EXPLORING ONLINE DATABASES IN ACADEMIC LIBRARIES – AN OVERVIEW OF NIGERIAN SITUATION

DANJI – FARI YAHAYA

Department of Library, Federal Polytechnic Bali, Nigeria
Corresponding Author: danjifariyahaya@gmail.com
DOI: https://doi.org/10.70382/tijerls.v07i8.029

ABSTRACT

A library database is a searchable electronic index of published, reliable resources. Online Databases provide access to a wealth of useful research materials from academic journals, newspapers, and magazines. Some databases also include e-books, relevant Web resources, and various multimedia. This paper explored library online databases available in

INTRODUCTION

The academic library plays a crucial role in acquiring, processing, and disseminating information to support teaching, research, and learning, providing access to a variety of resources in both print and electronic formats. These functions aim to help educational institutions fulfill their mission and vision, ultimately producing skilled graduates ready to compete globally. Academic libraries are responsible for acquiring information resources in printed forms, such as books, journals, magazines, and newspapers, as well as electronic versions accessible via digital devices. Electronic resources are divided into offline and online categories. Offline resources can be accessed without internet connectivity, including CDs, flash drives, hard drives, and computer files. In contrast, online resources require an internet connection and include electronic databases, e-books, e-journals, and cloud storage.

Electronic databases provide access to a wide range of information, including scholarly articles, e-books,

academic libraries, discussed the types of databases in academic libraries such as free databases and fee-based (Subscription-based); category of databases in academic libraries such as scholarly article databases, e-book databases, subject-specific databases, statistical and data databases, multimedia and image databases and theses and dissertations databases. Also discussed were significance of databases in academic libraries, criteria for selecting databases, database subscription, database subscription management, Nigerian academic libraries' situation as well as challenges and future directions.

Keywords: Online, Databases, Academic Libraries, Libraries

datasets, and multimedia resources, benefiting both academic libraries and their users. The advantages of these databases include:

- Easy access to research from around the world
- 24/7 availability for users, even outside regular library hours
- Encouragement of research among faculty and students

To fully realize these benefits, academic libraries must subscribe to and maintain electronic databases, as well as ensure that the necessary ICT infrastructure is in place to facilitate access.

In Nigerian tertiary institutions, popular online databases include ScienceDirect, ProQuest, the Nigerian Virtual Library, Research for Life, HINARI, DOAJ, OARE, AJOL, SAGEOPEN, Emerald TEEAL, and EBSCOhost. Some of these databases are freely accessible, while others require a paid subscription. They can be accessed from anywhere, allowing multiple users to connect simultaneously without restrictions.

The content in these online databases is regularly updated to provide current and reliable information, often focusing on specific topics for targeted audiences. Overall, these databases are invaluable resources that save time and enhance research and development activities for academics, researchers, and students.

Accessibility, even in faraway locations, is one benefit of electronic databases. Along with helping with storage issues and offering up-to-date information resources, they also have fast search speeds, the ability to look through old

documents for archival purposes, and the potential to develop in the future by redesigning or updating. Making the most of these databases to support teacher and student academic success while also getting value for money is both acceptable and cost-effective (Kwadzo, 2015). The types of databases, their categories in academic libraries, their importance, selection criteria, database subscriptions, management of database subscriptions, the state of databases in Nigerian academic libraries, challenges, and future directions were all covered in this paper.

Definition of Database

Database specifically refers to database websites containing libraries and stores of printed information resources in soft copies, accessed only via the internet and the world wide web (www) and full-text article presently available in the web (Obaseki, Oye & Mamman, 2012). Nnakire (2012) also viewed online databases as, "an electronic database of either full-text document or citations and abstracts, which can be searched by telephone or internet connection. Offline databases, on the other hand, refers to series of information resources stored in storage devices and mediums such as CD-ROMs, flash drives, library intra-network system (Obaseki *et. al.,* 2012). According to Ghani (2020), databases are essential electronic resources that offer access to a wide range of information across various disciplines, significantly enhancing research capabilities, especially in developing countries where many publishers provide free access. General databases, such as Emerald, Science Direct, and Academic Search Premier, offer extensive e-journals and e-books for comprehensive research. Specialized databases like PubChem and ChemSpider focus on specific fields like chemistry, supporting targeted literature searches (Ghani, 2020). Bibliographic databases such as DOAJ and JSTOR are crucial for thorough literature reviews and bibliometric analyses (Ghani, 2020). Since no single database encompasses all research areas, libraries must prioritize their needs in database selection to optimize resource use (Ghani, 2020).

Tella, Orim, Dauda, and Suleiman (2018) define an electronic database as a computerized record of organized information. Users can utilize computer programs to select specific data within these databases, which encompass periodical indexes, abstracts, directories, encyclopedias, dictionaries, and other reference materials. They offer search capabilities by subject, type, title, or

keyword, including Boolean logic features. This article examines various types of databases used in academic libraries, their importance, and their role in enhancing the academic experience. Overall, electronic databases are digital information resources containing data on diverse subjects, accessible through internet-connected technologies.

Types of Databases in Academic Libraries

Academic databases are provided by different agencies and companies depending on the kind of sponsorships or purpose they were made to serve. Bodies, associations, institutes, government agencies, and commercial enterprises have become the major sources of databases over the years. There are different types of databases available to academic institutions over the globe.

3.1   **Free Databases:** Free databases are those that publishers offer without any financial obligation for users or their institutions. While some may receive support from grants, foundations, and donations, they largely aim to promote the open access movement by providing curated content at no cost. Examples include IMF eLibrary, Family Search, Film Literature Index, ERIC (Public), Directory of Open Access Journals (DOAJ), Digital Commons Network (Bepress), BioMed Central Databases, Bielefeld Academic Search Engine (BASE), Internet Archive, Knowledge Unlatched, Research Connections in Child Care & Early Education, and ScholarWorks.

3.2   **Fee-based (Subscription-based):** Fee-based databases, also referred to as subscription-based databases, differ significantly from their free counterparts. These fee-based databases offer meticulously curated information content that is typically created and hosted by various vendors or companies in the industry. To access this high-quality content, users or institutions must pay a predetermined subscription fee, which acts as a premium for the privilege of utilizing these resources. While the costs associated with accessing these databases can often be quite high, the richness and depth of the information provided make them a valuable investment for researchers, students, and professionals alike. Some widely recognized examples of such fee-based databases include ProQuest Central, which is popular among academic institutions, and ScienceDirect, known for its extensive collection of scientific journals. Other notable services encompass Sage Knowledge, Project MUSE, and the IEEE Xplore

Digital Library, each offering specialized content in their respective fields. Additionally, the Social Science Research Network (SSRN) provides resources focusing on social science research, while HeinOnline offers comprehensive legal research materials. LinkedIn Learning serves as a platform for professional development, and the World Bank eLibrary presents valuable economic and development data. Lastly, WorldCat (First Search) assists users in locating library resources globally. All of these examples underscore the importance of subscription-based databases as critical tools for obtaining

Category of Databases in Academic Libraries
Scholarly Article Databases

Scholarly article databases are indispensable in academic libraries. They provide access to peer-reviewed journals and articles across various disciplines. Key databases include:

i. **PubMed**: This is a leading database for biomedical literature, offering access to millions of citations and articles in the fields of medicine, life sciences, and related disciplines.

ii. **JSTOR**: Journal Store (JSTORE) is known for its extensive archive of scholarly journals in the humanities, social sciences, and natural sciences, JSTOR is a vital resource for researchers.

iii. **IEEE Xplore**: This is focused on electrical engineering, computer science, and electronics, IEEE Xplore offers a vast repository of conference papers, journal articles, and technical standards.

E-Book Databases

E-book databases provide digital access to books, facilitating convenient and flexible learning. Prominent e-book databases include:

i. **ProQuest Ebook Central**: This is a comprehensive collection of e-books covering a wide range of subjects such as business, economics, science and technology.

ii. **SpringerLink**: This database offers access to thousands of e-books and e-journal articles in the sciences, engineering and medicine.

iii. **EBSCOhost e-Books**: This database provides a diverse collection of e-books across various academic disciplines, with features like full-text searching and customisable reading experiences.

Subject-Specific Databases

These databases cater to specific fields of study, offering specialised resources that support in-depth research. Examples include:

i. **PsycINFO:** This is an essential database that is mainly for psychology and behavioral sciences. PsycINFO includes abstracts and citations of scholarly articles, books, and dissertations.

ii. **ERIC (Education Resources Information Center):** ERIC focuses on education research and practice, providing access to journal articles, research reports, and conference papers.

iii. **ChemSpider:** This is a free chemical structure database providing access to millions of structures, properties, and associated information in the field of chemistry and other related science based disciplines.

Statistical and Data Databases

Statistical databases are databases that provide access to quantitative data, crucial for research in fields like economics, sociology and political science among others. Some of the key databases include:

i. **Statista:** Offers statistics and data on over 80,000 topics from market research, industry reports, and public opinion surveys.

ii. **ICPSR (Inter-university Consortium for Political and Social Research):** Provides access to a vast archive of social science data, including datasets for research and teaching.

iii. **World Bank Open Data:** Contains a wealth of global development data, including statistics on economics, health, and education.

Multimedia and Image Databases

These databases offer access to a variety of multimedia resources, including images, videos, and audio recordings. Important databases in this category include:

i. **Artstor:** A digital library of high-quality images from museums, libraries, and archives, covering art, architecture, and cultural history.

ii. **Kanopy:** Provides access to thousands of films, documentaries, and educational videos, supporting visual and media studies.

iii. **Naxos Music Library:** An extensive collection of classical music recordings, providing valuable resources for music education and research.

Theses and Dissertations Databases

Databases for theses and dissertations are essential for accessing graduate-level research and exploring new academic contributions. Notable databases include:

   i. **ProQuest Dissertations & Theses Global**: The largest collection of dissertations and theses from around the world, offering full-text access to a wealth of scholarly work.

   ii. **Networked Digital Library of Theses and Dissertations (NDLTD)**: A global repository of electronic theses and dissertations, supporting the dissemination of academic research.

Significance of Databases in Academic Libraries

The significance of electronic databases in academic libraries cannot be overemphasized. Some of the significance includes:

   i. **Access to Comprehensive Information**: Databases provide users with access to variety of information that are current, relevant and useful for supporting academic and research activities in the academic environment.

   ii. **Support for Interdisciplinary Research**: With databases covering various subjects, libraries support interdisciplinary research, enabling scholars to explore connections across fields.

   iii. **Enhanced Learning and Teaching**: Databases provide resources that enhance the educational experience, from e-books and multimedia for coursework to specialized datasets for advanced research projects.

   iv. **Convenience and Accessibility**: Digital databases offer 24/7 access to resources, making it easier for users to find and retrieve information from anywhere at any time.

   v. **Quality and Credibility**: Academic databases often include peer-reviewed and authoritative content, ensuring that students and researchers access reliable and high-quality information.

Criteria for Selecting Databases

   i. **Coverage** – different databases have different focus in terms of disciplines and areas they consider in their scope of coverage. There are general and discipline specific databases. General databases are usually more of a "jack of all trades" outlook with reach into many fields of disciplines and research areas covering both journals and electronic books (eBooks). Their

prices are usually very high and more suitable for large universities, polytechnics, colleges of education.

ii.   **Specialization** – there are so many data providers today, with many trying to provide as much as possible presented as an all-in-one- solution. However, there are numerous specialist databases which provide streamlined rich content in particular fields, subject areas, and disciplines. Hein Online for instance provides more depth than ProQuest does in terms of Law and the legal profession.

iii. **General Acceptance and Use** – feedback is an important criterion used in assessing database provider services. After years of service provision, some of these providers have distinguished themselves, becoming household names in the academic community and hence are naturally considered ahead of their peers regardless of current coverage or strengths. They already have an advantage during the selection consideration process.

iv.   **Reputation of Vendor/Provider** – that has always been a recurring criterion used during selection in the library and information profession. The popularity and renown of vendors always sway decisions in their favour, plus the pricing advantage it affords the vendors.

v.   **Accreditation Body Requirements** – accrediting bodies have in many cases identified preferred online databases and usually tend to muzzle institutions to kowtow by subscribing to those. In Nigeria, there are some poster databases that always recurrent among the team of accreditors when they come for accreditation exercises.

vi.   **Cost Implication and Budgetary Allocation** – many academic databases worth their salt come with high price tags. They are usually expensive (coupled with the free fall of the Nigerian Naira making it worse). Budgetary allocations for most institutions are usually thin, while creating space to accommodate databases usually wipes out a larger chunk of the budget, meaning other aspects that need developing suffer. This to a large extent has stifled sustenance of subscription to online databases particularly in Nigeria.

vii. **Size of institution** – size is also another consideration when making plans to subscribe to online databases. Smaller institutions struggle to subscribe to popular databases due to the prohibitive cost implication and

considering their user population and budgetary allocation. Bigger institutions with graduate programs tend to be able to keep with the subscription costs.

Database Subscription

Database subscription is the fee paid by academic libraries, institutions, or individuals for access to electronic information from a database vendor for a specified period. Irenoa and Sawyerr-George (2022) noted that these databases are designed to meet the needs of library users and researchers through user-friendly platforms, including web portals, mobile applications, and storage devices like eGranary by Widernet Solutions and The Essential Economic and Agricultural Library (TEEAL). Some databases on storage devices can be purchased with a one-time payment and may include update options, such as eGranary. Pricing and content packages typically depend on the institution's type, size, and scope. While some content is available online and requires internet access, vendors offer various methods for accessing their resources. Irenoa and Sawyerr-George (2022) outlined several of these methods as follows:

i. **Username and Password model** – This is a very simple model, where after payments have been made for subscription, the institution or user is provided with a username and password so that they can access their paid content from any location using an internet-ready device.

ii. **Shibboleth Single Sign-on architecture** – This is a single sign-on log-in system for computer networks and the internet that facilitate allowing users to sign in using just one identity to various systems run by federations of different organisations or institutions (universities or public service organizations).

iii. **OpenAthens** – This is an identity and access management service provided by JISC (a UK based not-for-profit information technology services company). These identity provider organizations keep usernames in the cloud, locally or both.

iv. **IP Address Authentication** – This is a traditional method of identifying users requesting access to databases. Users gain access based on their computer or site IP address, eliminating the need for User IDs and passwords.

Database Subscription Management

Databases require regular subscriptions for uninterrupted user access. However, institutions in developing countries face challenges in maintaining these subscriptions due to factors such as high costs, currency devaluation, limited library budgets, and managerial constraints. These issues hinder libraries' efforts to sustain subscriptions to reputable academic databases. Effective management of database subscriptions necessitates careful planning and consideration. Subscriptions are typically periodic (annual, monthly, etc.), based on agreements between vendors and institutions.

Many Nigerian institutions struggle to subscribe to databases, and those that do often find it difficult to maintain their subscriptions. The prohibitive costs, weak currency purchasing power, lack of interest from management, difficulty securing funding, and poor awareness of the value of these subscriptions among academics and administrators contribute to the challenges faced by many tertiary institutions in Nigeria (Irenoa and Sawyerr-George, 2022).

Nigerian Academic Libraries' Situation

Electronic databases are essential research tools that enhance the use of print resources in libraries. In the context of Nigeria, a study by Irenoa and Sawyerr-George (2022) surveyed tertiary institutions and found that Science Direct (Elsevier), Academic Search Premier (EBSCOHost), and ProQuest were the most widely accepted and utilized databases. The study highlighted that institutions preferred academic databases with broad coverage and sufficient depth to support various specializations. Additionally, the reputation and overall acceptance of these databases heavily influenced decision-making among library management. Recommendations for subscribed databases typically came from library committees, while the final decisions were made by university librarians. Budget constraints significantly hindered the ability to maintain subscriptions to esteemed academic databases like ProQuest, Science Direct, and EBSCOHost. Inadequate infrastructure issues, such as unstable power supply, poor internet connectivity, and insufficient working stations, further complicated access.

Furthermore, research by Oyadeyi, Oladokun, Shorunke, and Fasola (2021) indicated that EBSCOhost and Research4Life were the most accessed online electronic databases in Nigerian institutions. However, users faced several challenges, including a lack of awareness about available databases, irregular

power supply, poor internet access, and insufficient information literacy and retrieval skills.

In universities in Northern Nigeria, a study by Lawal and Bappah (2023) found a positive attitude among lecturers towards electronic databases. These lecturers utilized databases extensively for various academic purposes. The study concluded that lecturers had an encouraging perspective regarding database usage. Similarly, research by Ajani, Ismaila, and Ayodele (2021) revealed that lecturers at Kwara State University used databases mainly for research, staying updated on current trends, and checking published materials. During the Covid-19 pandemic, the ERIC database was the most frequently used, followed by JSTOR, J. Gate, ARDI, GOALI, LAW PAVILION, and OARE. The study also pointed out significant challenges during this period, including power outages, inadequate internet facilities, and lack of data for network access.

In Southeastern Nigeria, a study by Obiano, Nwosu, James, and Nworie (2023) found that the use of library database management systems in university libraries is low, especially in state universities compared to federal universities. Additionally, research by Obiamalu, Ogungbeni, and Obuezie (2021) showed that undergraduates at Michael Okpara University of Agriculture, Umudike, are highly aware of e-databases like TEEAL, AGORA, HINARI, and EBSCO HOST. Most students learned about these resources through friends, lecturers, library orientations, the university website, library website, and librarians. However, the usage of TEEAL and AGORA among these undergraduates remains low.

In Southwestern Nigeria, Okunoye (2020) found that postgraduate students had limited access to available online databases and showed poor familiarity with electronic library resources, with JSTOR being the most recognized. The study indicated positive attitudes toward using these resources among students in two academic libraries in the region. Adesola and Ojemola (2021) discovered that academic staff at Bowen University were aware of e-databases mainly through librarians and announcements aimed at enhancing their research and teaching effectiveness. However, challenges such as user-unfriendly interfaces, restrictive library policies, and poor internet access hindered the usage of these resources. Similarly, Idowu and Eiriemiokhale (2020) reported that many electronic databases are accessible in public university libraries in Southwestern Nigeria, with above-average awareness among university lecturers regarding these resources for teaching and research. The study concluded that university libraries in this

region are not doing enough to promote their electronic databases and recommended increased marketing efforts to raise awareness.

Challenges and Future Directions

Despite their importance, academic libraries face challenges in maintaining and expanding their database collections:

i. **Funding and Budget Constraints**: Acquiring and subscribing to databases can be expensive, and budget limitations can restrict access to essential resources.

ii. **User Training and Support**: Ensuring that users are proficient in navigating and utilizing databases effectively is crucial. Libraries must invest in training and support services.

iii. **Evolving Technology**: As technology evolves, libraries must keep up with advancements in database platforms and access methods, ensuring that their collections remain relevant and accessible.

Conclusion

Online databases are essential in academic libraries, supporting teaching, research, and learning for lecturers, students, and researchers. They offer relevant, current, and reliable information that enriches the academic experience and fosters the pursuit of knowledge. However, academic libraries in Nigeria and other developing countries face challenges such as high subscription costs, currency devaluation, low budget allocations, and managerial constraints. Despite these obstacles, libraries continue to play a crucial role in providing access to high-quality information. Looking ahead, we can expect greater integration of artificial intelligence and machine learning in database search and retrieval, enhancing the user experience. Additionally, open access initiatives will expand, increasing the availability of scholarly resources without subscription barriers.

References

Adesola, A. P. & Ojemola, O. I. (2021). An Assessment of the Use of Electronic Databases by Academic Staff, Bowen University, Nigeria. *International Journal of Library and Information Services*, 10(2): 1-15. DOI: 10.4018/IJLIS.20210701.oa8.

Ajani, F. O., Ismaila, Y. A. & Ayodele, R. O. (2021). Assessment of Library Database Utilisation for Academic Activities among Kwara State University Lecturers during Covid-19 Pandemic Period. *Journal of applied Information Science and Technology*, 14 (2): 89-97.

Ghani, S. S. (2020). A comprehensive review of database resources in chemistry. *Eclética Química, 45(3), 57–68*. https://doi.org/10.26850/1678-4618eqj.v45.3.2020.p57-68

Idowu, A. O. &Eiriemiokhale, K. A. (2020). Availability and Awareness of Electronic Databases for Teaching and Research by Lecturers in Public Universities in South-West, Nigeria.*Indian Journal of Information Sources and Services*, 10(1): 27 – 35.

Irenoa, K. O. & Sawyerr-George, O. E. (2022). An Assessment of Academic Database Subscription Management in Nigerian Tertiary Institutions: Challenges and Prospects. *Library Philosophy and Practice (e-journal)*. 7419. https://digitalcommons.unl.edu/libphilprac/7419.

Ivwighreghweta, O. & Eireyi-Fidelis, S. (2022). Usage of Electronic Academic Database Resources among Lecturers and Postgraduate Students in Western Delta Universities, Oghara, Delta State, Nigeria. *International Journal of Librarianship*, *7*(2), 106-112. https://doi.org/10.23974/ijol.20 22.vol7.2.250.

Kwadzo, G. (2015). Awareness and Usage of Electronic Databases by Geography and Resource Development Information Studies Graduate Students in the University of Ghana. *Library Philosophy and Practice (e-journal)*. Paper 1210. http://digitalcommons.unl.edu/libphilprac/1210.

Lawal, H. & Bappah, M. A. (2023). Attitude and the Use of Electronic Databases by Lecturers in Universities in Katsina State, Nigeria. *International Journal of Applied Technologies in Library & Information Management*, 9 (3) 01 – 11.

Nnakire, S. N. (2012). Use of electronic information resources by postgraduate students of LIS department NAU.Unpublished thesis.

Obaseki, T. I., Oye, P. O. & Mamman, E. S. (2012). Furthering use of electronic information resources in services provision for sustainable development. Proceedings of 12th annual conference.Annual General Meeting of Nigeria Library Association, Enugu state chapter, Enugu, Nigeria.59-64.

Obiamalu, A. R., Ogungbeni, J. I. & Obuezie, A. C. (2021). Extent of Awareness and Usage of Electronic Databases by Undergraduates in Michael Okpara University of Agriculture, Umudike, Nigeria.*Unizik Journal of Educational Research and Policy Studies*. 6. Available via: http://sjifactor.com/passport.php?id=21363

Obiano, D. C., Nwosu, J. C., James, N. C. & Nworie, J. C. (2023). Application of Library Database Management Systems in University Libraries in Southeastern Nigeria. *Journal of Library Services and Technologies*, 5(2), 117 – 126.

Okunoye, O. O. (2020). Awareness, Access and Attitude of Postgraduate Students towards Use of Electronic Databases in Two Academic Libraries in South-West Nigeria. *Journal of applied Information Science and Technology*, 13 (1): 257 – 264.

Olufemi, S. J., Apagu, L. & Tor, S. F. (2022). Awareness and Utilisation of Online Subscription Databases Among Postgraduate Students in Ahmadu Bello University, Zaria. *Covenant Journal of Library & Information Science (CJLIS)*, 5(1): 1 – 15.

Oyadeyi, A. E., Oladokun, T. A., Shorunke, O. A. & Fasola, O. S. (2021). Return on Investment (ROI) in Subscription Databases by Nigerian Academic Libraries. *Folia Toruniensia*. DOI: http://dx.doi.org/10.12775/FT.2021.003.

Tella, A., Orim, F., Dauda, M. I., & Suleiman, A. M. (2018). The use of electronic resources by academic staff at the University of Ilorin, Nigeria. *Education and Information Technologies*, *23* (1). Advance online publication. doi:10.1007/s10639-017-9577-2.

Valente, A., Holanda, M., Mariano, A. M., Furuta, R., & Da Silva, D. (2022). Analysis of Academic Databases for Literature Review in the Computer Science Education Field. *2022 IEEE Frontiers in Education Conference (FIE).* https://doi.org/10.1109/fie56618.2022.9962393