# EMERGING ELECTRONIC INFORMATION RESOURCES USAGE FOR RESEARCH AMONG POSTGRADUATE STUDENTS IN UNIVERSITIES IN NORTH-WEST, NIGERIA

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## Abstract

*The paper presents the report of a study on the emerging usage of electronic information resources for research among postgraduate students in universities in the north-west of Nigeria. The aim of the study is to determine the extent of electronic information resource usage for research among postgraduate students and the challenges associated with the usage in universities in the north-west of Nigeria. The study adopted a survey research design. A sample size of 530 was drawn out of a population of 26,531. Copies of the questionnaire were distributed to the respondents, out of whom 499 were returned and used for the study. Descriptive statistics were used to analyze the data collected. The study found that the extent of EIRS usage among postgraduate students in universities in North-west Nigeria is low (Mean =2.42). Also, it revealed that the challenges associated with EIRS usage for research among postgraduate students are low bandwidth and slow internet connectivity (mean = 3.09). The study recommended that postgraduate students be given adequate library orientation and training on the use of the EIRs as soon as they are admitted to the university. Adequate infrastructure should be made available to enable users to benefit from this medium of information dissemination. The university management should improve the bandwidth and Internet connectivity on campus and in the university community at large.*

## Introduction

Advances in Information and Communication Technologies (ICTs) as well as computer applications during the past few decades have brought radical changes in the way information is gathered, stored, organized, accessed, retrieved, and used. These applications have virtually changed almost everything, including the way students and researchers use information. As a result of these rapid technological and socio-economic developments, the world is being transformed into a global village. The driver of this development is information.

Information is defined by Bamigbe et al. (2019) as "all facts, ideas, and creative works of the human intellect and imagination that have been communicated formally or informally in any form". Information is a key resource and an essential input for all types of organizations. Libraries have to build their collections and facilities to meet the requirements of their users. The present era is an era of information. Good learning is based on adequate information. Thus, over the centuries, print materials have been the major sources of information available, accessible, and used for research in universities. But, with the advent of information and communication technology (ICT) and electronic publishing, information that was available only in print materials (books, journals, theses, and dissertations) is now available in electronic format. These advances in information and communication technology (ICT) revolutionized how information is created, converted, stored, processed, disseminated, and retrieved in electronic format. These resulted in the proliferation of electronic information resources.

By definition, electronic information resources, or simply e-resources, are information stored in electronic format in computers or computer-related facilities (CD-ROMs, flash drives, digital libraries, or the Internet). Thus, this is consistent with the description of electronic information resource as a generic term "for electronic information stored both offline and online" (Thanuskodi, 2012). In a similar view, Daramola (2016) defined electronic information resources as "information resources provided in electronic formats such as e-journals, e-books, online databases, e-theses and e-dissertations, electronic conference proceedings, electronic technical reports, electronic reference documents, CD-ROM databases, and computer-based electronic networks".

The university education system in Africa, and specifically Nigeria, is developing and advancing both in number and absorption of technologies into its teaching, learning, and research processes. The university libraries, as the nerve centre of the institutions, have equally joined the universal trend in providing electronic information resources (EIRs) to their users to enhance the teaching, learning, and research activities that go on in the institutions and also meet up with global developments and standards. The emerging electronic information resources in the context of this work are those library resources that can only be accessed via the use of computing devices such as computers, tablets, and smartphones. The provision of electronic information resources in libraries or information centres was intended to enhance the quick, better, and more efficient delivery of resources to users, particularly postgraduate students. These will easies the retrieval, dissemination and use of the information resources by users. These will in turn help the postgraduate students carry out their research projects and submit them as a prerequisite for completing their degrees (Abubakar et al., 2017).

Within the context of this study the use of electronic information resources for research by postgraduate students in the context of this study involves using the resources to write notes, assignments, and term papers, conduct different research projects, do presentations, and so on. Presently, EIRs have become an integral part of higher education learning and research. Today, university libraries across the globe spend a large amount of money on these resources in a bid to satisfy the teaching, learning, and research needs of their faculty members and students. However, given the increased availability and provision of EIRs in university libraries and the dwindling budgets for most libraries, it is necessary and economical that these resources are adequately utilized to justify the huge financial investment made in acquiring or subscribing to

them. Against this background, it is important to empirically understand the usage of electronic information resources for research among postgraduate students in universities in the northwest of Nigeria. Specifically, the study examines postgraduate students in Nigeria's universities using electronic information resources for research, including e-journals, books, databases, magazines, theses, dissertations, OPAC, and newspapers.

## Statement of the Problem

The 21st century marks the revolutions in Information and Communication Technologies that came about as a result of Technological innovations and have given rise to the development of electronic forms of information. The provision of electronic information resources in university libraries is now a global phenomenon. This occurred based on the immense benefits related to the use of electronic information resources, which include the provision of timely, current, remote, and worldwide access to information. Result of these benefits allied with the use of EIRs and the need to maintain global standards, Nigerian university libraries, notwithstanding their small budget allocations, have made hectic efforts to acquire EIRs for their users.

Presently, little is known regarding postgraduate students' use of electronic information resources for research in universities in the northwest of Nigeria. The need to fill this knowledge gap and provide a solution to this uncertainty propelled the researcher to conduct this study, which focuses on determining the extent of electronic information resource usage and the challenges associated with the usage of EIRs among postgraduate students in universities in the northwest of Nigeria.

## Objective of the study

The main objective of the study is to determine the emerging electronic information resources for research among postgraduate students in universities in North-west, Nigeria. The specific objectives of study are designed to:

1. find out the extent of electronic information resources usage for research among postgraduate students in universities in North-west, Nigeria;
2. find out challenges associated with the electronic information resources usage for research among postgraduate students in universities in North-west, Nigeria.

## Review of Related Literature

The concept of usage has been explained by enormous and erudite scholars, for instance, Elem (2019), who opined that use is the extent to which library electronic information resources are utilized by its patrons. It also refers to adequate exploitation and usage of library resources, be they print or softcopy, to enable users to solve their academic problems and achieve a set goal. On a similar note, Tariq and Zia (2014) stressed that the use of electronic information resources refers to the full utilization of electronic information resources for getting required information through the Internet. It includes frequency, strategies, browsing, exploring, and searching trends to find out desired information. On the use of electronic information resources for research, Ternenge and Kashimana (2019) investigated the use of electronic information resources for research by students at the Francis Sulemanu Idachaba Library, University of Agriculture, Makurdi, Benue State, Nigeria. Five (5) objectives with corresponding research questions guided the study. The study adopted a survey research design. The population of the study was 7952 registered users (students) of the library. The sample for the study was 381 registered students who used the library and were sampled using a simple random sampling technique. Two instruments were used for data collection. The reliability of the questionnaire was established using Cronbach's Alpha method, and a reliability coefficient of 0.765 was obtained. Data was collected and analyzed using frequency

counts, simple percentages, and other means to answer the research questions. The study revealed that e-books, e-journals, CD-Rom databases, e-newspapers, and e-research reports were utilized for research by students in the Francis Sulemanu Idachaba Library to a great extent. This research shared some similarities with the current study being conducted on the use of electronic resources for research. Although the two studies differ in the method of data analysis because the former uses only descriptive statistics to analyze its data, the current study will employ both descriptive and inferential statistics to analyze its data.

Siwach and Malik (2019) studied the use of electronic resources by science faculty and research scholars at five universities in North India. The survey method was adopted in conducting the research. A questionnaire was used as an instrument for data collection. The data obtained were analyzed using descriptive statistics of frequency and simple percentages. The results obtained from 668 respondents indicated that usage was highest for e-journals in comparison to other e-resources. Preference was given to search engines for finding information for research and related purposes. The use of advanced search strategies like Boolean, proximity, wildcards, and truncation was found to be low. It was recommended for more training programs and the promotion of e-resources for their optimum utilization. This research is related to the current study being conducted on the use of electronic information resources. Although the two studies differ in location, the former was conducted in India, while the latter will be conducted at many universities in northern Nigeria. The studies differ in the audience because the former study focused on faculty members, while the current study focused on postgraduate students studying in universities in the northwest of Nigeria.

Bamigboye et al. (2019) carried out a related study, and the survey method was employed in conducting the research. A questionnaire was used as an instrument for data collection. From the population of the study, 105 respondents were selected as the sample size for the study. The data obtained were analyzed using descriptive statistics of frequency and simple percentages. The study found that academic staff frequently use e-resources for their research interests and also agreed that e-resources contributed to their research output. The study recommended, among other things, that university libraries subscribe to more e-resources and databases that cover all courses run by the universities. This research is related to the current study being conducted on the use of e-resources for research. Although the two studies differ in location, the former was conducted on two universities in the southwest geopolitical zone, while the latter was conducted on many universities in the northwest of Nigeria. The two studies differ in the audience because the former was conducted on faculty members, while the current study would focus on postgraduate students only.

On the factors affecting the usage of electronic information resources, Okunoye (2020) reported that many universities lack a maintenance culture and lack the skilled manpower to maintain and manage the system after the initial installation. These usually lead to system crashes and affect the workstations. Okiki and Asiru (2011) state that slows Internet connectivity, incessant power outages, and a lack of IT skills are the problems that affect the use of electronic resources. In addition, according to Lavanya and Thirunaukkarasu (2019), slow internet connectivity, lack of awareness of online resources, virus and other malware pop-ups, information overload, inaccessibility to important information resources, and a lack of searching and browsing skills are among the problems that deter university library users' effective usage of e-resources.

## Research Methodology

This study adopted descriptive correlational research design. The population of this study is consists of 26,531 postgraduate students. Multistage sampling was used for the study. Using proportionate sampling technique 530 was taken as sample size of the study. The study used structured questionnaire as the instrument for data collection. The data collection

instrument for the study was subjected to face and content acceptance and validated by 3 experts for scrutiny. Based on their suggestions, comments and observations, some of the items were substituted and modified. The corrected and modified version of the data collection instrument was subjected to reliability text and was pilot tested. The data that were collected from the pilot-testing using split- half method were analysed using cronbach Alpha coefficient formula to ascertain the reliability of the questionnaire. The overall reliability coefficient after the analysis of the pilot tested questionnaire was found to be 0.88. The researcher personally administered the copies of the questionnaire to the respondents in all the eleven (11) selected universities with the help of research assistants. The data collected from the research instrument was analysed using version 20.0 of the Statistical Package for Social Sciences (SPSS). The research questions were analysed using descriptive statistics of frequency, percentage, mean and standard deviation.

## Results

**Research objective one**: find out the extent of electronic information resources usage for research among postgraduate students in universities in North-west, Nigeria?

**Table 4.3: Extent of Electronic Information Resources Usage for Research Among postgraduate Students in Universities in North-west, Nigeria**

| Statements | VHE 4 Freq. (%) | HE 3 Freq. (%) | LE 2 Freq. (%) | VLE 1 Freq. (%) | N | $\bar{X}$ | SD | Decision |
|---|---|---|---|---|---|---|---|---|
| I use e-journals to find current articles that will assist me in my project, thesis, and dissertation writing or research work. | 9 (1.8) | 40 (8.0) | 200 (40.1) | 250 (50.1) | 499 | 1.62 | .711 | Low extent |
| I consult e-books to get relevant information for writing the background to the study of my research. | 24 (4.8) | 66 (13.2) | 211 (42.3) | 198 (39.7) | 499 | 1.80 | .769 | Low extent |
| I use electronic databases for getting information needed and desired that match my writing of thesis and dissertation | 62 (12.5) | 152 (30.5) | 136 (27.3) | 149 (29.9) | 499 | 1.83 | .833 | Low extent |
| I use electronic magazines for getting information that is very current and up-to- date for my research. | 36 (7.2) | 116 (23.2) | 175 (35.1) | 172 (34.5) | 499 | 2.25 | 1.018 | Low extent |
| I use e-theses and dissertations to identify gap, new research areas and determine method for my on-going research. | 36 (7.2) | 108 (21.6) | 192 (38.5) | 163 (32.7) | 499 | 2.03 | .930 | Low extent |
| I browse online public access catalogue to search and retrieve bibliographic records of electronic information resources used for my research | 34 (6.8) | 89 (17.8) | 192 (39.3) | 180 (36.1) | 499 | 1.95 | .900 | Low extent |
| I use electronic reference resources to find information about my topics of research and locate facts. | 26 (5.2) | 92 (18.4) | 179 (35.9) | 202 (40.5) | 499 | 1.88 | .886 | Low extent |

| | VHE | HE | LE | VLE | N | X | S.D. | Decision |
|---|---|---|---|---|---|---|---|---|
| I explore e-newspapers to obtain very current information needed for my research. | 87 (17.4) | 151 (30.3) | 144 (28.9) | 117 (23.4) | 499 | 2.42 | 1.030 | Low extent |
| I use any other electronic information resources at my disposal in the university library for my research purposes. | 71 (14.2) | 102 (20.4.8) | 146 (29.3) | 180 (36.1) | 499 | 2.13 | 1.058 | Low extent |
| **Weighted Mean** | | | | | | **1.99** | 0.903 | Low extent |

Source: Field survey (2022)

Key: VHE = very High extent, HE = High Extent, LE = Low Extent, VLE = Very Low Extent, N= Number of Questionnaire Retrieved, $X$ = **mean**, Standard Deviation and Decision. (Weighted mean = 2.50)

Table 4.4 Revealed the extent of electronic information resources usage for research among postgraduate students in universities in North-west, Nigeria is low with the highest mean score of 2.42 and S.D. 1.030 on the use of e-newspapers, followed by the use of e-magazines with mean score 2.25 and S.D. 1.018, use of other electronic information resources with the mean score 2.13 and S.D. 1.050, the use of e-theses and dissertations with the mean score 2.03 and S.D. 0.930, use of online public access catalogue with a mean score of 1.95 and S.D. 0.900, use of e-reference resources with the mean score of 1.88 and S.D. 0.886, the use of e-databases with the mean score 1.83 and 0.833, use of e-books with the mean score of 1.80 and S.D. 0769.

The least mean score was observed on the use of e-journals to find current articles that will assist in project, thesis, and dissertation writing or research work, with a mean of 1.62 and an SD of 0.711. Overall, the Weighted mean score of postgraduate students' extent of electronic information resource usage for research was 1.99 with an SD of 0.903. This shows that based on the laid-down decision rule, the weighted mean is below the benchmark of 2.50. This implies that the usage of electronic information resources for research among postgraduate students in universities in the northwest of Nigeria is low. This could be due to a lack of adequate computers, a lack of awareness about the availability of e-resources in the university libraries, an inability to print from the library, low bandwidth, or slow Internet connectivity.

**Research objective two:** Find out the challenges associated with the electronic information resources usage for research among postgraduate students in universities in North-west, Nigeria?

**Table 4.8: Challenges Associated with the Electronic Information Resources Usage for Research Among Postgraduate Students**

| Statements | SA 4 Freq. (%) | A 3 Freq. (%) | D 2 Freq. (%) | SD 1 Freq. (%) | N | $\bar{X}$ | SD | Decision |
|---|---|---|---|---|---|---|---|---|
| Lack of IT skills and knowledge for effective EIRs usage for research is a problem that I have. | 129 (25.9) | 144 (28.9) | 129 (25.9) | 97 (19.4) | 499 | 2.61 | 1.070 | Agreed |
| Unreliable power supply is another challenge | 153 (30.7) | 175 (35.1) | 89 (17.8) | 82 (16.4) | 499 | 2.79 | 1.050 | Agreed |
| Slow download and inability to access full-text articles all the time is a problem. | 164 (32.9) | 224 (44.9) | 79 (15.8) | 32 (6.4) | 499 | 3.04 | 0.862 | Agreed |
| Low bandwidth and slow internet connectivity is a challenge. | 183 (36.7) | 222 (44.5) | 54 (10.8) | 40 (8.0) | 499 | 3.09 | 0.887 | Agreed |
| Lack of adequate computer systems in the university libraries is another obstacle. | 148 (29.7) | 198 (39.7) | 97 (19.4) | 56 (11.2) | 499 | 2.87 | 0.962 | Agreed |
| Inaccessibility of EIRs outside university premises due to IP address limitations is a big challenge. | 154 (30.9) | 208 (41.7) | 92 (18.4) | 45 (9.0) | 499 | 2.94 | 0.923 | Agreed |
| Inadequate ICT infrastructures that support usage of EIRs are a hindering factor. | 157 (31.5) | 209 (41.9) | 85 (17.0) | 48 (9.6) | 499 | 2.95 | 0.932 | Agreed |
| Poor sensitization is a problem. | 127 (25.5) | 246 (49.3) | 90 (18.0) | 36 (7.2) | 499 | 2.92 | 0.848 | Agreed |
| Lack of awareness about availability of EIRs is a great obstacle. | 141 (28.3) | 219 (43.9) | 96 (19.2) | 43 (8.6) | 499 | 2.91 | 0.902 | Agreed |
| Information overload is a challenge. | 137 (27.5) | 218 (43.70) | 109 (21.8) | 35 (7.0) | 499 | 2.91 | 0.876 | Agreed |
| Inability to print from the library is an obstacle. | 138 (27.7) | 208 (41.7) | 108 (21.6) | 45 (9.0) | 499 | 2.87 | 0.917 | Agreed |
| Constant strike in the educational sector is a big problem. | 172 (34.5) | 155 (31.1) | 87 (17.4) | 85 (17.0) | 499 | 2.82 | 1.083 | Agreed |
| Inadequate professional librarians that would assist me to the full usage of the EIRs is a challenge. | 113 (22.6) | 159 (31.9) | 143 (28.7) | 84 (16.8) | 499 | 2.60 | 1.015 | Agreed |
| Difficulty to read from the screen is a problem for me. | 105 (21.0) | 158 (31.7) | 139 (27.9) | 97 (19.4) | 499 | 2.54 | 1.029 | Agreed |
| Weighted mean | | | | | | 2.84 | 0.739 | Agreed |

**Key:** SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree, N = Number of Questionnaire retrieved, x = Mean, Standard Deviation and Decision (Weighted Mean 2.50)

Table 4.8 revealed the challenges associated with the electronic information resources usage for research among postgraduate students in universities in North-west, Nigeria? The results showed that the challenges associated with the electronic information resources usage

for research among postgraduate students was low bandwidth and slow internet connectivity as observed with the highest mean score of 3.09 and S.D. 0.887. Followed by the lamented statement of slow download and inability to access full-text articles all the time is a problem with the mean score of 3.04 and S.D. 0.862.

The least mean score of 2.54 and S.D. 0.029 was observed on the statement "difficulty to read from the screen is a problem for me". In overall, the weighted mean score of all the items on the question was 2.84 and S.D. 0.739. This showed that based on the lay down decision rule, all the lamented statements in the question are agreed with respect to the respondents' challenges associated to the usage of electronic information resources for research. This could be due to lack of concern from the appropriate authorities to take measures that would address constant strike in the educational sector, Information overload, IP address limitations, poor sensitization and lack of awareness about the availability of electronic information resources among others.

## Summary of the Major Findings

1. The extent of electronic information resources usage for research among postgraduate students in universities in North-west, Nigeria is low.

2. The challenges associated with the electronic information resources usage for research among postgraduate students in universities in North-west, Nigeria are low bandwidth and slow internet connectivity.

## Discussion

**Research objective one: To find out the extent of electronic information resources usage for research among postgraduate students in universities in North-west, Nigeria**

The result of the analysis on the extent of electronic information resource usage for research among postgraduate students revealed that the majority of the respondents use e-journals, e-books, e-databases, e-magazines, online public access catalogues, e-reference resources, e-newspapers, and any other e-resources for research to a low extent. This could be due to a lack of adequate computers, a lack of awareness about the availability of e-resources in the university libraries, an inability to print from the library, low bandwidth, or slow Internet connectivity. The findings are in line with the findings of Onuoha et al. (2020), who investigated the availability and utilization of e-resources in university libraries for effective research output by undergraduates of Social Studies in southeast Nigeria. The results showed, among others, that students use e-library resources but not to their maximum because they lack ICT skills and encounter problems while using them. It aligns with the findings of Adeleke and Nwalo (2017), who studied the availability, use, and constraints of electronic information resources by postgraduate students at the University of Ibadan. The results indicated that the Internet was ranked as the most available resource in the university and found a low level of usage of electronic resources. On the other hand, the findings contrast with the findings of Ternenge and Kashimana (2019), who reported that e-books, e-journals, CD-Rom databases, e-newspapers, and e-research reports were utilized for research by students in the Francis Sulemanu Idachaba Library to a great extent. In the same vein, Siwach and Malik (2019) studied the use of electronic resources by science faculty and research scholars in five universities in North India. The results obtained from 668 respondents indicated that usage was highest for e-journals in comparison to other e-resources. Preference was given to search engines when finding information for research. Bamigboye et al. (2019) carried out a related study, and the survey method was employed in conducting the research. The study found that academic staff frequently use e-resources for their research interests and also agreed that e-resources contributed to their research output.

**Research objective two: Find out the challenges associated with the usage of electronic information resources for research among postgraduate students in universities in the northwest of Nigeria.**

The results revealed that the challenges associated with the usage of electronic information resources for research among postgraduate students are low bandwidth and slow internet connectivity, slow downloads, and the inability to access full-text articles all the time. This could be due to a lack of concern from the appropriate authorities to take measures that would address constant strikes in the educational sector, Information overload, IP address limitations, poor sensitization, and a lack of awareness on the availability of electronic information resources, among others. The finding corroborates the findings of Abdulrahman and Onuoha (2019), who investigated the challenges associated with accessing and utilizing library e-resources by Economics Education students in South-East Nigeria. The findings revealed that the challenges that were identified commonly include: slow internet speed, struggle with information overload on the Internet, limited computer systems, power outages, and lack of ICT skills, among others. Quadri and Quadri (2014), investigated the information search and retrieval skills of undergraduate students at Tai Solarin University of Education, Ijagun, Ijebu-ode, Ogun State, Nigeria, The findings showed that Poor Internet connectivity and slow downloads of documents are the major obstacles faced by the users. However, the findings are in contrast with that of Mohammed and Kannan (2021), who conducted a case study to identify the factors affecting the availability, accessibility, and use of information tools and facilities in agriculture university libraries by postgraduate students of FUAA, FUAM, and MOU in Nigeria. ICT infrastructure and internet services existed in agriculture university libraries but were not well developed; constraints confronted the users, including attitudes of the staff, current information resources, particularly e-journals and e-books, and information resources related to agricultural information. Mboni and Sydney (2021), who investigated university students' e-resource usage: predictors, problems, and practical implications. Thus, the findings demonstrate that undergraduates demonstrated higher usage levels of e-resources than postgraduates. Education level, Information Literacy (IL) competency, and individual experience were factors that affected the utilization of e-resources.

**Recommendations**

Based on the findings of the study, the following recommendation were made:

1. The postgraduate students should be given adequate library orientation and training on the use of the EIRs as soon as they are admitted to the university. To train and expose them to the relevance of these resources.
2. The services provided by the librarians should also be extended to help postgraduate students retrieve their needed information. This will go a long way in enhancing their continued and effective usage of the EIRs in the library.
3. Postgraduate students should be taught about advanced search strategies and the use of controlled vocabulary to make the electronic search process much easier.
4. A lot of factors do inhibit the use of electronic information resources; therefore, it is recommended that adequate infrastructure be made available to enable users to benefit from this medium of information dissemination.
5. The university management should improve the Internet connectivity on campus and particularly in the offices.

**Conclusion**

Based on the findings, the study concluded that emerging electronic information resource usage for research among postgraduate students did not have much success because of the challenges associated with the use of the resources, such as low bandwidth and slow

internet speed, struggle in searching overwhelmed information on the Internet, limited computer systems, power outages, and lack of ICT skills, among others.

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