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AVAILABILITY AND UTILIZATION OF LIBRARY ELECTRONIC INFORMATION RESOURCES FOR RESEARCH PRODUCTIVITY BY POSTGRADUATE STUDENTS OF CHEMISTRY DEPARTMENT IN UNIVERSITIES IN BENUE STATE, NIGERIA

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Abstract
The study investigated the availability and utilization of library electronic information resources on research productivity by postgraduate students of Chemistry in Universities in Benue State. Two specific objectives with corresponding research questions guided the study. The study adopted a descriptive survey research design. The population of the study consists of 1282 postgraduate students of Chemistry in two universities in Benue State 2015/2020 academic session. The sample size consisted of 305 postgraduate students. The instrument for data collection is a self-developed questionnaire titled, Availability and Utilization of Electronic Information Resources for Research Productivity by Postgraduate Students of Chemistry Department Questionnaire (AUEIRRPPSCDQ). Data collected was analyzed using frequency counts, percentages, to answer research questions. The reliability of the questionnaire was established using Cronbach Alpha method and reliability coefficients of 0.77. Findings revealed that journals, newspapers, magazines, and bulletins among others were types of library electronic information resources available in university libraries for research productivity of postgraduate students of Chemistry department in universities in Benue State. The study also revealed that postgraduate students in the Chemistry department utilize the available electronic information resources in the library for research productivity to a high extent. Further, problems associated with utilization of library electronic information resources for research productivity include: lack of materials relevant for work, inadequate staff in e-library section, inadequate infrastructure, poor internet connectivity, lack of awareness on availability of e-resources. The study concluded that while there is high extent of utilization and areas for improvement, particularly in promoting the use of certain electronic resources and addressing challenges faced by students. Recommendations were made that adequate staffing in e-library section is crucial, trained personnel to assist students in addressing their information needs. Universities should subscribe to wider range of databases, e-journals, and e-books. This will provide students access to more extensive pool of academic materials.

Keywords: University Library, Availability, Utilization, Library Electronic Information Resources and Research Productivity

Introduction

The whole world increasingly depends on knowledge, ideas and skills that are produced in universities and research institutes. As a result, the world is in an age rightly referred to as 'the information age. Information is needed virtually in every human endeavor. This explains why governments and institutions are investing heavily in the production of information and knowledge through research activities. Moreover, this age is also referred to as 'the digital age'. This is in reference to the fact that most human endeavors are taking digital formats, (using electronic media). Information is similarly being made available via electronic media.

Globally, universities are recognized as engine of growth and have a broader role in the social, economic, technological and manpower development (Osagie, 2009). In fact, universities serve as the main source of supply of highly skilled manpower needed in the various sectors of the nation. Even though the university system in Nigeria has not had a very smooth sail from inception, it has witnessed many successes. The gains that Nigeria has derived from the university education become glaring when one considers the five national goals through which Nigeria's philosophy of education draws its strength, namely, to create a democratic and free society, a just and egalitarian society, a united, strong and self-reliant nation, a great and dynamic economy and a land full of bright opportunities for all citizens University education is more than the next level in the learning process; it is a critical component of human development worldwide. It provides not only the high-level skills necessary for every labor market but also the training essential for teachers, doctors, nurses, civil servants, engineers, humanists, entrepreneurs, scientists, social scientists, and a myriad of other personnel (Otonko 2012). It is these trained individuals who develop the capacity and analytical skills that drive local economies, support civil society, teach children, lead effective governments, and make important decisions which affect entire societies. This function of education can be seen vividly in action in Nigeria. In universities, libraries play crucial role in supporting the research and academic endeavors of postgraduate students. As centers of information and knowledge, libraries in universities provide access to a wide range of information resources, including books, scholarly journals, databases, and other research materials in print and electronic formats. To carry out any productive research, one needs access to adequate and relevant information resources which in the current era are preferably in electronic formats. These are made available in academic libraries for researchers, including postgraduate students of chemistry department.

In this electronic era, electronic library information resources are a prerequisite for carrying out any worthwhile research. This is because they offer researchers fast access to exhaustive and current information needed to complete their research works for optimum productivity. Electronic information resources which include E-journals, E-books, E-magazines, E-newspapers here refer to tangible or virtual resources upon which information is being acquired, processed, analyzed, stored, disseminated, archived, and weeded. The most unique thing about electronic information resources apart from their maintenance is that, they need power supply to put information into work or action.

According to Lakpathi and Vivekavardhan (2019), an electronic resource is defined as a resource which requires computer access or any electronic product that delivers a collection of data, be it text referring to full text databases, electronic journals, image collections, other multimedia products. These may be delivered on CD ROM, on tape, via internet. Some of the Electronic Resources according to the aforementioned authors are E-Books, E-Journals, E-Thesis and Dissertations, E-Reference Books, Research Guides by subject, Indexes, Library catalogs, CD –ROMs, Databases, Internet Resources. Singh and Khan (2015) simply defined electronic resources as information resources that user's access electronically via a computing network from inside the library or databases to another library or location. Furthermore, electronic information resources according to Amusa and Atinmo (2016) are simply referred to as electronic resources or e-resources; preferably are information stored in electronic format in computer or computer related facilities (CDROMs, digital libraries or the Internet). Electronic information resources can be printed, searched and saved to be repeated or consulted at a later date also are updated more often than printed resources ensuring effective potential for enhancing student's learning, as the resources provide teachers and students with vast quantities of information in an easily accessible non-sequential format.

To utilize library electronic resources, users need available platforms or media to access and utilize needed resources. Utilization entails making use of the available electronic information resources. Uhegbu as cited in Chimah and Nwokocha (2013) asserts that utilization is the actual putting into appropriate use of acquired information. In the context of this work, utilization refers to the extent to which chemistry postgraduate students make use of the electronic information resources to meet their research information needs.

The quality of a university is often associated with research productivity (Chang, 2015). Research productivity is the number of publications per researcher or the amount and quality of scholarly output. Research productivity among scholars inculcates knowledge and skills for scientific enquiry, critical thinking, systematic problem-solving, and appraisal of scientific and lay claims. The sheer size of the research productivity is measured in terms of research publications viz. articles, conference presentations, patents, reports, creative works and visual arts among others. In universities, these research publications are done by academic staff, undergraduates and postgraduates. For postgraduates, writing a thesis is a fundamental step for completing their programme. Postgraduates are students who have finished their Bachelor Degree or Higher National Diploma programmes and are undergoing studies for more advanced programme. The postgraduates constitute higher number of people carrying out research in universities.

From the foregoing therefore, without adequate and relevant information resources in appropriate formats no adequate and relevant information resources. The research productivity of universities will only be an illusion, if there is this explains why Bajpai, Hada and Bajpai (2016) posited that in academia, library electronic resources are dominating the research activities of researchers; researchers have realized the

importance of such resources. Similarly, Ukpebor, (2012) note that, Library electronic resources provide accurate and timely information, especially for students who depend greatly on the electronic resources for information to advance research and collaboration with other researchers around the world for intellectual growth. It is therefore obvious that use of electronic resources has the potential to influence research productivity at all levels, including among postgraduate students. Thus, the importance of availability and utilization of library electronic information resources cannot be overemphasized.

Despite the availability of library electronic information resources in universities in Benue State, there is a concern from postgraduate students in the Chemistry department for the limited electronic information resources and the students may not effectively utilize these resources for their research productivity.

Statement of the Problem

Availability and utilization of electronic information resources is a useful means of enhancing both academic and research productivity of postgraduate students of Chemistry. Unfortunately, it has been observed through my personal interaction that postgraduate students in universities in Benue State have consistently complained of inadequate and limited information resources that would effectively support their research. There seems to be a shortfall in the availability and utilization of electronic information resources in the universities libraries for research activities. This tends to manifest in difficulties faced by Chemistry postgraduate students in their research activities leading to unnecessary duplication of research, limited coverage in literature used and obsolescence of academic and research works. This raises concerns about the potential inadequate provision or underutilization of these valuable resources, which may hinder the ability of postgraduates to conduct high-quality research and contribute to scientific advancements in the field of chemistry.

Objectives of the Study

The general objective of the study was to investigate the availability and utilization of electronic information resources on research productivity of postgraduate students of Chemistry in Universities in Benue State. Specifically, the study sought to:

1. find out the types of library electronic information resources available in university libraries for research productivity of postgraduate students of Chemistry department in Universities in Benue State
2. determine the extent to which the available library electronic information resources are utilized by postgraduate students of Chemistry department for research productivity in Universities in Benue State

Research Questions

The study was guided by the following research questions;

1. What are the types of library electronic information resources available in Chemistry department in Universities in Benue State?

2. To what extent do postgraduate students in the Chemistry department utilize the available electronic information resources in the library for research productivity in universities in Benue State?

Research Hypotheses

Based on the above research questions, the following null hypotheses were formulated and tested at 0.5 level of significance.

Ho1. Utilization of library electronic information resources by Chemistry Students in Benue State is not significant.

Research Methodology

This study adopted a descriptive survey design. The population of the study consists of 1282 postgraduate students of Chemistry from 2015-2020 academic sessions in two universities in Benue State. Joseph Saruwan Tarka University (626 PG students) while Benue State University has 656 PG Students from the postgraduate coordinators of Chemistry department in the universities. The sample was determined using a simple random sampling technique, sample size for this study was 305 postgraduate students which was determined using Taro Yamane's formula. The instrument used for data collection was a structured questionnaire titled; "Availability and Utilization of Library Electronic Information Resources for Research Productivity of Postgraduate Students of Chemistry Department Questionnaire" (AULEIRRPPSCDQ). Data collected were analyzed using frequency count and percentages and mean and standard deviation to answer the research questions while Chi-Square was used to test the hypotheses at 0.05 level of significance.

Results and Discussion

The results of the study are presented according to research questions answered Below:

Research Question One

What are the types of library electronic information resources available in university libraries for research productivity of postgraduate students of Chemistry department in Universities in Benue State?

To answer this research question, data on the types of library electronic information resources available in university libraries for research productivity by postgraduate students of Chemistry department in Universities in Benue State were collected and analyzed as presented on Table I

Table 1: Frequency and Percentage Values On Types of Electronic Information Resources Available In University Libraries for Research Productivity by Postgraduate Students of Chemistry Department in Universities in Benue State

S/N	Social Media Platforms	Frequency		Percentage (%)		Decision
		AV	NA	AV	NA	
1	Electronic journal	247	58	81.0	19.0	A
2	Electronic newspapers	235	70	77.0	33.0	A
3	Electronic magazines	247	58	81.0	19.0	A
4	Electronic conference proceedings	257	48	84.3	15.7	A
5	Electronic annual reports	226	79	74.1	75.9	A
6	Electronic memoirs	246	59	80.7	19.3	A
7	Electronic bulletins	262	43	85.9	14.1	A
8	Electronic transaction of societies	248	57	81.3	18.7	A
9	Electronic periodicals	235	70	77.0	33.0	A
10	Electronic abstracts	244	61	80.0	20.0	A
11	Electronic government documents	235	70	77.0	33.0	A
12	Electronic indexes	245	60	80.3	19.7	A
13	Electronic thesis	215	90	70.5	29.5	A
14	Electronic books	246	59	80.7	19.3	A
15	Electronic databases	197	108	64.6	35.4	A
16	Online Public Access Catalogue	205	100	67.2	32.8	A
17	Electronic monographs	247	58	81.0	19.0	A
18	Electronic maps	257	48	84.3	15.7	A
19	Web-OPAC	246	59	80.7	19.3	A
20	Electronic atlas	205	100	67.2	32.8	A

A = Available, NA = Not Available

Table 1 shows the types of library electronic information resources available in university libraries for research productivity of postgraduate students of Chemistry department in Universities in Benue State. *As revealed in the Table, all the items (items 1 - 20) have percentage values that are above 50%. Hence, all the items are considered the* types of library electronic information resources available in university libraries for research productivity of postgraduate students of Chemistry department in Universities in Benue State.

Research Question Two

What are the available library electronic information resources utilized by postgraduate students of Chemistry department for research productivity in Universities in Benue State?

To answer this research question, data on the available library electronic information resources utilized by postgraduate students of Chemistry department for research productivity in Universities in Benue State were collected and analyzed as presented on Table 2:

Table 2: Frequency and Percentages of whether the available Electronic Information Resources are utilized by Postgraduate Students of Chemistry Department for Research Productivity in University Libraries Benue State

S/N	Social Media Platforms	Frequency		Percentage (%)		Decision
		U	NU	U	NU	
21	Electronic journal	240	65	78.7	21.3	U
22	Electronic newspapers	230	75	75.4	34.5	U
23	Electronic magazines	242	63	79.3	20.7	U
24	Electronic conference proceedings	247	58	81.0	19.0	U
25	Electronic annual reports	222	83	72.8	27.2	U
26	Electronic memoirs	246	59	80.7	19.3	U
27	Electronic bulletins	218	87	71.5	28.5	U
28	Electronic transaction of societies	201	104	69.9	30.1	U
29	Electronic periodicals	225	80	73.8	26.2	U
30	Electronic abstracts	275	30	90.2	9.8	U
31	Electronic government documents	230	75	75.4	24.6	U
32	Electronic indexes	240	65	78.7	21.3	U
33	Electronic thesis	278	27	91.1	8.9	U
34	Electronic books	280	25	91.8	8.2	U
35	Electronic databases	109	196	35.7	74.3	NU
36	Online Public Access Catalogue	101	204	33.1	76.9	NU
37	Electronic monographs	237	68	77.7	22.3	U
38	Electronic maps	250	55	82.0	18.0	U
39	Web-OPAC	106	199	34.8	65.2	NU
40	Electronic atlas	205	100	67.2	32.8	U

Key: U= Utilized, NU = Not Utilized

Table 2 shows the available library electronic information resources utilized by postgraduate students of Chemistry department for research productivity in Universities in Benue State. *As revealed in Table 2, items 1-14, 17, 18, and 40 with percentage values for 'Utilized' above 50% were considered as* library electronic information resources utilized by postgraduate students of Chemistry department for research productivity in universities while items 15, 16 and 19 *with percentage values for 'Utilized' below 50% were considered* library electronic information resources not utilized by postgraduate students of Chemistry department for research productivity in Universities in Benue State.

Discussion

The first finding of the study revealed the types of library electronic information resources available in university libraries for research productivity of postgraduate students of Chemistry department in Universities in Benue State to include: journals,

newspapers, magazines, conference proceedings, annual reports, memoirs, bulletins, transaction of societies, periodicals, abstracts, government documents, indexes, thesis, books, databases, OPAC, monographs, maps web-OPAC and atlas. This finding corroborates with that of Ankrah and Atuase (2018) whose study on the use of electronic resources by postgraduate students found that most respondents had knowledge of available electronic information resources.

These findings agree with that of Abdulganiyu, Mshelia and Bello (2019) who investigated the awareness, accessibility and use of library subscribed online electronic databases by students of university of Maiduguri and found that electronic information resource like online databases is not utilized by the students. This finding disagrees with that of Bhatt and Rana (2011) whose study on use of electronic resources by postgraduate students reported that though students were aware of electronic resources, they do not fully utilize them to support their academic pursuit due to poor level of information literacy skills. One key factor could be the level of information literacy skills among the postgraduate students in Benue State. If these students have received training and support in information literacy, they may be better equipped to effectively use electronic resources for their research. This contrasts with the study by Bhatt and Rana (2011), where students were aware of electronic resources but had poor information literacy skills. Further, the finding disagrees with that of Dukper, Bawa and Arthur (2018) whose study on awareness and utilization of electronic library resources by students found that students who were aware of the existence of the electronic library resources in the school hardly utilize it for their academic purposes. Furthermore, the findings disagree with that of Pwadura, Asapeo and Plockey (2017) who reported less frequent utilization of electronic information resources. The finding of the present study is that the universities in Benue State may have provided strong institutional support for the use of electronic resources. This support include training programs, workshops, and a campus culture that encourages students to utilize electronic resources for their academic work. The high extent of utilization of electronic information resources by postgraduate students in Chemistry Departments in Benue State University is attributed to factors such as information literacy skills, awareness, accessibility, institutional support, research culture, technological advancements, research methodology, and cultural/regional influences. These factors, either individually or in combination, distinguish the present study's findings from those of other studies or highlight the context-specific nature of information resource utilization in academic settings.

Summary of the Finding

The study investigated the availability and utilization of electronic information resources on research productivity of postgraduate students of Chemistry in Universities in Benue State.

Findings of the study revealed the following:

1. Are the types of library electronic information resources available in university libraries for research productivity of postgraduate students of Chemistry

department in Universities in Benue State: journals, newspapers, magazines, conference proceedings, annual reports, memoirs, bulletins, transaction of societies, periodicals, abstracts, government documents, indexes, thesis, books, databases, OPAC, monographs, maps web-OPAC and atlas.

2. The available library electronic information resources utilized by postgraduate students of Chemistry department for research productivity in Universities in Benue State are: journals, newspapers, magazines, conference proceedings, annual reports, memoirs, bulletins, transaction of societies, periodicals, abstracts, government documents, indexes, thesis, monographs, maps and atlas. Electronic resources such as OPAC, databases, and Web-OPAC were not utilized

Conclusion

Based on the findings of the study, the researcher concluded that while there is a high extent of utilization of library electronic information resources, there are areas for improvement, particularly in promoting the use of certain electronic resources and addressing challenges faced by students. Implementing the identified strategies can contribute to a more productive research environment for postgraduate students in this field.

Recommendations

1. Universities should consider diversifying their electronic information resources by subscribing to a wider range of databases, e-journals, and e-books.
2. Adequate staffing in the e-library section is crucial. Universities should ensure that there are adequately trained staff to assist students in navigating electronic information resources for their research productivity and addressing their information needs.
3. Universities should actively involve in enlightening PG Chemistry students on the available electronic information resources, promote awareness of available electronic resources among postgraduate students.

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