of Medical students in using electronic resources of the integrated digital library portal of Iran: a comparative study. *The Electronic Library,* 31(1): 70 - 83.

Ani, O. E. & Ahiauzu, B. (2008) Towards effective development of electronic information resources in Nigerian University Libraries. Library Management, 29(6/7), 504 –514.

Anyanwu, A.C. (1999) computer use in agriculture: Potentials in Nigeria in the 21st century.Agricultural Extension Research and development in Nigeria (Proceedings of the fifth Annual National Conference o the Agricultural Extension Society of Nigeria (12th - 14th April 1999 pp89-92.

Atakan, C., Atilgan, D., Bayran, O. & Arslantekin, (2008). An evaluation of the second survey on electronic databases usage at Ankara University digital library. *The Electronic Library*, 26(2): 249-259.

Balogun, A.O.(2008). The idea of an educated person in contemporary African thought. Journal of Pan African Studies, 2(3). http://www.stcoll.edu.jm/Education/PDF/Issues%20and%20Perspectives/ideaofaneducatedperson.pdf

Ban, Vana den A.W. and Hawkins, H.S. (1993). Agricultural Extension, Modified Edition reprint In Fadiji, Taiye Oduntan (2000) sources and utilization of Extension Information among farmers of improved maize in two villages of Kaduna. Unpublished M.Sc thesis pp.14-1.

Baro, E. E., Endouware, B. C., & Ubogu, J. O. (2011). Awareness and use of online information resources by medical students at Delta University in Nigeria. *Library Hi Tech News*. 28(10): 11-17.

Best, J.W (1981) Research in Education. 4th ed. Englewood; Prenice-Hall

BIOMED CENTRAL Retrieved 1st June, 2005 from ttp://www.biomedcentral.com

Blajan, I (1979). The system for veterinary Information at the national and world-wide levels. Bull. Off int. Epz 21. 91 (11-12) pp. 795-821.

Blajan I and Welte V.R (1988) Information, a prerequisite for veterinary activities Rev.

Sci. Tech. off. Int. Epiz 7(3) 463-478.

BMJ Publishing Group http://bmjjournals.com/subscriptions/countries.shtlml

Burch, John G. (1996). Information Systems: Theory and practice John Wiley and Sons New York pp. 3-6.

Burns, Alan (ed) 1984. New Information. Elis Horwood England pp. 22.

CAB Abstracts –(AGORA Interface) –Retrieved 1st June, 2005 from http://www.agora.cabi.org/

Chirra, R. & Madhusudhan, M. (2009). Use of electronic journals by doctoral research scholars of Goa University, India. *Library Hi Tech News,* 26(10): 12-15

Coombs, K. A. (2005). Lessons learned from analyzing library database usage data. *Library HiTech,* 23(4): 598 - 609.

Cothran, T., (2011). Google scholar acceptance and use among graduate students: a quantitative study. *Library & Information Science Research,* 33(4) 293-301.

Crawford, R. (1990). CD-ROM is Australia Capital Libraries LASIE 21, 72-82

Dadzie, P. S. (2005). Electronic resources: access and usage at Ashesi University College. *Campus-Wide Information Systems,* 22(5): 290 - 297.

Davies Roy, (1986). Intelligent Information Systems: Progress and prospect. Ellis Hirwood Ltd–Chichester. pp. 209.

Deretchin, Lousise F.,. Lynn C. Yeoman, Charless L. Seidel (1988). Students Information Resource Utilization in problem –Based learning. Med. Edu. On-line (Serial on-line) 1998 4:7. Retrieved from 13th May, 2006 from http://www.utmb.edu/meo/

Dictionary of behaviour Science Edited by Benjamin B. Wolman et al(Eds) 1975. MacMillan Press, London. pp. 193.

Directory of Open Access Journals. Retrieved 19 August, 2006 from http://www.doaj.org/

Dukic, D. (2013). Online databases as research support and the role of librarians in their promotion: the case of Croatia. *Library Collections, Acquisitions, & Technical Services,* 37(1-2): 56 -65.

Fadiji, Taiye Oduntan (2000). Sources and Utilization of Extension Information among farmers of improved maize in two villages of Kaduna. Unpublished M.Sc Thesis. Ahamdu Bello University Zaria Nigeria pp 18.

Frank, Susan (1996). Reviewing the literature: use of library and Information systems. In: Research Methods: Guidance for postgraduate Greenfield Tony (Ed). John Wiley and sons New York P.51

Goivannetti, J.F. and Meissonnier (1987). Sources of Information in the fields of animal production and animal health. II secondary Information, data bases and data banks Rev. Sci. Tech. Off. Int. Epiz 6(1) 27-39

Gray, D.E. (1976). Veterinary Information: The current Situation and Future trends. The veterinary Records April 3 1976. pp 271.

Hall, Sherwin A. (1978). Farm Animal Disease Data banks. Advances in Veterinary Science and Comparative Medicine Vol. 22 P. 277-2778.

He, D., Wu, D., Yue, Z., Fu, A., & Vo, K. T. (2012). Undergraduate students' interaction with online information resources in their academic tasks: a comparative study. *Aslib Proceedings: New Information Perspectives,* 64(6): 615 - 640.

Hernon, Peter(1994) Determinant of sample size and selection of the sample concept , general source and softwares. College and Research Libraries. 55 (2) pp171

HINARI -Retrieved 1st June, 2006 from http://www.healthinternet work.org//

Houghton Bernard and Convey John (1977). On-line Information Retrieval System Redwood Burn. U.K 1977 pp.43-44.

Jenson, M. Richardson, D. (1998). Wireless weaves to lesson that gaps in rural telecommunication coverage in Africa In Richardson, D., Paisley L. (Eds). The first mile of connectivity. Advancing Telecommunications for rural development through a participatory communication Approach. FAO, Rome, Italy.

Kapange, Barnabas. ICTs and National Agricultural Research System –The case of Tanzania. and national agricultural research system. PDF. Retrieved 24th July, 2006 from http://www.tzenline.org/pdf/ICEs

Kerlinger, Fred N (1973) Foundation for behavioral Research. 2nd ed. New York pp127

Kiondo, E. (1997). "The challenge of CD-ROM and document delivery at the University of Dares Salaam Library, Tanzania" African Journal of Library, Achieves and Information Sciences Vol. 14 No. 1&2 C.B. (2003)

Kwafoa, P.N.Y. Osman, I & Afful-Arthur, P. (2014). Assessment of the use of electronic resources among administrators and faculty in the University of Cape Coast. *Library Philosophy &Practice.* Retrieved from http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=2805&context=libphilprac on 24th June, 2014.

Line, M.B (1974) Information and Library needs, wants and uses. ASLIB Proceeding 26(2) pp87

Lwoga, T. et al. (2007), Building Science Information Fluency in African Universities: How Libraries and Researchers are Benefiting from Improved Access to Science Scholarship, http://www.ifla.org/iv/ifla73/index.htm, retrieved on 15th June, 2008

Madhusudhan, M. and Chirra, R (2009) "Use of electronic journals by doctoral research scholars of Goa University, India", Library Hi Tech News, Vol. 26 Iss:10, pp.12 – 15

Malina, K A (1989) Seminar on establishment of a National Information and Documentation Network in Tanzania, Dar es Salaam. February, 16-24, pp5-6

Mbabu, L. G., Bertram, A., & Varnum, K. (2013). Patterns of undergraduates' use of scholarly databases in a large research university. *Journal of Academic Librarianship,* 39(2): 189 - 193.

Mosuro, T. (1996). CD-ROM technology and its application at Kenneth Dike Library, University of Ibadan. Nigeria Library and Information Science Review Vol.14 no. 1 pp.46-50

Moyo, L. M (2002), "Reference Anytime Anywhere: Towards Virtual Reference Services at Penn State", The Electronic Library, Vol. 20, No. 1, http://www.emeraldinsight.com, retrieved on 16th February, 2014

Ndinoshiho, J. M. (2010). The use of electronic information services by undergraduate nursing students at the University of Namibia's Northern Campus: a descriptive study. *Information Development,* 26(1): 57 - 65.

Nielsen, J.M. (1985). Searching the veterinary literature via computer. JAVMA, Vol.186 No.10, May 15, pp.1060. Nelson, N.M. (1990). CD-ROM in European libraries Part 1 CD-ROM librarian Vol. 5 pp26-28.

Nicholas, P., Majid, S. (1989). "The potential of CD-Rom Technology in less developed countries. Canadian Library Journal Vol. 46 No 4 pp 257-63.

Nisha, F, & Ali, N.P.M. (2013). Awareness and use of e-journals by IIT Delhi and Delhi University library users. *Collection Building,* 32(2): 57-64.

Ochs, Mary (2005). TEEAL (The Essential Electronic Agricultural Library): A user study Report to Rockefeller Foundation. January, 2005 pp.1-22.

Ojedokun, Ayoku A. (2001) Internet Access and Usage by Students of the University of Botswana. African Journal of Library and Information science. Vol 11 (2) pp97-107

Omotayo, Kin; Okey D; Chikwendu and Kola Adebayo (2001). Two decades of World Bank assisted extension services in Nigeria: lessons and challenges for the future. J. Agri. Edu & Exten. (3) pp143-152.

PubMed-Retrieved 1st July, 2006 form http://www.ncbi.nlm.nih.gov/entre2/query.fcgi.

Richardson, D. (1997). The internet and rural development opportunities for Forestry. Unasylva (English ed.) 1997. 48 (189) 3-9.

Risopoulous, S. (1988) Agriculture research and agricultural development. Agricultural in the year 2000: The case for ACP countries. International Forum Athens, November 1988 pp.78.

Roberts, Norman(1975) Draft definition, wants, demands and use: A comment. ASLIB Proceeding 27(7) pp307-313

Rosenberg, D (2006), "Towards the Digital Library in Africa", The Electronic Library, Vol.23, No. 3

Rossi, Peter H et.al (1983) Handbook of Survey Research. Orlando: Academic Press pp180

Salisbury, Lutishoor (2003). Usability of E. Journal and preference for the Virtual periodicals Room: a survey of mathematic Faculty and Graduate Students Electronic Journal of Academic and Special Librarianship Vol.4 no 2-3 (fall 2003).

SciELO–Retrieved 1st June, 2006 from www.scielo.org/

Shika, S.I (1987) A study of social science collection in Kashim Ibrahim Library ABU Zaria. Unpublished MLS Thesis. Ahmadu Bello University Zaria, Nigeria.

Sinh, N. H., & Nhung, H. T. H. (2012). Users' searching behavior in using online databases at Vietnam National University, Ho Chi Minh City. *Library Management*, 33(8/9): 458 - 468.

Solange, G.F. (1995). "CD-ROM technology in Libraries and Information Units in developing countries" African Journal of Library, Archives and Information Science Vol.5 No.1 In Oduwosle A.A. and Akpati, C.B. (2003) Accessibility and Retrieval of Electronic Information at the University of Agriculture Library Abeokuta, Nigeria Library review Vol.52 no 5 pp228-233.

Thanuskodi, S. & Ravi, S. (2011) Use of digital resources by faculty and research Scholars of Manonmaniam Sundaranar University, Tirunelveli. DESIDOC Journal of Library and Information Technology, 31(1), 25-30.

Thanuskodi, S. (2011), "User Awareness and Use of Online Journals among Faculty Members in Combatore District: A Survey", J Communication, Vol. 2, No.1, pp.23-32

Tiamiyu M.A (1999) World Wide Web/ Internet and information services in Nigeria in the new millennium. Paper delivered at Nigerian library Association, Abeokuta, Ogun State.

Tommey, and Burton, P.F (1998) A study of the Usage and Attitude among academic. Journal of Information science 24 (6) pp.419-429

Treitz, Warner (1988) Transfer of agricultural technologies through dissemination of technical and scientific information. Agriculture in the year 2000: The case for ACP countries –proceeding pp. 75

Tsakonas, G. & Papatheodorou, C. (2006) Analyzing and evaluating usefulness and usability in electronic information services. Journal of Information Science, 32(5), 400-419

Veterinary Science CD-Retrieved 2nd September, 2006 from http://www.ovid.com/site/catalog/DataBase/161.jsp

Warnasuriya, Dilmani (2001) Interchange and exchange of scientific information among S & T information centres/Libraries of the South Asia Region 29 –30.

Wright S. (1990) Application of CD-ROM technology in developing countries program 24, 129-140.