



INNOVATIVE TECHNOLOGIES: POTENTIAL SOLUTION FOR ENHANCING RESOURCE AND SERVICE DELIVERY IN FEDERAL POLYTECHNIC LIBRARIES OF EDE AND ILARO, NIGERIA

Beatrice Yemisi Ojokuku

ojokuku.beatrice@federalpoly.edu.ng

Tawakalitu Adunni Adegbite-Badmus

badmus.adegbite@federalpolyilaro.edu.ng

Department of Library and Information Science, the Federal Polytechnic, Ilaro, Ogun State

Bolanle Clifford Ishola

ishola.bolanle@federalpolyede.edu.ng

Department of Library and Information Science, Federal Polytechnic, Ede, Osun State

Abstract

This study examined innovative technologies: potential solution for enhancing resource and service delivery in the Federal Polytechnic libraries of Ede and Ilaro. Inadequacy of technological tools which could be attributed to a number of factors is a clog in the wheels of the progress of library service delivery which this study aims to examine. The study also examines the frequency of use of the tools, their impacts on library service deliveries and other constraints to services delivery in Ede and Ilaro Polytechnics. A survey research design was used for the study with a population of 40 library personnel from the two libraries and total enumeration was employed for the sample size. The questionnaire was the research instrument and a total of 34 copies of the questionnaire were returned and found useable. Findings revealed that different types of innovative technological tools are being used to render services in the libraries. It also showed that the tools were sometimes used by library personnel in the libraries. Report from the findings revealed that the use of innovative technological tools is impactful to libraries, however, there are constraints to the use these tools including; inadequate finance, cyber security and lack of technical knowhow among others. The study therefore recommended that institutions' library management should provide adequate funding for libraries for the installation of innovative technologies. Libraries should have policies put in place that will address the installation and integration of high-end technologies in libraries and as well provide opportunities for staff training among others.

Keywords: Innovative technologies, Library services, Technological tools

Introduction

The implementation of Information Communication Technologies (ICTs) in libraries across Nigeria has been steadily advancing. Academic libraries particularly in Nigeria have been implementing diverse information and communication technology (ICT) applications in order to augment their services, enhance information accessibility, and mitigate the digital divide. Akinde and Adetimirin (2016) averred that with ICT, a lot of information resources and software can be provided on time and with ease. Nevertheless, the technological environment is continuously undergoing changes and advancements. Ifidon & Idhalama (2019), posited that it is a repositioning force in academic libraries particularly in Nigeria. The integration of innovative technologies has the potential to significantly impact the transformation of library resources and service delivery within a Federal Polytechnic Library in Africa. Through the utilisation of technology, libraries have the ability to augment the accessibility of information, enhance the overall experience for users, and streamline administrative procedures.

Several innovative technologies that can serve as a potential solution for libraries include digital libraries and online catalogues. These technologies enable libraries to digitise their resources, making them readily accessible to users regardless of time and location. An online catalogue facilitates users in conducting more efficient searches for books, journals, and other materials, thereby enhancing the overall ease of discovery. In a similar vein, the establishment of



open access repositories, such as virtual libraries, enables the library to exhibit the research output of the institution, thereby granting unrestricted access to the general public. This has the potential to facilitate the dissemination of knowledge and foster academic cooperation. Ishola, Ojokuku, and Chris-Isreal (2022) previously documented in their research that ICT equipment/hardware was widely embraced and utilised within polytechnic settings, particularly in relation to computer technologies and accessories, multimedia projectors, digital cameras, satellites, and application software, among others. According to Kalu, et al. (2021), the incorporation of new technologies within library and information environments predominantly encompasses computer technologies. These technologies encompass various input devices such as touch screens, voice recognition systems, and digital cameras.

Additionally, storage devices, processing technologies for developing system applications software, and communication technologies primarily utilised for transmitting digital information are also integral components of these advancements. Virtual reference services, such as the integration of chatbots or virtual assistants, have the capability to offer prompt and automated responses to user inquiries, thereby facilitating expedited and convenient access to information. The integration of Radio Frequency Identification (RFID) tags into library resources and user cards facilitates the efficiency of borrowing and return procedures, thereby diminishing the need for manual labour and reducing time consumption. The implementation of mobile applications for library services allows users to conveniently access resources, renew loans, and receive notifications on their smartphones, thereby catering to the increasing population of mobile-centric users. Libraries have the capacity to allocate resources towards multimedia materials, such as E-Learning and Multimedia Resources, which encompass a range of audio and video materials, interactive tutorials, and e-learning platforms. These resources serve the purpose of accommodating various learning styles. Similarly, the application of data analytics can assist the library in acquiring valuable insights pertaining to user behaviour, patterns of resource utilisation, and preferences. This information has the potential to facilitate data-driven decision-making processes for the acquisition of resources and the enhancement of services.

The utilisation of Remote Access and Virtual Private Networks (VPNs) facilitates remote access to electronic resources, thereby enabling users to retrieve digital materials even when they are not physically present on campus. This capability extends the library's accessibility beyond its physical confines. The incorporation of 3D printing facilities and makerspaces within the library serves as a catalyst for fostering innovation and creativity, providing valuable support for projects and research endeavours that necessitate the production of tangible prototypes. The integration of collaborative tools and platforms within an educational setting can facilitate group discussions, promote knowledge sharing, and optimise project management, thereby cultivating a sense of community and fostering cooperative learning. The implementation of technologies by libraries that specifically address the needs of individuals with disabilities, such as screen readers, assistive listening devices, and alternative formats, serves to promote equal access to library resources. The implementation of robust cybersecurity measures and data privacy protocols is crucial for the protection of sensitive user information and mitigation of potential cyber threats.

There are several instances of innovative technologies being utilised in library service delivery around the world, Nigeria inclusive, which include the implementation of mobile libraries, digital libraries and online catalogues, e-learning platforms, community information centres, internet connectivity, virtual reality (VR) and augmented reality (AR) technologies, maker spaces, digital preservation efforts, open access initiatives, and collaborations with technology companies and non-governmental organisations (NGOs). It is imperative to acknowledge that the seamless incorporation of these technologies necessitates not solely monetary allocations but also personnel education and continuous assistance to guarantee efficient execution and utilisation of these innovative technologies. Furthermore, the promotion of digital literacy among library users will serve to optimise the advantages offered by these innovative technologies. By embracing these technological advancements, the Federal Polytechnic Libraries in Africa and Nigeria to be specific have the potential to transform into a dynamic, user-centric, and inclusive centre of knowledge and learning. However, some libraries in Nigeria still face a number of challenges including limited infrastructure, funding constraints, and disparities in digital literacy. Consequently, the researchers are set to investigate the adequacy and impacts of innovative technologies as a potential solution for enhancing the delivery of library resources and services in the federal polytechnic libraries of Ede and Ilaro.

The objectives of the study are to investigate the role of innovative technologies as a potential solution for enhancing the delivery of library resources and services in the federal polytechnic libraries of Ede and Ilaro.

The specific objectives are to:



1. examine various types of innovative technologies being used in the federal polytechnic libraries of Ede and Ilaro,
2. determine the extent of use of these innovative technologies in the federal polytechnic libraries of Ede and Ilaro,
3. identify innovative technologies driven library services in the federal polytechnic libraries of Ede and Ilaro,
4. identify the impact of these innovative technologies in the federal polytechnic libraries of Ede and Ilaro, and
5. determine the constraints of the adoption and use of these innovative technologies in the federal polytechnic libraries of Ede and Ilaro.

The following research questions were raised:

1. what are various types of innovative technologies being used in the federal polytechnic libraries of Ede and Ilaro,
2. what is the extent of use of these innovative technologies in the federal polytechnic libraries of Ede and Ilaro,
3. What are the Innovative technologies driven library services in the federal polytechnic libraries of Ede and Ilaro?
4. what are the impacts of these innovative technologies in the federal polytechnic libraries of Ede and Ilaro, and
5. what are the constraints of the adoption and use of these innovative technologies in the federal polytechnic libraries of Ede and Ilaro.

Literature Review

Literature is essential elements designed to provide factual, accurate, relevant and timely information resources and services to the entire community in which the libraries are situated and the category of users the libraries are serving. Academic Libraries especially are organized and fertile spaces that are meant for knowledge enhancement by the application, implementation and acceptability of innovative technologies for effective resources provision and services delivery. Resources and Services of academic libraries (polytechnics) would be adequately accessed, used, and be satisfied with as timely as possible with the current innovative technologies rather than the old or analog methods of satisfying users. (El-Kalash, et al, 2022). This study therefore reviewed previous scholarly works relevant to the study at hand.

Atata, et'al (2015) in their examination of the concepts of creativity and innovation application to information science and library management, confirmed that the right attitude and conducive environment propelled creativity and innovation in academic libraries. The study also found that creativity and innovation in library service delivery is a continuous process that improves information creation, packaging and users' accessibility. Angadi (2021) highlighted the usefulness of technologies in the selection, organisation, storage use, delivery, maintenance and management of information resources and services in libraries without the analog means of papers, microfilms, graphics and chats. It concluded that if Librarians have always valued knowledge sharing, culture and skills, the new digital services and technologies are ways to engage customers by providing services that will be faster, more impactful and make lives easier for them. In essence, the application of Innovative Technologies will go a long way to encourage users' patronage promotion and satisfaction in this era of ICT.

Omeluzor, et'al (2020) affirmed that fewer university libraries in South-South, Nigeria have adopted and used innovative tools for library instruction and services while a greater majority have not. Invariably inadequate use of these innovative tools was found to affect patronage and effective library instruction and services delivery to patrons. While advising library management in federal universities in the South-South, Nigeria to explore viable innovative tools for library instruction and services. This would open many doors of opportunities for the libraries and library personnel.

Eje and Dushu (2018) confirmed that technological innovations have brought impressive changes in libraries function, which needed to be evaluated, accessed and measured for the possible impact of ICT on them. This could



also improve efforts on resources and services delivery once there is a shift from a manual to a digital approach, for projecting and marketing the resources and services of libraries to current and intending users. In the same vein, Jan and Sheikh (2014) investigated the impact of emerging technologies on university libraries of Pakistan. It was revealed from the study that the adoption of emerging library technologies has an impact on the resources and services in public libraries in Pakistan. Some of the challenges pinpointed are: frequent power failure, lack of user education, an inadequate funding for library automation, which can be eradicated if due and prompt attention with maximum opportunities are given to the public libraries of Pakistan.

Mittal (2017) found out that modern libraries in Punjab early and rapidly adapted to the new innovative technologies whereby users were able to access resources and services anytime and anywhere. However, he gave some problems like; lack of funds, irregular power supply and unskilled adoption of these technologies for the advancement of library services. This also amounted to the non-implementation of the technologies in some sections of the libraries.

On the contrary, Etebu and Zachaeus (2020) investigated the challenges and way forward on Innovative Library Services (ILS) in Nigeria through digital marketing services, database production services, web design services, e-publishing services, blogging services, mobile application services, short-manage alert services, podcasting services etc. It revealed the inadequate deployment of ICT resources, insufficient funds and ignorance to change as obstacles identified while collaboration, risk management and adequate provision of funds were some of the solutions that suggested adequate funding and ICT enabled resources to improve innovative library services in Nigeria.

Lubanga and Mumba (2021) established the importance of creativity and innovation in University of Livingstonia (UNILIA) library as major points in a technologically driven world and are vital aspects of reconstructing library services and products for efficient service delivery and optimum client experience in the 21st Century. Saibakumo (2021) informed that technological developments have pushed libraries to take all-embracing, user-friendly, and technology-driven methods to resources and services delivery in academic libraries in Nigeria. Chingath (2020) demonstrated the integration and seamless functioning of technologies in libraries, such as Robotics, Drones, Block chain, Big Data and Nobile Apps as well as their use and application in libraries.

Funmilayo and Ayo (2020) attempted to determine the worldwide trends as well as a new library and IT technologies, so that readers may focus on them, particularly for efficient library services. Moreover, the emerging technologies in library and IT services have led to the occurrence of several changes, as well as social expectations of librarians and information professionals. As information technology is becoming increasingly pertinent to academic institutions, librarians and other IT professionals, there is need to master the technology which can be used in academic institutions, as developing digital expertise are fundamental in all academic curriculums. Their study not only discusses the rising trend in library technology particularly in academic libraries but also examines the need to reflect and refocus on how technological developments are influencing their services further (Moruf & Dangani, 2020).

Chukwueke and Onuoha (2019) concluded that because of the many advantages it has to provide, ICT applications in libraries are of great relevance. The benefits include improved library services efficacy and efficiency, reduced access to information time, location and recovery time, conserving physical space for the library and so forth. Although, several academic libraries are yet to completely use these ICTs in their services despite the many benefits.

Abubakar and Attahir (2018) emphasized library creativity and innovations, the competencies which creative and innovative librarians require in academic libraries to offer services, and the unique and new services rendered in academic libraries. Further, they also discussed the major hurdles in designing and providing new services in the academic library thereby providing answers to them. However, they also tried to explain the abilities required to be attained by 21st-century librarians to provide the best possible services in library and information science particularly, in academic libraries.

Enweani (2018) found out the various possible management difficulties occurring in maintaining university libraries, some of which are; the changing library environment and the necessity for good university library management in the digital era. While, there is a pressing need for university library administration to adopt practical and inventive initiatives to solve these issues for university library management in the digital world to produce the intended results. Barathi, et'al., (2017) explained in their paper how technology advancements have enhanced information management and library services. By offering an overview of the difficulties connected to integrating and using emerging technologies and innovative practices inside libraries, in the digital library project management libraries. Challenges arising from library services and management, as well as technological improvements, must be updated on a regular basis to keep up with the fast-paced world.



Methodology

Survey research design was used for the study. The population of the study was 40 library personnel from the libraries of Federal Polytechnics Ede and Ilaro, this comprised 20 personnel each from Ilaro and Ede. Total enumeration was employed for the study due to the small size of the population borrowing from Nworgu (2015) who posited that where the population of the study is finite, the entire population could be adopted as the sample size. The instrument for the study was a structured questionnaire which was used to elicit data from the respondents. A total of 34 copies of the questionnaire were returned usable which formed the sample size for the study that is 20 from Ilaro and 14 from Ede.

Findings

Table 1: Descriptive Statistics of the Demographic Variables

Frequency and percentage distribution of Demographic Variables

Demographic variables	Options	Frequency (N)	Percentage (%)
Name of Institution	Federal Poly Ilaro	20	58.8
	Federal Poly Ede	14	41.2
Gender	Male	16	47.1
	Female	18	52.9
Highest Qualification	PhD	5	14.7
	MLIS	4	11.8
	BLIS	10	29.4
	BSc	3	8.8
	BTech	2	5.9
	HND	2	5.9
	ND	8	23.5
Years of Experience	1-9	11	32.4
	10-19	7	20.5
	20-29	8	23.5
	30 and above	8	23.5

The table above shows the frequency and percentage distribution of demographic information of the library personnel surveyed. Federal Polytechnic Ilaro constitutes (58.8%) while Federal Polytechnic Ede constitutes (41.2%) of the respondents. There were (52.9%) female respondents and male respondents (47.1%), the analysis also shows that 14.7 of the respondents are PhD holders, 11.8% are MLIS, 44.1% are Bachelor's degree holders (BLIS, BSc and BTech in Library and Information Science). There are 5.9% HND holders and 23.5% ND holders. The table also revealed that most of the respondents (35.5%) have 1-9 years of working experience while 16.1% have 20-29 years of experience.



Answer to Research Questions

Research questions 1 & 2: What are various types and extent of innovative technologies being used in the federal polytechnic libraries of Ede and Ilaro?

Table 2: Types and extent of use of innovative technologies in the federal polytechnic libraries of Ede and Ilaro (Always=4, Sometimes=3, Rarely=2 and Never=1)

S/N	Innovative technologies being used in the federal polytechnic libraries of Ede and Ilaro,	Frequency (%)				Mean	SD
		4	3	2	1		
ICT Equipment/Hardware							
1	Computers	34(100.0)	0(0)	0(0)	0(0)	4.00	0.00
2	Multimedia Projectors	16(48.5)	11(33.3)	6(18.2)	0(0)	3.30	0.77
3	Television set	19(55.9)	6(17.6)	7(20.6)	2(5.9)	3.24	0.99
4	Virtual reality technologies	11(32.4)	11(32.4)	5(14.7)	7(20.6)	2.76	1.13
5	Storage devices like USB, CD-ROM, DVD and flash drive	20(58.8)	8(23.5)	2(5.9)	4(11.8)	3.29	1.03
6	Photocopiers	31(91.2)	0(0)	1(2.9)	2(5.9)	3.76	0.78
7	CCTV Camera	6(17.6)	6(17.6)	14(41.2)	8(23.5)	2.29	1.03
8	Scanners	19(55.9)	13(38.2)	1(2.9)	1(2.9)	3.47	0.71
9	Mobile devices like phones, Ipod, MP4 players, Ipad/ Tablets	23(67.6)	11(32.4)	0(0)	0(0)	3.68	0.48
10	Maker space technologies such as printers, 3D-printers	10(29.4)	6(17.6)	3(8.8)	15(44.1)	2.32	1.32
11	Smart board/ Interactive board	13(38.2)	8(23.5)	9(26.5)	4(11.8)	2.88	1.07
12	Digital camera	17(53.1)	6(18.8)	4(12.5)	5(15.6)	3.09	1.15
13	RFID technologies like Barcode reader, book tracking, IoT	3(8.8)	3(8.8)	8(23.5)	20(58.8)	1.68	0.98
Telecommunications/networking tools							
14	Satellite	8(23.5)	4(11.8)	10(29.4)	12(35.3)	2.24	1.18
15	Wireless internet	21(61.8)	11(32.4)	0(0)	2(5.9)	3.50	0.79
16	Wide Area Network (WAN)	13(38.2)	16(47.1)	3(8.8)	2(5.9)	3.18	0.83
17	Local Area Network (LAN)	18(52.9)	15(44.1)	1(2.9)	0(0)	3.50	0.56
18	Internet Radio	8(23.5)	6(17.6)	8(23.5)	12(35.3)	2.29	1.19
Software							



19	Library management software including KOHA, Libsys, SLIM, SOUL	14(41.2)	16(47.1)	1(2.9)	3(8.8)	3.21	0.88
20	Repository software packages including Dspace, E-prints, Fedora, CDSWare and Greenstone	9(26.5)	10(29.4)	6(17.6)	8(23.5)	2.56	1.16
21	Database creation software including CDS/ISIS	7(20.6)	9(26.5)	10(29.4)	8(23.5)	2.44	1.08
22	Application software including Microsoft office, Photoshop, CorelDraw, Adobe flash	17(50.0)	14(41.2)	3(8.8)	0(0)	3.41	0.66
23	Website development software including Frontpage, WCS5 Flash, ALICE	2(5.9)	22(64.7)	7(20.6)	3(8.8)	2.68	0.73
24	Reference managers/ tools like Mendeley	0(0)	13(38.2)	14(41.2)	7(20.6)	2.18	0.76
25	Bibliographic instruction software	6(17.6)	10(29.4)	12(35.3)	6(17.6)	2.47	0.99
26	Integrated search tools	11(32.4)	7(20.6)	8(23.5)	8(23.5)	2.62	1.18
27	Instructional design products/Software	7(20.6)	13(38.2)	8(23.5)	6(17.6)	2.62	1.02
28	Video editors like Camatasia studio	10(29.4)	8(23.5)	6(17.6)	10(29.4)	2.53	1.21
Overall Mean						2.90	

The table above shows the types and extent of use of innovative technologies in the federal polytechnic libraries of Ede and Ilaro. The result shows that scale of 4.00-3.45 is “Always”, 3.44-2.45 is “Sometimes”, 2.44-1.45 is “Rarely” and a scale of 1.44-1.00 is “Never”. The overall mean for the types and extent of use of innovative technologies in the federal polytechnic libraries of Ede and Ilaro is (M=2.90) which falls within the scale of 3.44-2.45 is an indication that most of the innovative technologies are sometimes used by the librarians in federal polytechnics of Ede and Ilaro. This indicates that the respondents sometimes used the ICT equipments/hardware, telecommunications/networking tools and Software for service delivery in their libraries.



Research question 3: What are the Innovative technologies driven library services in the federal polytechnic libraries of Ede and Ilaro?

Table 3: Innovative technologies driven library services in the federal polytechnic libraries of Ede and Ilaro

S/N	In my library, innovative technologies are used for:	Frequency (%)		Mean	SD
		2	1		
1	Providing contemporary storage devices like Networked drives ; library file servers/storage area network/cloud storage etc for users	17(53.1)	15(44.1)	1.53	0.51
2	Information repackaging services	25(73.5)	9(26.5)	1.74	0.45
3	developing blogs, and other collaborative platforms	14(41.2)	20(58.8)	1.41	0.50
4	Circulation of library materials	26(81.3)	6(18.8)	1.81	0.40
5	providing virtual reference services, such as the integration of chatbots or virtual assistants	23(67.6)	11(32.4)	1.68	0.48
6	Conducting literature search	22(64.7)	10(29.4)	1.69	0.47
7	providing platforms for E-Learning and Multimedia Resources	27(79.4)	7(20.6)	1.79	0.41
8	Providing platform for data analytics for library users	19(55.9)	15(44.1)	1.56	0.50
9	providing makerspaces services to user community	8(23.5)	26(76.5)	1.24	0.43
10	provision of mobile applications (APPs) for library services	12(35.3)	22(64.7)	1.35	0.49
11	implementation of mobile library services for users	16(47.1)	18(52.9)	1.47	0.51
12	implementation of digital libraries	24(70.6)	10(29.4)	1.71	0.46
13	implementation of online catalogues for users	18(52.9)	16(47.1)	1.53	0.51
14	implementation of community information centers for users	13(38.2)	21(61.8)	1.38	0.49
15	Implementation of internet connectivity services	22(64.7)	12(35.3)	1.65	0.49
16	Implementation of virtual reality (VR) and augmented reality (AR) technologies services	9(26.5)	23(67.6)	1.28	0.46
Overall Mean				1.55	



The table above shows the Innovative technologies driven library services in the federal polytechnic libraries of Ede and Ilaro. The result shows that scale of 2.00-1.45 is “Agree” and a scale of 1.44-1.00 is “Disagree”. The overall mean for the Innovative technologies driven library services in the federal polytechnic libraries of Ede and Ilaro is (M=1.55) which falls within the scale 2.00-1.45 is an indication that most of the library personnel agree with the innovative technologies driven library services listed above in the federal polytechnic libraries of Ede and Ilaro. This also means that the respondents agree that libraries provide innovative technologies driven services to the users of the libraries.

Research Question 4: What are the impacts of these innovative technologies in the federal polytechnic libraries of Ede and Ilaro?

Table 4: Impacts of innovative technologies in the federal polytechnic libraries of Ede and Ilaro

S/N	Impacts of innovative technologies in the federal polytechnic libraries of Ede and Ilaro	Frequency (%)				Mean	SD
		4	3	2	1		
1	Innovative technologies assist library to provide value-added services	26(76.5)	4(11.8)	4(11.8)	0(0)	3.65	0.69
2	Innovative technologies provide faster retrieval of stored information	33(67.6)	11(32.4)	0(0)	0(0)	3.68	0.48
3	They give more remote access to available information resources	23(67.6)	9(26.5)	1(2.9)	1(2.9)	3.59	0.70
4	reform the traditional library to a modern library	19(55.9)	12(35.3)	2(5.9)	1(2.9)	3.44	0.75
5	support the inclusion of new ideas essential to a library's future,	25(73.5)	9(26.5)	0(0)	0(0)	3.74	0.45
6	Technologies make academic libraries more user- and service-based rather than collection-based	21(61.8)	12(35.3)	0(0)	1(2.9)	3.56	0.66
7	Innovative technologies brought unprecedented changes and transformation to academic library and information services	24(70.6)	3(8.8)	6(17.6)	1(2.9)	3.47	0.89
Overall Mean						3.59	

The table above shows the Impacts of innovative technologies in the federal polytechnic libraries of Ede and Ilaro. The result shows that scale 4.00-3.45 is “Strongly agree”, 3.44-2.45 is “Agree”, 2.44-1.45 is “Disagree” and a scale of 1.44-1.00 is “Strongly Disagree”. The overall mean for the Impacts of innovative technologies in the federal polytechnic libraries of Ede and Ilaro is (M=3.59) which falls within the scale 4.00-3.45 is an indication the librarians strongly agree with the impacts of innovative technologies in the federal polytechnic libraries of Ede and Ilaro. This means innovative technologies have a high and positive impact on the respondents.



Research Question 5: What are the constraints of the adoption and use of these innovative technologies in the federal polytechnic libraries of Ede and Ilaro?

Table 5: Constraints of the adoption and use of these innovative technologies in the federal polytechnic libraries of Ede and Ilaro (Strongly Agree=4, Agree=3, Disagree=2 and Strongly Disagree= 1)

S/N	Challenges	Frequency (%)				Mean	SD
		4	3	2	1		
1	Inadequate planning	13(38.2)	15(44.1)	6(17.6)	0(0)	3.21	0.73
2	Inadequate finance and high costs of technological gadgets	25(73.5)	7(20.6)	1(2.9)	1(2.9)	3.65	0.69
3	Digital divide	10(29.4)	12(35.8)	4(11.8)	8(23.5)	2.71	1.14
4	Shortage of competent manpower	9(26.5)	15(44.1)	3(8.8)	7(20.6)	2.76	1.08
5	Cost of staff training and retraining	9(26.5)	23(67.6)	0(0)	2(5.9)	3.15	0.70
6	Security and privacy problem	12(35.3)	13(38.2)	6(17.6)	3(8.8)	3.00	0.95
7	Lack of adequate support from the stakeholders	22(64.7)	12(35.3)	0(0)	0(0)	3.65	0.49
8	Selecting the right technologies	11(32.4)	8(23.5)	3(8.8)	12(35.3)	2.53	1.29
9	Epileptic power supply	24(70.6)	7(20.6)	3(8.8)	0(0)	3.53	0.89
Overall Mean						3.13	

The table above shows the Constraints of the adoption and use of these innovative technologies in the federal polytechnic libraries of Ede and Ilaro. The result shows that scale 4.00-3.45 is “Strongly agree”, 3.44-2.45 is “Agree”, 2.44-1.45 is “Disagree” and scale 1.44-1.00 is “Strongly Disagree”. The overall mean for the Constraints of the adoption and use of these innovative technologies in the federal polytechnic libraries of Ede and Ilaro is (M=3.13) which falls within the scale 3.44-2.45 is an indication the librarians agree with the Constraints of the adoption and use of these innovative technologies in the federal polytechnic libraries of Ede and Ilaro. This means the respondents are familiar with the constraints of the adoption and use of innovative technologies listed above.

Discussion of the Findings

Findings of this work revealed that there are innovative technologies which federal polytechnic libraries of Ede and Ilaro make use of while rendering services to users. Some of these innovative technologies are categorised into: ICT equipment/hardware, telecommunications/networking tools and software. Examples of ICT equipment/hardware include: computer, multimedia projectors, virtual reality technologies, CCTV camera, printers, RFID technologies like barcode reader, and digital cameras among others. Findings also revealed examples of telecommunications/networking tools used in these libraries which include: satellite, wireless internet, Wide Area Network (WAN), Local Area Network (LAN), and internet radio among others. In the same vein, examples of software used by the federal polytechnics of Ede and Ilaro include: Library Management Software like KOHA, Libsys, SLIM, SOUL; Repository software packages including Dspace, E-prints, Fedora; Database creation software including CDS/ISIS; Application software including Microsoft office, Photoshop, CorelDraw, Adobe flash; Website development software, Reference manager tools, video editors like camatasia and more. This corroborates Kalu, et al. (2021), who stated that computers and other technological tools are used in the library environment. Result of this research equally revealed the frequencies of use of the technologies in the libraries studied. It was reported that most of the innovative technologies were sometimes used in the two polytechnics. This implies that that the innovative technologies were not always used but sometimes, in other words as occasion demands.



Some Innovative technologies driven library services in the federal polytechnic libraries of Ede and Ilaro as revealed from the findings include provision of contemporary storage devices like Networked drives ; library fileservers/storage area network/cloud storage etc for users, Information repackaging services; developing blogs, and other collaborative platforms; circulation of library resources; provision of virtual reference services such as integration of chatbots or virtual assistance; provision of platforms for E-learning, implementing mobile library services among others.

Furthermore, findings of the work revealed that innovative technologies have a high and positive impact on the libraries studied. The use of these new technologies gives the libraries better images which are distinct from the traditional libraries and libraries' services. This is in line with Angadi (2021) who posited that the use of these technologies provides services that are faster and better than analog. It also preempts what the future holds for libraries and library services. In the same vein, this study uncovers some major constraints to the use of innovative technologies in the libraries studied. It unveils reasons for sometimes and non use of the technologies. It was gathered that lack of planning and inadequate finance for installation and initial take off, staff technical knowhow, cyber security to mention just a few are challenges that some libraries face that hinder the adoption and use of technologies as some may not be able to sustain it even if they were able to implement it initially.

Conclusion

The library personnel in the federal Polytechnics of Ede and Ilaro are aware of innovative technologies being used in libraries. The libraries sometimes used some of the technology tools to provide services in their libraries to their users to boost their services and portray a better image of the institutions' libraries. It was concluded that the use of innovative technologies tools are impactful to the institutions' library as it has brought unprecedented changes and transformation to academic library and information services. However, the study concluded that there are challenges facing the use of these new technologies which are the reasons for nonuse and low use of these tools.

Recommendations

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

- Institutions' library management should provide adequate funding for libraries for installation of innovative technologies.
- Libraries should have policies put in place that will address the installation and integration of high-end technologies in libraries;
- ICT professional telecommunication operators in Nigeria should support the development and growth of ICT by making the cost of installation of ICT facilities more user friendly to organizations especially libraries.
- Institutions should provide adequate facilities for training and retraining for staff to upscale their skills in the use of innovative technologies

REFERENCES

- Abubakar, A. & Attahir, I. S. (2018). Innovative and Creative Skills for the 21st Century Librarian: Benefits and Challenges in Nigerian Academic Libraries. *Journal of Information and Knowledge Management*, 9(2), 113-120. <https://dx.doi.org/10.4314/ijikm.v9i29>.
- Akinde & Adetimirin (2017). Perceived usefulness as a correlate of extent of Information and Communications Technologies (ICTs) use for teaching by library educators in universities in Nigeria *International Journal of Library and Information Science*. 9(3), 14-24. DOI: 10.5897/IJLIS <https://doi.org/10.5897/IJLIS2016.0739>
- Angadi, S. S. (2021). Innovative Technologies for the Library of the Future. *International Research Journal of Education and Technology*. 3(4), 37-41.
- Atata, E. A., Eyene, E. T. & Sam, G. F. (2015). Creativity and Innovation in Library Science and Information Management in Academic Libraries. *ASPRAEDU*, 1(1), 1-16.



- Barathi, S., Loganathan, G. & Rajan, V. R. (2017). Emerging Technological Innovations in Library Knowledge Management and Services. *Advances in Computational Sciences and Technology*, 10(5), 1479-1486. ISSN: 0973-6107. Retrieved from <http://www.ripublication.com>.
- Chingath, V. (2020). Technology Trends in Libraries. *Transforming libraries: Smart users, smart services and smart resources*. 65-70. <https://www.researchgate.net/publication/346975783>
- Chukwueke, C. & Onuoha, J. (2019). Emergent Trends in Library Services Delivery: The Application of Information and Communication Technologies in Academic Libraries. *Library Philosophy and Practice (e-journal)*. 2602.
<https://digitalcommons.unl.edu/libphilprac/2602>
- Eje, O. C. & Dushu, T. Y. (2018). Transforming Library and Information Services using Innovation Technologies. *Library Philosophy and Practice (e-journal)*. 1-19.
<http://digitalcommons.unl.edu/libphilprac/2036>
- El-Kalash, K. I., Mohammed, S. B. & Abba, F. (2022). Innovative Technologies for Effective Library and Information Services in Post-Covid-19 Era, a chapter: Library Management during Pandemic. <https://www.researchgate.net/publication/366213795>, 59-72
- Enweani, U. V. (2018). Challenges of Managing University Libraries in Contemporary Digital Environment. *Library Philosophy and Practice (e-journal)*. 2073. Retrieved from <http://digitalcommons.unl.edu/libphilprac/2073>
- Etebu, A. T. & Zacchaeus, C. M. (2020). Innovative Library Services (ILS) in Nigeria: Challenges and Way Forward. *International Journal of Research and Innovation in Social Science (IJRISS)* 4,7, July 2020/ISBN: 2454-6186.
- Funmilayo, R. & Ayo, O. (2020). Global Trends and Emerging Technologies in Libraries and Information Science. *Library Philosophy and Practice (e-journal)*. 3835. <https://digitalcommons.unl.edu/libphilprac/3835>
- Ifidon E.I. & Idhalama, O. U. (2019). Information and Communications Technology (ICT) Use in Libraries: A Plus or Minus to Academic Libraries in Nigeria? *Sumerianz Journal of Social Science*, 2(6), 68-73 : 2617-1716 <https://www.sumerianz.com>
- Ishola, B. C. Ojokuku, B. Y. and Chris-Isreal, H. O. (2022) “Technological adoption and use by Technologists in laboratories in LIS schools in south west, Nigeria”. Paper presented at the library and Information science conference held at the University of Ibadan, Nigeria. 22-24 November, 2022
- Jan, S. U. & Sheikh, R. A. (2014). Impact of Emerging Technologies on University Libraries of Pakistan. *International Journal of Digital Library Services*. 4(3), 56-69.
- Kalu, A. U., Onwe, O. U., & Chike A. N. (2021). Education for Library and Information Science in the Era of Digital Technologies. In Juliana O. Akidi, Kingsley N. Igwe and Justice C. Ujournunna (Eds.), *Library in the Digital Age: Essays in honour of Professor Amenze O. Unagha*, 65-78. Zeb Communication Limited.
- Lubanga, S. & Mumba, J. (2021). Research and Development (R&D), Creativity and Innovation in Academic Libraries in Malawi: A Way To Rethink Library Development in the 21st Century. Retrieved from SSRN: <https://ssrn.com/abstract=3867430> <http://dx.doi.org/10.2139/ssrn.3867430>
- Mittal, A. (2017) Emerging Technologies and their Impact on the Libraries. *Indian Journal of Science and Technologies*, 10(31), 1-4.
- Moruf, H. A. & Dangani, B. U. (2020). Emerging Library Technology Trends in Academic Environment – An Updated Review. *Science World Journal*, 15(3). ISSN: 1597-6343.



<https://doi.org/10.47514/swj/15.03.2020.002>

Nworgu, B.G. (2015). Educational research. Basic issues and methodology. *International Journal of Contemporary Education Research* 12 (8) June, 2020 Editions

Omeluzor, S. U., Ugochi, M. &Izuakolam (2020). Assessing the use of Innovative tools for Library Instruction and Services in Federal University Libraries in South-South, Nigeria. *Journal of Information and Knowledge Management* 11(4), 92-106. <https://olx.doi.org/10.4314/ijkm.viii4.9>.

Saibakumo, W. T. (2021). Awareness, Use and Acceptance of Emerging Technologies for Extended Information Service Delivery in Academic Libraries in Nigeria. *Library Philosophy and Practice (e-journal)*.5266.

<https://digitalcommons.unl.edu/libphilprac/5266>