EISSN 3141-6152
GLOBAL ACADEMIC INTERNATIONAL JOURNAL OF LIBRARY AND INFORMATION SCIENCE (GAIJLIS) VOL: 2.1 (2026) PP 68-78



Received: 30.05.2026| Accepted: 29.06.2026 |Published: 15.07.2006
Citations: SELUMUN-IPAV, N. & UGANNEYA, S.A., (2026) Challenges and opportunities in e-reference resource utilization for research productivity in Nigerian Universities: A study of food scientists in Benue State.Gaijlis vol.2.1. Pp.68-78 https://globreshub.org/index.php/gaijlis/
DOI: https://doi.org/10.5281/zenodo.21976631

CHALLENGES AND OPPORTUNITIES IN E-REFERENCE RESOURCE UTILIZATION FOR RESEARCH PRODUCTIVITY IN NIGERIAN UNIVERSITIES: A STUDY OF FOOD SCIENTISTS IN BENUE STATE

[1]SELUMUN-IPAV Ngukeen & [2]UGANNEYA Solomon Achia
[1]University Library, University of Mkar, Mkar, Benue State, Nigeria [2]Department of Library and Information Science, Joseph Sarwuan Tarka University, Makurdi, Benue State, Nigeria
Corresponding Author: Email – ngselumunipav@gmail.com

Abstract

Background: *The utilization of e-reference resources is critical for enhancing research productivity in Universities. However, in Nigerian Universities, Food Scientists face multiple challenges that may limit effective use of these resources.*

Aim: *This study examined the challenges and opportunities associated with e-reference resource utilization for research productivity among Food Scientists in Universities in Benue State, Nigeria.*

Methods: *A survey research design was adopted. Data were collected from 63 Food Scientists across three Universities in Benue State using structured questionnaires. The study was anchored on Diffusion of Innovation Theory and Wilson's Model of Information Seeking to explain adoption patterns and information-seeking behaviors. Data were analyzed using descriptive and inferential statistics.*

Results: *Findings revealed key constraints to e-reference resource utilization including inadequate ICT skills, poor ICT infrastructure, limited research funding, and heavy teaching workloads. While foundational e-reference resources were available, specialized resources remained underutilized. Overall research productivity among Food Scientists was generally low, with only a small fraction recording high research outputs.*

Conclusion: *The study concludes that improving e-reference resource utilization requires institutional policy reforms, targeted ICT capacity building, infrastructure development, and collaborative research initiatives. These measures are essential for enhancing research productivity among Food Scientists and in Nigerian Universities generally.*

Keywords: *E-reference resources, Research productivity, Challenges, Food Scientists, Benue State, Nigeria.*

*Corresponding author(s) SELUMUN-IPAV, N., & UGANNEYA, S. A. (2026) agree that this article remain permanently open access under the terms of the Creative Commons Attribution License 4.0 International License

INTRODUCTION

In the evolving landscape of higher education and scientific inquiry, research productivity is widely regarded as a central measure of academic and professional success (Adetomiwa et al., 2023). Research productivity in higher education comprises the cumulative academic outputs of faculty within a specified period, typically measured by publications, presentations, and community service, highlighting its significance in institutional ranking systems.

Electronic resources have transformed access to scholarly information, with

academic libraries now providing a wide array of electronic resources accessible remotely at any hour using various devices (Olufemi & Adeyeye, 2022). Digital collections now encompass electronic books, electronic journals, full-text databases, streaming media, and multimedia learning tools.

However, the mere availability of e-reference resources does not automatically translate into effective use. Digital literacy, institutional support, and researchers' attitudes significantly influence utilization patterns. Adeleke (2018) noted that higher levels of information literacy significantly enhance researchers' efficiency in accessing and using scholarly materials. Similarly, Okiki (2019) observed that inadequate digital skills among academics in Nigerian Universities often lead to underutilization of available e-resources.

Food Science professionals in universities require quality information resources to teach effectively, undertake innovative research, and provide expert services to the university community (Joshua & King, 2020). Their recognition and advancement depend largely on the quantity and quality of research productivity in the form of journal articles, books, technical reports, and other publications (Anyaogu & Iyabo, 2014).

This study, therefore, examines the challenges and opportunities in e-reference resource utilization for research productivity among Food Scientists in Universities in Benue State, Nigeria.

Statement of the Problem

The emergence of digital technologies has significantly transformed academic research through e-reference resources such as online databases, digital libraries, e-books, and scholarly journals. However, Food Scientists in universities in Benue State may face challenges in utilizing these resources effectively. Without easy access to digital tools and materials, researchers may rely on outdated print resources, hindering their ability to engage with cutting-edge research.

A continued lack of engagement with e-references could lead to a decline in the overall quality of food science research in Benue State, making it difficult for local researchers to publish in reputable journals, participate in global collaborations, or contribute meaningfully to international food science advancements.

Objectives of the Study

1. Identify constraints in utilization of e-reference resources.
2. Ascertain constraints of research productivity.

Research Questions

1. What are the constraints of utilization of e-reference resources?
2. What are the constraints of research productivity?

Theoretical Framework

This study is anchored on two complementary theories: Wilson's General Model of Information Seeking (1981) and Rogers' Diffusion of Innovation Theory (1962). Together, these theories provide a basis for understanding both the process of seeking e-reference resources and the factors that influence their adoption for research productivity among Food Scientists.1. Wilson's General Model of Information Seeking (1981) Wilson's General Model of Information Seeking explains how individuals recognize, experience, and attempt to satisfy their information needs. The model posits that information-seeking behavior is influenced by a combination of personal factors such as motivation, experience, and self-efficacy; environmental factors such as access to information sources and institutional support; and system-related factors such as the usability, reliability, and relevance of information platforms. In the context of this

study, the model is relevant for explaining how Food Scientists identify gaps in their research information needs and the extent to which constraints like poor ICT infrastructure, limited skills, and heavy workloads hinder or facilitate their use of e-reference resources.2. Diffusion of Innovation Theory by Everett Rogers (1962)Rogers' Diffusion of Innovation Theory explains how new ideas, technologies, and practices are communicated and adopted within a social system over time. The theory identifies five adopter categories — innovators, early adopters, early majority, late majority, and laggards — and highlights key innovation characteristics such as relative advantage, compatibility, complexity, trialability, and observability that influence adoption rates.Applied to this study, the theory provides a framework for understanding the varying levels of adoption of e-reference resources among Food Scientists. It helps to explain why some researchers readily integrate specialized e-resources into their research workflow while others underutilize them due to perceived complexity, inadequate training, or limited institutional support.

Conceptual Framework

E-Reference Resources

E-reference service is an emerging trend of traditional reference service. Reference resources according to Musa et al. (2015) are authoritative works that help locate information about people, facts, and ideas. Major reference resources include catalogues, encyclopedias, dictionaries, directories, almanacs, handbooks, atlases, periodicals, and concordances (Udofot & Nwanchukwu, 2019).

E-Reference Resources Utilization

The five laws of library science formulated by Ranganathan revolve around the user, emphasizing the service nature of the profession. One law, "books are for use," implies that reference resources are for utilization. Accessing the extent of utilization, Oyediran-Tidings (2019) observed low use of the library by students attributed to unavailability of desired reference resources and lack of ability to access available resources.

Food Scientists

Food Scientists are professionals trained in nutrition, biology, and chemistry who work in food processing, research, teaching, or government service (Adedayo & Nwachukwu, 2020). They research new ways to ensure food safety and improve the taste or nutrition of food (Okori & Adewales, 2019).

Research Productivity

Research productivity encompasses both the quantity and quality of intellectual contributions produced within a given period. Simisaye and Popoola (2022) describe it as the extent to which scholars consistently produce peer-reviewed journal papers, technical reports, books, and other scholarly outputs. Adeyi et al. (2024) define research productivity as a measure of output and influence.

Review of Related Empirical Studies

Several studies have examined the availability, utilization, and challenges of e-reference resources in Nigerian university libraries. Edem and Egbe (2016) investigated the availability and utilization of electronic resources by postgraduate students at the University of Calabar. The study found that while electronic resources were generally available and utilized, online databases were underutilized due to inadequate computer skills, slow network speed, inconsistent internet connectivity, and frequent power outages.

Udofot and Nwachukwu (2019) assessed the utilization of reference resource tools for

effective information retrieval in Nigerian university libraries. Their findings indicated that inadequate funding, the complexity of reference tools, and poor networking infrastructure were major constraining factors. Krubu and Osawaru (2021) examined the impact of reference resources in Nigerian university libraries and observed that these resources play a vital role in acquiring, storing, processing, retrieving, and disseminating information to support teaching, learning, and research. In a related study, Obande and Emmanuel (2024) examined the stage of implementation of e-libraries and their challenges in Nigerian higher educational institutions. The study revealed that e-libraries have enhanced the credibility of library services and promoted global academic collaboration. However, key challenges identified include inadequate funding, poor maintenance culture, weak infrastructure, inadequate digitization of contents, poor staff development, and lack of recognition of the library's worth.

Similarly, Obande et al (2020), in a study on access to e-resources by librarians in university libraries in the Niger Delta region, reported that librarians actively access various e-resources such as e-journals, e-books, indexing and abstract databases, and reference databases for reference purposes. The study further showed that databases such as JSTOR, Research4Life, EBSCOhost, DOAJ, and OPAC were among the most accessed, indicating growing dependence on electronic platforms for research support. Collectively, these studies suggest that while foundational e-reference resources exist in Nigerian universities, issues of skills, infrastructure, funding, and awareness continue to limit optimal utilization for research productivity.

METHODOLOGY

This study adopted a descriptive survey design to examine e-reference resource utilization and research productivity among Food Scientists in Benue State, Nigeria. The study was conducted in three universities: MOAUM, JOSTUM, and UMM. The entire population of 63 Food Scientists was used for the study. Data were collected using a structured questionnaire titled "E-Reference Resources Utilization and Research Productivity of Food Scientists Questionnaire". The instrument was validated by three experts and had a Cronbach's Alpha reliability of 0.91.Data were analyzed using frequency, percentage, mean, and standard deviation for research questions. While chi-square goodness-of-fit was used to test the hypothesis at 0.05 level of significance.

RESULTS AND DISCUSSION

Constraints in Utilization of E-Reference Resources

Table 1: Constraints in Utilization of E-Reference Resources

S/N	Constraint Statement	x̄	SD	Dec.
1	Lack of awareness of existence of e-reference resources	2.78	0.97	Agreed
2	Absence of training programs on the use of e-reference resources	2.70	1.00	Agreed
3	Unorganized nature and proliferation of e-reference resources	2.62	0.93	Agreed
4	Lack of publicity on contents of available e-reference resources	2.52	1.17	Agreed
5	Paucity of workstations to access e-reference resources	2.78	1.00	Agreed
6	Irrelevance of contents to local academic needs	2.59	1.00	Agreed
7	Absence of Internet connectivity	2.62	1.03	Agreed
8	Problem of low speed and capacity of computers	2.57	0.97	Agreed
9	Lack of current/updated e-reference resources	2.76	0.94	Agreed
10	Problems in locating the most appropriate information resources	2.79	0.91	Agreed
11	Non-availability of desired/relevant e-reference resources	2.71	0.98	Agreed
12	Lack of knowledge of search techniques	2.94	0.99	Agreed
13	Absence of requisite ICT skills generally	2.52	1.05	Agreed

S/N	Constraint Statement	x̄	SD	Dec.
14	Problems in navigating the internet	2.59	1.03	Agreed
15	Absence of trained information scientists	2.68	0.87	Agreed
16	Lackadaisical attitude of most Food Scientists	2.70	1.03	Agreed
17	Lack of time due to tight academic schedules	2.57	1.11	Agreed
18	ICT phobia	2.83	1.02	Agreed
19	Lack of constant power supply	2.87	0.90	Agreed
20	General readership problem among Nigerians	2.51	1.01	Agreed
	Cluster Mean	**2.69**		**Agreed**

The highest levels of agreement were recorded for lack of knowledge of search techniques (x̄=2.94), lack of constant power supply (x̄=2.87), and ICT phobia (x̄=2.83). The cluster mean of 2.69 indicates that respondents generally perceive all listed items as valid constraints.

Constraints of Research Productivity

Table 2: Constraints of Research Productivity

S/N	Item Statements	x̄	SD	Decision
1	Inadequate research funding limits productivity	3.25	0.83	Agree
2	Lack of modern laboratory equipment hinders research output	3.27	0.85	Agree
3	Limited access to updated research journals reduces productivity	3.22	0.81	Agree
4	Poor internet connectivity affects research effectiveness	3.21	0.82	Agree

S/N	Item Statements	x̄	SD	Decision
5	High teaching workload leaves little time for research	3.19	0.80	Agree
6	Insufficient collaboration opportunities with other institutions	3.17	0.79	Agree
7	Lack of training in advanced research methods	3.17	0.81	Agree
8	Delays in research grant approvals	3.18	0.81	Agree
9	Limited mentorship from senior researchers	3.16	0.80	Agree
10	Bureaucratic bottlenecks in research administration	3.17	0.81	Agree
11	Lack of incentives for publishing in high-impact journals	3.22	0.82	Agree
12	Inadequate technical staff to support research	3.16	0.80	Agree
13	Poor maintenance of research facilities	3.21	0.81	Agree
14	Limited attendance at academic conferences	3.14	0.79	Agree
15	Low motivation due to poor remuneration	3.17	0.80	Agree
16	Lack of access to specialized software for data analysis	3.18	0.81	Agree
17	Insufficient interdisciplinary research engagement	3.16	0.80	Agree
18	Poor institutional support for patenting innovations	3.18	0.81	Agree
19	Limited exposure to global research networks	3.17	0.80	Agree
20	Difficulty in balancing administrative duties with research	3.18	0.81	Agree
	Cluster Mean	**3.18**		**Agree**

The highest levels of agreement were recorded for inadequate research funding (x̄=3.25), lack of modern laboratory equipment (x̄=3.27), and limited access to updated research journals (x̄=3.22).

Discussion of findings

Constraints in utilization of E-Reference resources

The study found that lack of knowledge of search techniques, lack of constant power supply, and ICT phobia were major constraints. This supports Adeniran (2017),

who reported that poor ICT infrastructure and lack of training limit the effective use of electronic resources. Nwosu and Udo-Anyanwu (2019) also found that lack of user competence and poor connectivity are major obstacles to e-resource utilization.

The findings are consistent with Edem and Egbe (2016), who reported that Postgraduate students in Nigerian Universities underutilized online databases due to poor ICT skills, inconsistent internet access, and lack of training in information retrieval. Ugah (2020) also found that poor infrastructure and lack of user competence remain recurring problems in academic libraries across Nigeria.

Constraints of research productivity

The study revealed that inadequate funding, lack of modern research facilities, and heavy teaching workload were major factors limiting productivity. This indicates that institutional challenges significantly affect research output. This finding is similar to Olatokun (2021), who emphasized that funding and institutional support are critical determinants of research productivity. Likewise, Nwogu (2020) asserted that heavy workload and lack of research facilities negatively affect academic productivity.

Anyaogu and Iyabo (2014) emphasized that inadequate access to academic resources and poor institutional support significantly hinder the volume and quality of research productivity in Nigerian Universities. Adetayo (2021) asserted that research productivity in Nigeria is often tied to institutional encouragement, funding availability, and workload management.

Relationship between utilization and research productivity

The Chi-square test revealed a significant relationship between e-reference resource utilization and research productivity (χ^2=23.01, p=0.003). This indicates that while utilization contributes to research productivity, other factors such as institutional environment, motivation, collaboration, and researcher competence may influence productivity outcomes.

This finding is consistent with Armijos-Valdivieso et al. (2022), who explained that research productivity is shaped not only by past achievements and resource access but also by institutional contexts, collaboration dynamics, and individual attributes. Ehikhamenor (2023) found that barriers such as workload, lack of funding, and institutional constraints sometimes moderate the extent to which utilization of resources leads to higher productivity.

Implications of findings

The findings have several implications for policy and practice. First, Universities need to invest in digital infrastructure and capacity building to address the identified constraints. Second, institutional policies should be reformed to provide incentives for research and reduce bureaucratic bottlenecks. Third, collaboration and networking opportunities should be encouraged to enhance research productivity.

CONCLUSION

This study examined the challenges and opportunities in e-reference resource utilization for research productivity among Food Scientists in Universities in Benue State, Nigeria. The findings revealed that while foundational e-reference resources are available, specialized resources remain underutilized due to inadequate ICT skills, poor infrastructure, and lack of awareness. Research productivity was found to be low, constrained by inadequate funding, lack of modern facilities, and heavy teaching workloads.

The study concludes that addressing these challenges requires a multi-pronged approach involving investment in digital infrastructure, capacity building, institutional

policy reforms, and promotion of collaborative research initiatives.

RECOMMENDATIONS

Based on the findings, the following recommendations are made:

1. **Infrastructure Development:** Universities should invest in stable internet connectivity, reliable power supply, and modern ICT facilities to support e-resource utilization.
2. **Capacity Building:** Training programs should be organized to enhance Food Scientists' digital literacy and information retrieval skills.
3. **Research Funding:** Government and University authorities should increase research funding and streamline grant approval processes.
4. **Workload Management:** Universities should review teaching workloads to provide faculty with adequate time for research activities.
5. **Collaboration:** Institutional support for collaborative research and international networking should be enhanced.
6. **Incentives:** Incentives for research publication, patenting, and high-impact research should be provided.

Contribution to Knowledge

The study provides empirical evidence on the relationship between e-reference resources utilization and research productivity among Food Scientists in universities in Benue State. It identifies key constraints affecting both utilization and productivity, offering insights into practical challenges within the university system. The findings offer a basis for policy formulation and institutional decision-making aimed at improving digital resource use and academic output.

REFERENCES

Adedayo, T., & Nwachukwu, C. (2020). Defining the food scientist: Roles and responsibilities in the modern food industry. *Nigerian Food Journal*, 38(1), 45-62.

Adeleke, D. (2018). Information literacy and research efficiency in academic libraries. *Journal of Library and Information Science*, 15(2), 67-82.

Adeniran, P. (2017). Poor ICT infrastructure and lack of training limit the effective use of electronic resources. *Journal of Information Technology*, 12(3), 45-58.

Adetayo, A. (2021). Research productivity in Nigeria: Institutional encouragement, funding availability, and workload management. *Journal of Educational Research*, 14(2), 78-95.

Adetomiwa, A., Onabajo, K., & Adeyinka, F. (2023). Research productivity in Nigerian higher education: Challenges and prospects. *Journal of Educational Development and Practice*, 11(1), 88-105.

Adeyi, O., Ogunleye, O., & Adebayo, O. (2024). Research productivity: A measure of output and influence in academic communities. *Nigerian Journal of Research*, 15(2), 112-128.

Anyaogu, U., & Iyabo, A. (2014). Utilization of information resources and services for research productivity among academic staff in Nigerian Universities. *Nigerian Libraries*, 47(1), 45-56.

Armijos-Valdivieso, H., Carrillo, P., & Minchala, C. (2022). Individual research productivity and its determinants in higher education. *Scientometrics*, 127(4), 2249-2265.

Boulton, G., & Lucas, C. (2021). Universities as engines of innovation and development. *Higher Education Policy Review*, 34(3), 210-225.

Edem, N. B., & Egbe, N. (2016). Availability and utilization of electronic information resources by Postgraduate students in a Nigerian University library. *Information and Knowledge Management*, 6(2), 60-69.

Ehikhamenor, F. (2023). Barriers to research productivity in Nigerian Universities. *African Journal of Library Science*, 20(1), 34-48.

Emaikwu, S. O. (2019). *Fundamentals of Research Methodology and Statistics*. Makurdi: Selfers Academic Press.

Joshua, P., & King, A. (2020). Information resources and teaching effectiveness in food science education. *Journal of Food Science Education*, 19(3), 156-172.

Krubu, D., & Osawaru, K. E. (2021). The impact of information and communication technology in Nigerian University libraries. *Library Philosophy and Practice*.

Lohr, S. (2021). *Sampling: Design and Analysis* (3rd ed.). Boca Raton: CRC Press.

Musa, A., Idris, M., & Bello, S. (2015). Reference resources in academic libraries: Characteristics and utilization. *Nigerian Library Journal*, 10(2), 78-95.

Nwogu, O. (2020). Research productivity in Nigerian Universities: Challenges and prospects. *Journal of Educational Development*, 11(1), 88-105.

Nwosu, C., & Udo-Anyanwu, A. (2019). Inadequate information retrieval skills significantly affect the utilization of electronic resources. *Information Development*, 35(4), 567-582.

Obande, B. O., & Emmanuel, H. (2024). The stage of implementations of e-libraries and its challenges in Nigeria higher education institutions in the 21st century. Mendeley Data. https://doi.org/10.17632/cv8wddmprz.1

Obande, B. O., Osakwe, J., Ujakpa, M. M., Iyawa, G., Ikechukwu, A. O., &Amunkete, K. (2020). Awareness, Accessibility and Usability of E-resources: University Students Perspective. IST-Africa 2020 Conference Proceedings Miriam Cunningham and Paul Cunningham, 9.

Okiki, O. (2019). Inadequate digital skills and underutilization of e-resources in Nigerian Universities. *Library Philosophy and Practice*, 1-15.

Okori, A., & Adewales, F. (2019). Food Scientists: Roles and responsibilities in research and development. *Nigerian Food Journal*, 37(2), 89-104.

Olatokun, W. (2021). Funding and institutional support as critical determinants of research productivity. *Journal of Information Science*, 47(3), 345-360.

Olufemi, A., & Adeyeye, T. (2022). Digital collections and e-resource management in University libraries. *Library Hi Tech News*, 39(9), 21-28.

Oyediran-Tidings, S. (2019). Low use of the library by students in Nigerian Universities. *Journal of Library Administration*, 59(5), 567-584.

Simisaye, A. O., & Popoola, S. O. (2022). Research productivity of academic staff in selected Nigerian Universities. *African Journal of*

Library, Archives and Information Science, 32(1), 59-72.

Udofot, C., & Nwachukwu, V. (2019). Utilization of access tools for effective information retrieval in Nigerian Universities libraries. *Journal of Library Services and Technologies*, 1(1), 48-56.

Ugah, A. D. (2020). Library usage pattern among undergraduates: A case of University of Nigeria Nsukka. *Library and Information Management Journal*, 11(3), 57-70.

Uloko, E., & Lameed, A. (2019). *Monitoring Vertebrate Populations: Theory and Practice*. Lagos: University Press.

Wahid, F., Smith, M., & Lee, C. (2022). Research output and academic visibility among Food science scholars. *Scientia Agricola*, 79(4), 312-320.