

UTILIZATION OF INNOVATIVE TECHNOLOGIES FOR EFFECTIVE SERVICE DELIVERY IN UNIVERSITY LIBRARIES OF RIVERS STATE, NIGERIA.

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Abstract

Purpose: This study investigated The Utilization of Innovative Technologies for Effective Service Delivery in university libraries in Rivers State. In order to achieve the purpose of study, four specific objectives and four research questions were formulated to guide the study.

Design/Methodology/Approach: The descriptive survey research design was used for the study. The population of the study was 55 staff working in the library. The census sampling technique was used since the entire population of the study is manageable. A structured questionnaire called the "Utilization of Innovative Technologies for Effective Service Delivery Questionnaire" (UITESDQ) was used to gather data for the study. The data obtained from retrieved copies of questionnaire were analyzed using frequency and simple percentage and, mean weight.

Implication: The study shows that Open Educational Resources (OER) Platforms, Electronic Resource Management Software, Electronic databases, e-books and e-journals, Interactive learning tools, multimedia resources, social sites and digital repositories were available while, online collaboration platforms, data analytics software, library chatbots, mobile library apps and online catalogue were not available in university libraries in Rivers State

Originality/Value: The study emphasized that university library management should provide emerging technology training for library staff to ensure proficiency in using and supporting these technologies and assist users effectively.

Keywords: Innovative, Utilization, Technolog, Service Delivery, Library

Paper Type: Empirical Study

Introduction

A university library is regarded as the heart of the intellectual life of the university. The quality of the university is measured largely by the quality of its library because of its unique role in the university system. No university can exist without a library since the university is meant to teach and carry out research. For the undergraduates, the library is supposed to provide information materials and services specifically designed to meet their needs. For the postgraduate students, teaching staff and research fellows, the university library is supposed to provide

information resources and services of sufficient quality and diversity.

The university library provides variety of services. It serves all the areas of knowledge taught in the university (Nyakweba, Muwanguzi, Nakato and Ratanya, 2021). Consequently, university library is sometimes decentralized with a main library coordinating departmental and faculty libraries. According to Du and Evans in Nyakweba, Muwanguzi, Nakato and Ratanya (2021) library online databases, reference, interlibrary loans and document delivery were the services most familiar to and utilized by academic users. For a

university library to perform its several functions, its collection must not only include books but also other materials such as general and specialized reference collections, made up of journals, newspapers, manuscripts, historical maps, government publications, clippings, letters, thesis, and audiovisual materials. University library also provides research materials and other bibliographic services to help both staff and students in the areas of their research interest. They also provide collections for leisure, recreation and personal development, provision of accommodation to enhance learning and reading. They also provide maintenance and security for the acquired information resources.

The main functions of university libraries are acquisition, organization, interlibrary loan preservation, user orientation programmes, display of new arrivals and dissemination of information to users (LIS Education Network, 2023). The development of library services is generally correlated to the development of educational programmes. University libraries have not only become instruments for national development but are today regarded as centres for academic research. They contain far more information than any person could imagine. The roles of university libraries cannot be over-emphasized. This is why the quality of education received in any institution of higher learning is measured by the resources in its library and the extent of use of those resources by the students and meeting their information need. Meeting the information needs of users requires the provision of actual library services that will satisfy the needs of users.

Library services are those services rendered by libraries to serve its users' need. University Libraries carry out different services such as indexing and abstracting, current awareness services, Selective

Dissemination of Information (SDI) and answering of user's queries to ensure that users of the library are satisfied. According to Ebiwole in Agoh and Omekwu (2021), library services delivered by libraries generally include referral services (RS), Current Awareness Services (CAS), Selective Dissemination of Information (SDI), Internet Services (IS), Inter-Library Loan Services (ILLS), Reference Services (RS) and Circulation Services (CS). As the library delivers these services through information management professionals, the availability of these library resources does not guarantee their access and use by the university community. The university library administrators are expected to stimulate, enhance, and sustain the interest of users in visiting the library and using the information contained therein. The knowledge of how to access and use information in the library so as to improve their work can lead to effective service delivery.

Library service delivery is very important in the university library. According to McMahon in Tom-George (2022) university libraries should aim at providing services, support whatever curricula is designed by the tertiary institutions; assist specialists with any curriculum that will be able to help students and faculty at any research level; instruction in the most efficient use and conducive spaces for learning and the most recent technological equipment that may be used with futuristic tendencies. Library materials including online resources and internet are used in order to answer patrons' reference questions, to teach library patrons how to search for information using databases, to keep records of circulation and materials and catalogues in order to select and order print of electronic resources.

For a university library to deliver its services effectively, its collection must not

only include books or print materials but also non-print and other materials such as general and specialized reference collections, made up of journals, newspapers, manuscripts, historical maps, government publications, clippings, letters, thesis, and audio-visual materials. University library also provides research materials and other bibliographic services to help both staff and students in the areas of their research interest. In line with this, some of the functions of the academic library as Obi in Tom-George (2022) outlines are: to provide information materials for academic programmes of the parent institution; to provide information materials peculiar to the needs of faculty or school and research scholars; to provide study accommodation in good locations; to provide security for library materials; to cooperate with other libraries at appropriate levels for improved information services; to provide specialised information to appropriate segments of the community. In order to ensure effective services delivery in university libraries, there is need for utilization of innovative technologies.

Innovative technologies are those technologies used to collect, store, edit and communicate information in various format (Raji, 2018). They are used to improve access to digital information, narrows down the digital divide and also improves standard of living. Adoption of ICT in libraries is a way of improving on information services provided in libraries (Adebayo, Ahmed & Adeniran, 2018). Innovative technologies refer to all technologies used to handle telecommunications, broadcast media, intelligent building management systems, audiovisual processing, transmission systems, and network-based control and monitoring functions.

Tukur and Adamu in Adebayo, Ahmed & Adeniran, (2018) described innovative technologies as the use of

computer-based technology and internet for making information and communication services available to a wide range of users. The term is broadly used to refer to a range of technologies including telephones, e-mail and so on. Central to the range of technologies is the internet, which provides the mechanism for transporting data in a number of formats such as text, images, sound and video. ICT is system that enables information to be collected, analyzed, processed and disseminated. Utilization of innovative technologies are numerous, but mainly it is used in converting the existing paper-print records in the entire process of storage, retrieval and dissemination. Innovative technologies are important resources of modern library or information centers.

In university libraries, innovative technology is the electronic means of capturing, processing, storing and communicating information. Umana (2018) identified computers, internet, www, video conferencing, OPAC, and so on as innovative technologies in university libraries imperative in actualizing Nigeria's sustainable development goal. The term is commonly used as a synonym for computers and computer networks, but it also encompasses other information distribution technologies such as television and telephones. Umana (2018) also presented a definition that innovative technology involves the use of computers in the digital processing and utilization of information. It comprises of the storage, retrieval, conversion and transmission of information.

Libraries and information centers have been using innovative technologies in providing services to satisfy the diverse information needs of their users. However, these technologies are not utilized fully. Under-utilization of these technologies has been a cause of concern to librarians

worldwide (Umana (2018). The use of innovative technologies has become increasingly important in university libraries. University libraries are switching over to technological based resources and services at an accelerated pace. E-journals, CD-ROM databases, online databases, ebooks, web based resources and a variety of other electronic resources are fast replacing the traditional resources of university libraries.

The use of innovative technologies is a boost to the library services as it now assists many librarians to use their technological potentials to reach out to library users. Chisenga in Adebayo, Ahmed & Adeniran (2018) identified some of the technology-based services that can be accessed by users as follows: provision of web access to OPAC, electronic document delivery, online instruction/user education, online readers' advisory services and networked information services. Other library services as highlighted by Idowu in Adebayo, Ahmed & Adeniran (2018) include: Reference Service, Current Awareness Services (CAS), Selective Dissemination of Information (SDI), Reprographic Service, Exhibition and Display, Technical Services, Serials Control, Computerized Interactive Search, Borrowing, Renewing and Reserving.

This is an era, when people need to access timely information with ease, and this can only be done through the use of innovative technologies to provide library services. It is also a way of contributing to sustainable development of the nation, since timely and effective provision of useful information can assist in building up a society. According to Adebayo, Ahmed and Adeniran (2018), innovative technologies as enabling tools, assist librarians in provision of information, which is very paramount to development of the various sectors in the nation. It is on this background that the study sought to investigate the utilization of

innovative technologies for effective service delivery in institutions libraries in Rivers State.

Statement of the Problem

The evolution of the innovative technologies in the library has brought about an exponential increase in the use of information resources for service delivery. This has made it possible for service delivery to go beyond the four walls of the library. As a result, library resources are no longer restricted to the traditional library tools but with the use of innovative technologies, it has also included online resources. The essence is to enhance service delivery beyond the library at any time and to provide more current resources beyond the physical library's collection. Without this, the library will still be limited to traditional method of service delivery which is old and time consuming and will be negating two of the five rules of librarianship which states thus: "save the time of the users" and "the library is a growing organism".

Preliminary observation by the researcher shows that although the library has introduced most of the necessary innovative technologies needed for effective service delivery, librarians are yet to fully make use of these technologies in order to enhance service delivery. Most of them are yet to adapt to the use of these technologies. This might have affected effective service delivery in the library. Consequently, little or no study known to the researcher have been carried out so far on utilization of innovative technologies for effective service delivery in institutions libraries in Rivers State. This is the gap this study sought to fill.

Purpose of the Study

The general purpose of the study was to determine the utilization of innovative technologies for effective service delivery in

institutions libraries in Rivers State. Specifically, the objectives of the study were to:

1. identify the innovative technologies available for use for effective service delivery in university libraries in Rivers State;
2. determine the extent of innovative technology utilization for effective service delivery in university libraries in Rivers State;
3. ascertain the challenges affecting utilization of innovative technologies for effective service delivery in university libraries in Rivers State;
4. proffer possible strategies for enhancing utilization of innovative technologies for effective service delivery in university libraries in Rivers State.

Research Questions

The following research questions will guide the study:

1. What are the innovative technologies available for use for effective service delivery in university libraries in Rivers State?
2. What is the extent of innovative technology utilization for effective service delivery in university libraries in Rivers State?
3. What are the challenges affecting utilization of innovative technologies for effective service delivery in university libraries in Rivers State?
4. What are the possible strategies for enhancing utilization of innovative technologies for effective service

delivery in university libraries in Rivers State?

Methodology

The study employed a descriptive survey design to gather data on the perceptions and experiences of respondents regarding the utilization of innovative technologies for effective service delivery in libraries in Rivers State. The population of the study comprised of 55 library staff (20 professionals and 35 paraprofessionals) from Rivers State University Central Library and the Donald Ekong Library at the University of Port Harcourt. The entire staff working in the two libraries under study were included in the sample. The study employed a census sampling technique due to the manageable size of the population. The data collection instrument for this study was a structured questionnaire called the "Utilization of Innovative Technologies for Effective Service Delivery Questionnaire" (UITESDQ). The research questions formed the basis of data analysis. The results of the analysis of data obtained were presented in line with the research questions outlined to guide this study. The collected data were analyzed and presented using mean scores, frequencies and percentages. A total of 55 copies of the questionnaire were distributed to the respondents and 55 copies were returned and found useable, thus 100% return rate. The responses were presented in tables accompanied with brief interpretations.

Analysis of Data and Results

Research Question 1: What are Innovative Technologies Available in University Libraries in Rivers State?

Table 1: Percentage rating of Innovative Technologies Available in University Libraries in Rivers State

S/N	ITEMS	Available	Not Available	Decision
1	Electronic databases, e-books and e-journals	55(100%)	0(0%)	Available

2	Online Catalogue	55(100%)	0(0%)	Available
3	Digital Repositories	50(91%)	5(9%)	Available
4	Interactive learning tools and multimedia resources	42(76%)	13(24%)	Available
5	Online Collaboration Platforms	37(67%)	18(33%)	Available
6	Data Analytics Software	29(53%)	26(47%)	Available
7	Mobile Library Apps	25(45%)	30(55%)	Not Available
8	Social Sites	22(40%)	33(60%)	Not Available
9	Electronic Resource Management Software	18(33%)	37(67%)	Not Available
10	Open Educational Resources (OER) Platforms	15(27%)	40(73%)	Not Available
11	Library Chatbots	12(22%)	43(78%)	Not Available

Table 1 shows the percentage response of innovative technologies available in University Libraries in Rivers State. From the table the available innovative technologies include electronic databases, e-books and e-journals (100%), Online Catalogue (100%), digital repositories (91%), interactive learning tools and multimedia resources (76%), online collaboration platforms (67%) and data analytics software (53%). Those not available include Mobile Library Apps

(45%), Social Sites (40%), Electronic Resource Management Software (33%), Open Educational Resources (OER) Platforms (27%) and Library Chatbots (22%).

Research Question 2: What is the extent of Innovative Technology Utilization in University Libraries in Rivers State?

Table 4.2: Mean Rating of extent of Innovative Technology Utilization in University Libraries in Rivers State

		N=55					
S/N	ITEMS	VHE	HE	LE	VLE	\bar{x}	Decision
1	Electronic databases, e-books and e-journals	27	26	2	0	3.45	Accepted
2	Online Catalogue	27	24	4	0	3.42	Accepted
3	Digital Repositories	30	17	8	0	3.40	Accepted
4	Electronic Resource Management Software	28	21	6	0	3.40	Accepted
5	Interactive learning tools and multimedia resources	27	16	12	0	3.27	Accepted
6	Social Sites	26	18	11	0	3.27	Accepted
7	Open Educational Resources (OER) Platforms	19	17	19	0	3.00	Accepted
8	Data Analytics Software	20	12	23	0	2.95	Accepted
9	Online Collaboration Platforms	20	11	22	2	2.89	Accepted

10	Mobile Library Apps	19	12	21	3	2.85	Accepted
11	Library Chatbots	16	15	20	4	2.78	HE

Key: VHE-Very High Extent; HE-High Extent; LE-Low Extent; VLE-Very Low Extent; N-Total; X-Mean; D-Decision

Table 2 shows the mean response the extent of Innovative Technology Utilization in University Libraries in Rivers State. From the table it shows that electronic databases, e-books and e-journals (3.45), online Catalogue (3.42), digital Repositories (3.40), electronic Resource Management Software (3.40), interactive learning tools and multimedia resources (3.27), social Sites (3.27), open Educational Resources (OER) Platforms

(3.00), data analytics software (2.95), online collaboration platforms (2.89), mobile library apps (2.85) and library chatbots (2.78) are used to a high extent.

Research Question 3: What are the challenges Affecting Utilization of Innovative Technologies in University Libraries in Rivers State?

Table 3: Mean rating of the challenges Affecting Utilization of Innovative Technologies in University Libraries in Rivers State

		=55					
S/N	ITEMS	SA	A	D	SD	\bar{x}	Decision
1	Limited access to stable internet connections in the library.	27	26	2	0	3.45	Accepted
2	Lack of maintenance culture.	27	26	2	0	3.45	Accepted
3	Insufficient funds.	30	17	8	0	3.40	Accepted
4	Insufficient training or guidance on how to effectively use innovative technologies in the library.	28	21	6	0	3.40	Accepted
5	Power failure.	28	21	6	0	3.40	Accepted
6	Inadequate availability of computers or devices to access electronic resources in the library.	26	18	11	0	3.27	Accepted
7	The library's website and online systems are not always reliable coupled with technical issues experienced.	20	12	23	0	2.95	Accepted

Key: SA-Strongly Agree; A-Agree; D-Disagree; SD-Strongly Disagree; N-Total; X-Mean; D-Decision

Table 3 shows the mean response the challenges affecting utilization of innovative technologies in university libraries in Rivers State. From the table, the challenges accepted include limited access to stable internet connections in the library (3.45), lack of maintenance culture (3.45), insufficient funds (3.40), insufficient training or guidance on how to effectively use innovative technologies in the library (3.40), power failure (3.40) inadequate availability of

computers or devices to access electronic resources in the library (3.27) and the library's website and online systems are not always reliable coupled with technical issues experienced (2.95).

Research Question 4: What are the strategies for Enhancing Utilization of Innovative Technologies in University Libraries in Rivers State?

Table 4: Mean rating of the strategies for Enhancing Utilization of Innovative Technologies in University Libraries in Rivers State

		N=55					
S/N	ITEMS	SA	A	D	SD	\bar{x}	Decision
1	Improving internet connectivity and ensuring stable access to digital resources within the library premises.	25	25	0	0	3.55	VA
2	Budget allocation and advocacy.	29	20	6	0	3.42	A
3	Providing regular training sessions or workshops to educate library users on effectively utilizing innovative technologies.	28	21	6	0	3.40	A
4	Increasing the availability of computers or devices dedicated to accessing electronic resources in order to increase library patronage.	27	20	8	0	3.35	A
5	Updating and maintaining the library's website and online systems to enhance usability and reliability.	27	18	10	0	3.31	A

Table 4 shows the mean response the strategies for enhancing utilization of innovative technologies in university libraries in Rivers State. From the table, improving internet connectivity and ensuring stable access to digital resources within the library premises (3.55).

However, budget allocation and advocacy (3.42), providing regular training sessions or workshops to educate library users on effectively utilizing innovative technologies (3.40), increasing the availability of computers or devices dedicated to accessing electronic resources in order to increase library patronage (3.35) and updating and maintaining the library's website and online systems to enhance usability and reliability (3.31).

Discussion of Findings

The Innovative Technologies Available in University Libraries in Rivers State

This study revealed that the innovative technologies available in University Libraries in Rivers State include electronic databases, e-books and e-journals, Online

Catalogue, digital repositories, interactive learning tools and multimedia resources, online collaboration platforms and data analytics software. This relates to a study carried out by Olatunji (2022) that technologies are characterized by their ability to introduce new ideas, approaches, and functionalities that enhance efficiency, effectiveness, and user experiences. Examples of innovative technologies include artificial intelligence (AI), Internet of Things (IoT), virtual reality (VR), blockchain, and 3D printing. Amid 18 emerging technologies, adoption is stumpy, only an infinitesimal number (WebOPAC, library website, Cybrary, social media and Institutional repository) considered, and awareness remained high. Technologies like RFID, Integrated Library Management System, Library Guide app and Internet of Things were inclusively preferred based on usefulness and the nature of the learning environment. Although, emerging technologies received overwhelming reception based on readiness, its full implementation by regulatory and funding bodies including parent institutions is constrained by underfunding among others.

Adejumo (2023) concurred that Innovative technologies share common elements and features that contribute to their transformative nature. They often incorporate cutting-edge scientific and engineering knowledge, harnessing emerging trends and breakthroughs. These technologies are characterized by their disruptive nature, challenging traditional practices and introducing novel ways of doing things. They are typically scalable, adaptable, and have the potential for continuous improvement, ensuring relevance in dynamic environments. The implications of innovative technologies are far-reaching and impact various sectors of society. In education, these technologies offer new avenues for interactive and personalized learning, facilitating access to knowledge and resources. In healthcare, they enable advancements in diagnostics, treatment, and telemedicine, enhancing patient care and outcomes. Innovative technologies also have implications for economic development, as they drive digital transformation, foster innovation, and create new industries and job opportunities.

The extent of Innovative Technology Utilization in University Libraries in Rivers State

The study revealed that the innovative technologies used to a high extent in University Libraries in Rivers State include electronic databases, e-books and e-journals, Online Catalogue, digital repositories, interactive learning tools and multimedia resources, online Catalogue, digital Repositories, electronic Resource Management Software, interactive learning tools and multimedia resources, social Sites, open Educational Resources (OER) Platforms, data analytics software, online collaboration platforms, mobile library apps and library chatbots. This study disagreed to a study that was carried out by Adaayi, Kudu, Dutse and Nathaniel (2021). The study

empirically investigated the extent of utilization of social media for effective Library and Information Service delivery in selected university libraries in Abia State, Nigeria. Their research findings revealed that, both ABSU, Library and MOUAU, Library hardly use Social Sites such as; facebook, twitter, Instagram, WhatsApp, Nairaland, Skype, Googletalk, Academia.edu, researchgate, Mendeley, Ning, Librarything, Flickr among other social media sites.

The challenges Affecting Utilization of Innovative Technologies in University Libraries in Rivers State

The findings of the study revealed that the challenges affecting utilization of innovative technologies in university libraries in Rivers State include limited access to stable internet connections in the library, lack of maintenance culture, insufficient funds, insufficient training or guidance on how to effectively use innovative technologies in the library, power failure inadequate availability of computers or devices to access electronic resources in the library and the library's website and online systems are not always reliable coupled with technical issues experienced.

This is in line with Olufemi (2021) who carried out a study on challenges affecting utilization of innovative technologies for effective service delivery in Obafemi Awolowo University Library. From the study, lack of adequate infrastructure and technological resources were identified as a significant challenge, hindering the effective utilization of innovative technologies in the University Library of Obafemi Awolowo University. The study emphasized the need for increased investment in infrastructure, training programs, and change management strategies to overcome these challenges.

This study aligns with Amaechi, Enweani and Eke (2018). They examined the challenges to transforming library and information services (LIS) for effective service delivery in three academic libraries in Imo state. The findings revealed the challenges to effective transformation of academic libraries in the 21st century to include: poor funding, indifferent attitudes of library managers, absence of well-defined and uniform library policies and non-compliance with the demands of ICT.

The strategies for Enhancing Utilization of Innovative Technologies in University Libraries in Rivers State

The research revealed that the strategies for enhancing utilization of innovative technologies in university libraries in Rivers State include improving internet connectivity and ensuring stable access to digital resources within the library premises, budget allocation and advocacy, providing regular training sessions or workshops to educate library users on effectively utilizing innovative technologies, increasing the availability of computers or devices dedicated to accessing electronic resources in order to increase library patronage and updating and maintaining the library's website and online systems to enhance usability and reliability.

A similar study was carried out by Hammed and Dada (2022). The aim of this study is to examine the roles of technological innovation in enhancing service delivery of information managers in public organizations in Ekiti state. Findings revealed that the use of technological innovations such as computers and other ICT facilities have and play a significant role on the service delivery of information managers. It was concluded that, with the advancement in technology, the performances of information managers in public organizations are better enhanced.

This study corroborate with a study carried out by Onobrakpeya, Nana and Odu (2018). The aim of the study is to examine the effect of information and communication technology on service delivery in the Nigerian manufacturing industry. Findings showed that electronic mail, teleconferencing and telecommuting as variables of information and communication technology have positive effect on service delivery. Therefore, the study concluded that teleconferencing systems, collectively with changes incorporate policies and support, can result in reductions in travel and its related costs. Among Internet users, email is considered as the most significant application on the Internet that support employees means of communication.

Conclusion

The utilization of innovative technologies for effective service delivery in university libraries is paramount in this ever-changing digital age. These technologies have revolutionised how libraries operate and how users access information. By adopting advanced systems such as integrated library management software, digital repositories, and AI-powered chatbots, libraries can provide seamless and efficient services. These innovations offer features like time access to digital collections, 24/7 support, and personalized recommendations, enhancing the overall user experience. Finally, embracing innovative technologies is essential for university libraries to remain relevant and continue to meet the diverse and dynamic needs of their patrons in a rapid changing information landscape.

Recommendations

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

1. University library management should provide ongoing training for library

staff to ensure they are proficient in using and supporting these technologies and assist users effectively.

2. University library management should continuously monitor usage statistics and gather user feedback to assess the effectiveness of these tools and make necessary adjustments.
3. More emphasis should be placed on strategizing, ensuring a proper integration of library routines and services to match available innovative technologies.
4. There's need for collaboration between librarians, IT staff, and academic departments to tailor technology solutions to the specific needs of different disciplines and programs.

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