



---

## DIGITAL SKILLS AND THE USE OF ELECTRONIC INFORMATION RESOURCES FOR RESEARCH WORK AMONG POSTGRADUATE STUDENTS IN FEDERAL UNIVERSITIES IN NORTHWEST NIGERIA

**Dr. Friday James**

Library, Kaduna State University, Kafanchan, Kaduna State

[Jamesfriday115@gmail.com](mailto:Jamesfriday115@gmail.com)

### Abstract

This study investigated digital skills and the use of electronic information resources for research work among postgraduate students in federal universities in northwest Nigeria. The study was guided by three research questions and one hypothesis. The study adopted a descriptive survey design. The population of the study is 5,320 postgraduate students of federal universities in Northwest Nigeria. The sample size is 380 postgraduate students. Data were collected using a questionnaire and observation checklist. The instruments were face validated by two research experts from the Department of Library and Information Science. The questionnaires were trial-tested for reliability on postgraduate students of the University of Nigeria, Nsukka. Descriptive statistics of mean and standard deviation were used to answer research questions, while a t-test was used to test the hypothesis at a 0.05 level of significance. The study found out that digital skills contribute to a high extent to the use of electronic information resources for research among postgraduate students in universities in Northwest Nigeria. Findings indicated that major challenges inhibiting acquisition of digital skills and use of EIRs are inadequate continuity in e-resource subscriptions, inadequate electronic information search skills, erratic power supply, poor postgraduate students' attitude to the use of EIRs, and others. Strategies for enhancing acquisitions of digital skills and use of EIRS are strong internet connectivity in the university libraries; subsidizing the cost of internet access by the university management for the students; provision of a constant power supply; provision of adequate training on ICT; and adequate information literacy skills. The study recommended that: The federal university managements should ensure subscriptions of diverse e-resources are provided to the libraries; there is need for steady electric power supply in the university libraries; provision of adequate information literacy skills among others.

**Key words:** Digital skills; electronic information resources; Postgraduate students; university; research;

### INTRODUCTION

The use of electronic information resources is the century's most significant development, enhancing scholarly communication like research. The application of computers as well as other information technologies to information processing has brought several products and services, the most significant of which is the ability to transmit vast amounts of data or information speedily and accurately. In recent times, there has been the need for electronic information resources and the need to possess digital skills for effective use of these electronic resources in university libraries to meet up with the objective of their parent institution, most especially research activities of postgraduate students.

Electronic information resources consist of information resources provided in electronic formats such as CDROM databases, e-books, e-journals, online databases, online public access catalogs, and other computer-based information materials. According to Madondo, Sithole, and Chisita (2017), electronic information resources are documents that need computer access, whether through a desktop computer, mainframe, or portable mobile devices that may be viewed locally or remotely through the internet. They asserted that electronic information resources facilitate learning, teaching, and research. In line with this, Anand (2014) argued that any electronic product that supplies a collection of data, including an image collection or other multimedia products, is an electronic information resource and may either be accessed remotely via the internet or locally, however, there is need to be digitally skilled for effective use of these electronic resources.

Postgraduates are expected to be equipped with some digital skills that could enhance the use of electronic resources to meet their information needs. The benefits of these skills are, it provides postgraduate students with ability to be able to input data into the computer, save the information to be used later and provide ability to navigate within the online platform (European Commission, 2017; Rexwhite, 2024). Digital skills are variously defined. According to United Nations Educational, Scientific and Cultural Organizations (UNESCO) (2018) digital skills are range of abilities to use digital devices, communication application, and networks to access and manage information. It includes the sets of skills an individual need to use hardware and software, communicate online, store and retrieve information among others.

Importance of digital skills to students is becoming more apparent especially in the digital learning environment of the 21<sup>st</sup> century. It increases the usage of information and communication technologies, facilitate access to information, increase in the amount of information that can be accessed and the facilitation of communication, (Coşkunserçe &

Aydoğdu, 2022). Postgraduate students with digital proficiencies can be effective in searching, accessing, retrieving, and using information from a wide range of electronic sources, it also provides opportunity to access needed information from remote locations and use such resources to enhance their research activities.

### **Statement of the Problem**

Today, there is a major change from the old information environment to the e-environment due to new and emerging technologies. These days, library resources are chosen, arranged, processed, accessed, and shared with user communities using a variety of digital skills including social networking, online cataloging, document printing, etc.

Unfortunately, most students lack the necessary skills to use the current electronic information resources available with the aim of navigating into the wealth of information resources available everywhere on the web and other specialized databases, even though we live in a digital age of information. Students therefore do not utilize the available electronic resources to access needed and relevant information resources to support their research works likely because of inadequate of digital skills. Head and Eisenberg (2010) opined that students rely heavily on search engines like Google, they often do not fully utilize more robust academic electronic resources, such as online databases and digital libraries, which are more suitable for scholarly research.

### **Objectives of the Study**

The specific objectives of the study are to:

1. To determine the extent to which digital skills contribute to the use of electronic information resources (EIRs) by postgraduate students.
2. To identify the challenges hindering the acquisition of digital skills among postgraduate students in federal universities in Northwest Nigeria.
3. To propose strategies for enhancing the acquisition of digital skills for effective use of electronic information resources among postgraduate students in federal universities in Northwest Nigeria.

### **Research Questions**

The following research questions guided the study:

1. To what extent do digital skills contribute to the use of electronic information resources by postgraduate students?

2. What are the challenges hindering the acquisition of digital skills among postgraduate students in federal universities in Northwest Nigeria?
3. What strategies can be adopted to enhance the acquisition of digital skills for effective use of electronic information resources among postgraduate students in federal universities in Northwest Nigeria?

### **Hypothesis**

The null hypothesis guided the study was;

**Ho:** There is no significant difference in the mean ratings of male and female postgraduate students on the extent to which digital skills contribute to the use of electronic information resources for research in Federal Universities, Northwest of Nigeria

### **Literature Review**

The use of electronic information resources has been increased by the students. This demands digital skills from students to be able to access and utilize electronic information resources maximally to support academic activities such as research. Digital skills are an important component for librarians, which enable them to locate, organize, understand, and evaluate. Assessing the impact of ICT skills on the utilization of electronic information resources in Covenant University by undergraduates. Oludayo (2019) investigated the influence of ICTS skills on use e-information resources by undergraduates of covenant university, Ota, Ogun State, Nigeria. The findings show that digital skills contribute significantly electronic information resources. Stephen (2020) investigated ICT skills and use of e-resources by undergraduates in selected private university libraries in South-west, Nigeria. Survey research was adopted. The descriptive design was employed for the study. Findings revealed that the undergraduates possessed high ICT skills hence, majority of undergraduates use e-resources for finding relevant information in their studies. Agboke and Effiong (2022) focused on postgraduate students' internet literacy skills and their use of electronic information resources in federal university libraries in South-South Nigeria. The study found a significant contribution of internet literacy skills on the utilization of electronic resources. Otolo, Saibakumo, and Urhibo, (2018) examined impact of ICT skills on the use of electronic resources by undergraduate students in Nigerian University Libraries. It was revealed that the ICT skills of the students contribute to the high extent on the use of electronic resources.

Ehioghae, Chinemerem, and Eniolaf (2020) stressed out challenges hindering acquisition of digital skills as inadequate ICT infrastructure and electricity supply. Tondeur, Van-Braak, Ertmer, and Ottenbreit-Leftwich, (2017) Opined that teachers' lack of the digital skills is a challenge to acquisition of students. Similarly, (Ebiefung & Onah 2021); Haruna & Bappah, (2022) highlighted challenges that hinder acquisition of digital skills as cost of training, technophobia, inaccessibility of facilities and complexity of online resources, poor internet connectivity, insufficient computer terminals, and inadequacy of technology (ICT) skills.

Suggesting strategies for enhancing acquisition of digital skills, Tondeur et al. (2012) remarked that teachers must also possess strong digital skills, and professional development programs that focus on pedagogical uses of technology are crucial for sustainable skill transmission. Gakibayo, Ikoja-Odongo, and Okello-Obura (2013) stated that: improvement on network provision; Computer skills of students; provision of effective information literacy skills by incorporating into academic programmes; insisting on students using e-resources are necessary strategies to be employed. Onah, Adayi, Okonkwo, and Onyebuchi (2020) noted that training with digital tools or digital devices could enhance acquisition of digital skills of students.

## Methods

The study adopted descriptive survey design. It is considered appropriate for this study because it allows for the systematic collection, analysis, and interpretation of data to understand the current status of electronic information resources usage among postgraduate students. The population of this study comprised 5,320 Masters and Ph.D students (3,308 male, 2,012 female). The sample size is 380 Postgraduates a student. The study adopted **Proportional Stratified Random Sampling Technique in the selection of the samples**. Questionnaire and observation checklist were the instrument for data collection and was personally administered to the respondents. Descriptive and inferential statistic was used to analyze the data for all the research questions. While the hypotheses were tested using independent t-test statistic at a 0.05 level of significance.

## Results

The presentation and analysis were based on the three (3) research questions and hypothesis guided the study.

**Research Question 1:** To what extent do Digital skills contribute to the use of electronic information resources for research among postgraduate students in federal universities Northwest, Nigeria?

**Table 1**

**Mean Responses on the Extent of Digital skills contribution to the use of EIRs for Enhanced Research among Postgraduate students in federal universities, Northwest, Nigeria**

S/N	Item Statement	VHE	HE	LE	VLE	Mean	St.D	D
1	Avoiding harmful media content and services contributes to use of EIRs for research development	267	59	6	6	3.74	.581	VHE
2	Use of Boolean operators help in the use of EIRs	266	59	6	7	3.73	.599	VHE
3	Download and upload information on internet facilitate research development	255	65	18	0	3.70	.563	VHE
4	Working with Microsoft office, Microsoft word, power point, etc. for research development contributes to use of EIRs	252	67	19	0	3.69	.572	VHE
5	Using truncation helps in the use of EIRs	234	104	0	0	3.69	.462	VHE
6	using media to communicate for research development	229	109	0	0	3.68	.468	VHE
7	Use media tools in online participation for research development	238	94	6	0	3.67	.574	VHE
8	Access of on-line databases backs the use of EIRs for research development	238	93	7	0	3.66	.591	VHE
9	Copying information from computer into your storage device such as flash drive and diskette for research development contributes to use of EIRs	229	92	17	0	3.63	.579	VHE
10	Browse internet to locate needed information aids research development	231	89	18	0	3.63	.584	VHE
11	Attach files and open an attachment for research development	220	112	6	0	3.63	.518	VHE
12	Use of author search for electronic catalogue (OPAC) search for research development contributes to use of EIRs	217	115	6	0	3.62	.520	VHE
13	Copy and paste files for research skills contribute to use of EIRs	203	88	47	0	3.46	.727	HE
14	creating professional online profiles contributes to use of EIRs for research development	190	117	13	18	3.42	.801	HE
15	To determine the currency of the e-resources contributes to use of EIRs for research development	191	101	24	22	3.36	.875	HE
16	Combining two terms to retrieve information. for research development contributes to use of EIRs	180	101	45	12	3.33	.838	HE
17	Using media tools such as, computers, iPad and Mobile phone, television, and radios. for research development	181	100	45	12	3.33	.838	HE
18	Use of search engines such as Yahoo, Google, Alta Visa, and Google scholar etc' contributes to use of EIRs	149	148	41	0	3.32	.679	HE
19	Compose, send, open, read, reply to and forward messages for research development contributes to use of EIRs	149	148	149	0	3.32	.679	HE
20	To verify the authenticity of the source of the e-resources contributes to use of EIRs for research development	146	124	63	5	3.22	.795	HE

21	Ability to determine the mode of presentation of the work contributes to use of EIRs for research development	157	94	74	13	3.17	.901	HE
22	Using keywords enhances use of EIRs	121	144	54	19	3.09	.859	HE
23	Skills to determine the authority of the writer of e-resources contributes to use of EIRs for research development	121	142	58	17	3.09	.852	HE
24	desktop publishing for research development	105	158	59	16	3.04	.821	HE
25	digital graphic design contributes to use of EIRs for research development	98	148	69	23	2.95	.875	HE
26	Use of keyboard, mouse, for research development contributes to use of EIRs	108	153	22	55	2.93	1.01	HE

**Key:** VHE= Very Highly Extent, HE = Highly Extent, St.D = Standard Deviation, D= Decision

The data presented on table 1 revealed that the mean responses of postgraduate students on the extent to which digital skills contribute to the use of electronic information resources for research work among postgraduate students in Federal Universities, Northwest of Nigeria. The results shows that item 1-12 with mean score ranging from 3.74 to 3.62 are very high extent to which digital skills contribute to the use of electronic information resources for research. The mean score of items 13-26 which range from 3.46 to 2.93 are high extent to which digital skills contribute to the use of electronic information resources for research. It shows that digital skills contribute to use of electronic information resources to a high extent.

**Research Question 2:** What are the challenges inhibiting acquisition of digital skills among postgraduate students in federal universities, Northwest of Nigeria?

**Table 2**

**Mean Responses on the Challenges inhibiting Digital skills acquisition among Postgraduate students in Federal Universities, Northwest, Nigeria**

S/N	Item Statement	SA	A	D	SD	Mean	St.D	D
1	Inadequate of continuity in e-resources subscription constrain the use of digital skills	222	95	19	2	3.59	.625	SA
2	Slow internet connectivity is hindering acquisition of digital skills	215	110	7	6	3.58	.627	SA
3	Inadequate of Electronic information search skills inhibiting acquisition of digital skills	218	102	6	12	3.56	.705	SA
4	Low internet bandwidth is inhibiting acquisition of digital skills	217	103	6	12	3.55	.705	SA
5	Erratic power supply is hindering acquisition of digital skills	214	105	7	12	3.54	.710	SA
6	Complexity of online resources inhibiting acquisition of digital skills	203	121	2	12	3.52	.690	SA
7	Inaccessibility of ICT facilities inhibits acquisition of digital skills	205	110	17	6	3.52	.677	SA
8	Inadequate numbers of available computers inhibit acquisition of digital skills	199	113	20	6	3.49	.690	A
9	Inadequate of computer literacy deter acquisition of digital skills	199	118	3	18	3.47	.767	A
10	Inadequate of information literacy is hindering acquisition of digital skills	202	97	27	12	3.45	.789	A
11	Technophobia constrains acquisition of digital skills	203	98	19	18	3.44	.825	A
12	Cost of training is hindering acquisition of digital skills	197	102	15	24	3.40	.870	A
13	Inadequate of IT infrastructures is hindering acquisition of digital skills	197	94	29	18	3.39	.855	A

14	Poor Postgraduate students' attitude to the use of EIRs inhibiting the use of digital skills	131	200	7	0	3.37	.524	<b>A</b>
----	--	-----	-----	---	---	------	------	----------

**Key:** SA = Strongly Agree, A = Agree, St.D = Standard Deviation, D= Decision

The data presented on table 2 revealed the mean responses of postgraduate students on the challenges inhibiting acquisition of digital skills and the use of EIRs for research work among postgraduate students in federal universities, Northwest of Nigeria. from the results, the major challenges are Inadequate of continuity in e-resources subscription, with 3.59 mean score; Slow internet connectivity, with 3.58 mean score; Inadequate of Electronic information search skills, with 3.56 mean score; Low internet bandwidth, with 3.55 mean score; Erratic power supply, with 3.54 mean score; complexity of online resources and Inaccessibility of ICT facilities, with 3.52 mean score. The top challenge is inadequate of continuity in e-resources subscription with 3.59 mean score, while the least challenge inhibiting the acquisition of digital skills and use of EIRs among students in Federal Universities, Northwest of Nigeria is poor postgraduate students' attitude to the use of EIRs, with 3.37 mean score.

**Research Question 3:** What are the strategies for enhancing acquisition of digital skills for research among postgraduate students in Federal Universities in Northwest, Nigeria?

**Table 3**

**Mean Responses on the Strategies for enhancing the use of Digital skills for Enhanced Research in Federal Universities, Northwest of Nigeria.**

S/N	Item Statement	SA	A	D	SD	Mean	St.D	D
1	High and strong internet connectivity should be made available within the university campus, most importantly, in the university library	239	54	7	7	3.92	.369	<b>SA</b>
2	Provision of IT infrastructures by the university management	141	150	33	14	3.90	.395	<b>SA</b>
3	Management of various institutions should ensure students have access to ICT facilities.	146	168	20	4	3.72	.632	<b>SA</b>
4	Regular subscription and access e-resources in the libraries	158	126	39	15	3.72	.603	<b>SA</b>
5	Subsidizing cost of Internet access by the university management for the students through the provision of WI FI in the university library	206	101	18	13	3.70	.684	<b>SA</b>
6	Provision of constant power supply	233	98	7	0	3.52	.582	<b>SA</b>
7	Provision of adequate training on ICT	191	126	21		3.47	.659	<b>A</b>
8	Adequate provision of information literacy skills.	157	161	17	3	3.43	.784	<b>A</b>
9	Ensure adequate numbers of available computers in the university library for students	131	178	29	0	3.40	.708	<b>A</b>
10	Constant development of students with electronic information search skills	211	111	16	0	3.31	.767	<b>A</b>
11	Government should shoulder cost of training for postgraduate students	239	99	0	0	3.28	.946	<b>A</b>
12	Computer literacy skills training for students	213	118	7	0	3.17	.756	<b>A</b>
13	Provide mentorship by senior academics	126	167	21	24	3.11	.868	<b>A</b>

14	Provision of high internet bandwidth for browsing the web	180	102	43	13	3.05	.814	A
----	---	-----	-----	----	----	------	------	---

**Key:** SA = Strongly Agree, A = Agree, St.D = Standard Deviation, D= Decision

The data presented on table 3 revealed the mean responses of postgraduate students on the Strategies for enhancing acquisitions of digital skills and the use of EIRS for research work among postgraduate students among postgraduate students in federal universities, Northwest of Nigeria. from the results, the major strategies are strong internet connectivity in the university library, with 3.92 mean score; provision of IT infrastructures by the university management, with 3.90 mean score; management of various institutions should ensure students have access to ICT facilities, and regular subscription and access e-resources in the libraries with 3.72 mean score; subsidizing cost of Internet access by the university management for the students through the provision of WIFI in the university library, 3.70 mean score; provision of constant power supply for providing constant and stable power needed to operate or charge ICT facilities, with 3.52 mean score; provision of adequate training on ICT, with 3.47 mean score; and adequate information literacy skills to equip students with the competence to know when and where to locate and retrieve EIRs of interest, with 3.43 mean score.

**Hypothesis**

There is no significant difference in the mean ratings on the extent to which digital skills contribute to the use of electronic information resources for enhanced research among Postgraduate Students in federal universities, Northwest, Nigeria based on gender.

**Table 4**

**t-test analysis of Mean Ratings of male and female postgraduate students on the extent to which Digital skills contribute to the use of Electronic Information Resources for Research**

Gender	N	Mean	St. D	Df	t-cal	Sig	Decision
Male	154	3.24	0.26	336	-	0.674	Not Significant
Female	184	3.25	0.28		0.420		

P<0.05; D: Decision; S: Significant; NS: Not Significant

Table 4, shows that the t-test value -0.420 is significant at 0.674. Since the significant value of 0.674 is greater than 0.05 level of significance at which the null hypothesis is tested, the null hypothesis is therefore upheld. Hence, there was no significant difference in the mean ratings on the extent to which digital skills contribute to the use of electronic information resources for research by postgraduate students in federal universities, Northwest of Nigeria based on gender, despite the fact that the mean of female postgraduate students is slightly above their male counterpart.

## Discussion

The study found out that, the extent to which digital skills contribute to the use of electronic information resources for research work among postgraduate students in universities, Northwest of Nigeria is high. The study is in agreement to the findings of (Otolo, Saibakumo, & Urhibo, 2018; Alabi, 2020) which the result of the hypothesis showed that there was significant relationship between ICT skills and use of electronic resources ( $r = 0.204$ ,  $p < 0.05$ ). Avoiding harmful media content and services contributes to use of electronic information resources for research development, use of Boolean operators help in the use of EIRs, download and upload information on internet facilitate research development, working with Microsoft office, Microsoft word, power point. There was no significant difference in the mean ratings on the extent to which digital skills contribute to the use of electronic information resources for research by postgraduate students in federal universities, Northwest of Nigeria based on gender. The study also affirmed the findings of Raphael and Onah (2021) who studied the influence of digital literacy skills and use of electronic information resources by undergraduate students in South-south, Nigeria. The results showed that majority of undergraduates used e-journals and the Internet Daily for academic purposes. It was equally found that the level of digital literacy skills of undergraduates is high.

The study revealed the major challenges inhibiting acquisition of digital skills and the use of EIRs for research work among postgraduate students in Northwest, Nigeria which include: Inadequate of continuity in e-resources subscription, Slow internet connectivity; Low internet bandwidth; Erratic power supply. This is in agreement with the findings of (Tondeur, van Braak, Ertmer, & Ottenbreit-Leftwich, 2017; Inemesit, Glory & Olowookere, 2020) who examined digital literacy skills of undergraduate students of Library and Information Science on the Utilization of Electronic Information Resources in two Federal Universities in Nigeria. The findings reveals that factors facing digital literacy skills and the use of EIRs of the students are: epileptic electricity supply; high cost of digital skill training programmes; inaccessibility to internet facilities; inadequate digital facilities, lack of conducive digital literacy learning environment; and poor teaching methods by IT lecturers. As the strategies to enhancing acquisition of digital skills and the use of EIRs for research among postgraduate students, the finding revealed that the major strategies are strong internet connectivity in the university library and management of various institutions should ensure students have access to ICT facilities. This is in line with the observation of Onah, Adayi, Okonkwo, and Onyebuchi (2020)

they noted that training with digital tools or digital devices could enhance acquisition of digital skills of students.

## Conclusion

The study investigated the extent to which digital skills contribute to use of electronic information resources for research work among postgraduate students in federal universities in Northwest, Nigeria. The study reveals that digital skills contribute to the use of electronic information resources to a high extent among Postgraduate students in federal universities in northwest, Nigeria. It is observed that acquisition of digital skills is hindered by lots of challenges which include inadequate of continuity in e-resources subscription, slow internet connectivity, inadequate electronic information search skills, low internet bandwidth, erratic power supply, and inadequate of IT infrastructures affects the use of electronic information resources for enhanced research, hence, these challenges when resolved will lead to effective use of electronic information resources for enhanced research.

## Recommendations

Based on the findings of this study, the following recommendations are made:

1. Since digital skills contributes to utilization of EIRs, Federal university library managements should consistently conduct awareness campaigns and ensure students are equip with divers digital skills.
2. There is need for the federal university management to ensure that adequate telecommunication infrastructure; especially internet connectivity is made available and easily accessible around the university campus.
3. Federal university managements should enhance internet connectivity and access to digital devices across campuses.

## References

- Agboke, L. A. & Effiong A. E. (2022). Internet literacy skills and utilization of electronic information resources (EIRs) in federal university libraries by postgraduate students in south-south, Nigeria. *International Journal of Applied Technologies in Library and Information Management* 8 (1) 04 - 32 – 44
- Alabi, O. (2020). ICT skills and use of electronic resources by undergraduates in selected faith-based private university libraries in South-west, Nigeria. *An international journal of information and communication technology (ICT)* 17(2), 163-177

- Anand, Y. K. (2014). Types of e-resources and their utilities in library. *International journal of information sources and services*. 1(2), 97-104
- Coşkunserçe, O. & Aydoğdu, Ş. (2022). Investigating the digital skills of undergraduate students in terms of various variables. *Journal of educational technology & online learning*, 5(4), 1219-1237.
- Ebiefung, R. & Onah, E. (2021). Digital literacy skills as correlate of electronic information resources' (EIRs) use by university undergraduates in South-South, Nigeria. *Library philosophy and practice (e-journal)*.
- Ehioghare, M. Chinemerem C. & Eniolaf, U. A. (2020) ICT literacy skills as correlate of electronic resources use by undergraduates in selected academic libraries in Ogun State, Nigeria; *Journal / Information Technologist*, 17 (1)
- European Commission (2017). Digital skills and jobs coalition: glossary of key terms. Retrieved from <https://ec.europ.eu/digital-single-market/en/digital-skill-and-jobs-coalition-glosery-key-terms>
- Gakibayo, A., Ikoja-Odongo, J. R., & Okello-Obura, C. (2013). Electronic information resources utilization by students in Mbarara university library (*library philosophy and practice (e-journal)*). 8 <http://digitalcommons.unl.edu/libphilprac/869>
- Haruna A. M. & Bappah, M. (2022). Challenges of access and use of electronic information resources among students of higher institutions in Taraba State, Nigeria. *Covenant journal of library and information science (CJLIS)* 5 (1) 2682-5295
- Head, A. J., & Eisenberg, M. B. (2010).** *Truth be told: How college students evaluate and use information in the digital age*. Project Information Literacy Progress Report. The Information School, University of Washington.
- Inemesit, U. I., Glory, I. A., & Olowookere, A. A. (2020). Digital literacy skills of undergraduate students of Library and Information Science on the utilization of electronic information resources in two federal universities in Nigeria. *Library philosophy and practice*
- Madondo, T., Sithole, N., & Chisita, C. (2017). Use of electronic information resources by Undergraduate Students in the faculty of management and administration at Africa University, Mutare, Zimbabwe. *Asian research journal of arts & social sciences*, 2(2) 1–12.
- Oludayo B. (2019) Influence of ICT skills on the utilization of electronic information resources (eirs) among undergraduates of Covenant University, Ota. Ogun state South West, Nigeria. *Library Philosophy and Practice (e-journal)*
- Onah, J. C., Adayi, I. O., Okonkwo, E. A., & Onyebuchi, G. U., (2020). "Information retrieval skills as it correlate to undergraduate use of library information resources at a Nigerian university". *Library philosophy and Practice (e-journal)*.4586. <https://digitalcommons.unl.edu/libphilprac/4586>

- Otolo, P. U., Saibakumo, W. T & Urhibo, E. (2018) Impact of ICT skills on the use of electronic resources by undergraduate students in Nigerian University Libraries: *Journal / Information Technologist* 15 (1)
- Raphael, C., & Onah, U. (2021). The influence of digital literacy skills and use of electronic information resources by undergraduate students in South-South, Nigeria. *Library philosophy and practice*, 1-1
- Rexwhite, T. E. (2024). The usefulness of computer skills for enhanced teaching and learning among lecturers in an open distance e-learning (ODEL) environment. *Education and Information Technologies*.<https://doi.org/10.1007/s10639-024-12519-z>
- Stephen O. A. (2020) ICT skills and use of electronic resources by undergraduates in selected faith-based private university libraries in south-west, Nigeria. *International Journal of Information and Communication Technology Vol. 17 ( 2)*
- Tondeur, J., van Braak, J., Ertmer, P. A., & Ottenbreit-Leftwich, A. (2017). Understanding the relationship between teachers' pedagogical beliefs and technology use in education: A systematic review of qualitative evidence. *Educational Technology Research and Development*, 65, 555–575.
- Tondeur, J., van Braak, J., Sang, G., Voogt, J., Fisser, P., & Ottenbreit-Leftwich, A. (2012). *Preparing pre-service teachers to integrate technology in education: A synthesis of qualitative evidence*. *Computers & Education*, 59(1), 134–144.
- UNESCO (2018). Digital skills critical for jobs and social inclusion. Available at :<https://en.unesco.org/news/digital.skills-critical-jobs-and-social-inclusion>