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IVJLIS is being positioned as an internationally refereed journal published bi-annually in (May and November) by the Department of Library and Information Science in the Faculty of Communication and Information Sciences, University of Ilorin, Nigeria. Thus, issues will be identified as Volume 1, (Issue 1, May), 2018, Vol. 1, (Issue 2, Nov), 2018, etc. It is dedicated to the exchange of the latest research and practical information in the field of Library and Information Science. The journal publishes original research and case studies by Librarians, Library and Information Science academics, government, contributors, and other information professionals on the key areas of information science, library science, archives, and records management, including best practices, policies, and guidelines.

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EDITORIAL

Bridging Knowledge and Innovation in Nigerian Libraries

We are delighted to present the latest edition of our journal, focusing on the dynamic landscape of library and information science in Nigeria. This edition brings together insightful research and perspectives on various topics that reflect the evolving role of libraries in the digital age.

The first section of this edition delves into the integration of interactive technologies in polytechnic libraries in Rivers State, highlighting the innovative approaches taken to enhance information service provision. Horsfall explores how these technologies are shaping the way information is accessed, shared, and utilized in educational institutions. Moving forward, the second article examines the emergence of shelf-reading robots and their functionality in library settings. Through the works of scholars like Olaniyi, Jatto, Ajani, and Tella, the article assesses the value and impact of automation in optimizing library shelf organization and maintenance, raising pertinent questions about the cost-effectiveness and practicality of such technologies.

This new edition also delves into the diffusion of information science research in Nigeria, addressing the challenges, opportunities, and future directions in disseminating scholarly knowledge within the academic community. The contributions of Opele, Adewara, Abdullah, and Balogun shed light on the efforts needed to bridge the gap between research production and utilization. In the realm of electronic information resources, Fagbola and Musa explore undergraduates' awareness and utilisation patterns at the University of Ilorin, offering insights into enhancing access and promoting digital literacy among students.

A critical examination of internet anxiety and computer literacy skills among library and information science undergraduates in River State, as presented by Akpobasah, underscores the importance of addressing technological barriers and fostering a conducive learning environment. Shifting our focus to community engagement, Kadiri, Folorunsho, Olawale, Ayinde, and Afolabi delve into cultural beliefs and the acceptance of immunization campaigns, highlighting the role of libraries in promoting health literacy and advocacy initiatives.

The edition also explores digital literacy skills and information sharing practices among undergraduates in Kwara State. In this article, Ajiboye and Jacobs emphasise the need for continuous skill development and knowledge dissemination in an increasingly digital society.

Furthermore, Jacob, Sulaiman, and Aramide examine progress in optimising information resources for inmates' rehabilitation in correctional centres in Kwara State, recognizing the transformative potential of libraries in promoting education, skill acquisition, and social reintegration. Also included in this edition is the article that examines information needs and seeking behaviour of young adults in Kwara state library board written by OMOPUPA**,** Kamal Tunde**,** Muhammed Jamiu Oladele**,** OWOLABI, Blessing Titilayo and ABUBAKAR, Hajarat; and also Library Information Resources as Factors Influencing the Effective Study Skills of Polytechnic Students in Federal Polytechnic Ile-Oluji, Ondo State Nigeria was examined by Kehinde A. OMIRIN *and* Titilayo G. OLORUNYOMI.

Lastly, this edition also features an article that explores the adoption of innovative technologies as correlates of information service delivery in university libraries in Kwara State. Through the works of Akanbi, Bankole, and Jimoh, we analyze the trends, challenges, and prospects of integrating cutting-edge technologies to enhance library services and user experience.

In conclusion, this edition underscores the pivotal role of libraries and information science in driving knowledge creation, dissemination, and innovation in Nigeria. We extend our gratitude to all the contributors, reviewers, and editorial team members for their invaluable contributions to this enriching discourse. We hope that this edition serves as a catalyst for further research, collaboration, and transformative initiatives in the field of library and information science, ultimately contributing to the advancement of knowledge and sustainability in Nigeria and beyond.

Warm regards,

Prof. Adeyinka TELLA.

Editor-in-Chief

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Interactive Technologies and Information Service Provision in Polytechnic Libraries in Rivers State Nigeria

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Abstract

The study investigated Interactive Technologies and Information Service Provision in Polytechnic Libraries in Rivers State Nigeria. The study was guided by six objectives. The research design adopted for this study was a descriptive research method. The population consisted of 10,200 undergraduates selected at random. The study utilized a stratified random sampling technique to sample 100 respondents each from the two polytechnics, which totalled 200 respondents. The instrument used for data collection was a self-construct questionnaire. Cronbach Alpha method was used to ascertain the reliability of the instrument. The research question was answered using percentages and frequencies. The findings from the work show that Cloud Computing and Zoom Videoconferencing have a positive impact on providing library services in Polytechnic libraries in Rivers State. The researcher recommended that accommodation plans and adoption strategies should be put in place for the successful deployment of interactive technologies in Polytechnic libraries to enhance the provision library services, thereby satisfying the needs and demands of users. It was also recommended that adequate funds be allocated to libraries to improve their information service provision.

Keywords: Interactive Technologies, Library, Information, Service Provision, Polytechnics, Rivers State, Nigeria.

Introduction

Information service provision is fundamental to service delivery in libraries and the necessity to provide the information services rests solely on libraries. The digital age brought about diverse ways of providing information services through interactive technologies. Technology as a vital part of human history uses scientific knowledge to improve human existence and control the environment, affecting every element of our lives in the modern day. Many facets of life, such as office labour, banking, industries, education, training simulations, business, healthcare, law, police, aviation systems, and residences, have seen substantial changes as a result of digital technology. Modern technological tools and devices now form an integral part of individual lives in the 21st century and these tools and devices are now used for business, education,

entertainment, communication and other daily life activities (Raja, & Nagasubramani, 2018; Bharti & Verma, 2021).

The term Interactive Technologies (IT) refers to technology that digitally facilitates interaction between people or allows for user content creation or manipulation (Lee, Braud, Zhou, Wang, Xu, Lin,,& Hui, 2021).). It has been frequently used by Information Technology professionals and academics as it plays an important role in society for satisfying needs (and demands), achieving goals, and solving problems of adopters directly to support and improve human progress (Coccia, 2021). Technology is evolving at a rapid pace, enabling faster change and progress, causing an acceleration of the rate of change. As the library is also an integral part of our community, it is equally affected by this technological revolution (Rathore, Nikita, Thakur & Mishra, 2022). The impact of technology on all levels of library operations can never be overemphasized. The outbreak of Covid-19 accelerated the adoption of digital technologies, transforming the way information is accessed, retrieved, and managed in libraries and society, necessitating the enhancement of information professionals' skills. Tiwari (2022) opined that the availability of interactive technologies can provide limitless opportunities for knowledge development and exchange, both on a personal and global level.

Traditional library users visit reference desks and check out physical books, while new users bring electronic devices for technology-related tasks like cloud connectivity, resource uploading, and videoconferencing. They want to plug into public computers, connect to the cloud and upload and download resources or make videoconferencing calls with applications like Zoom. The users love to read books, magazines, and newspapers, moving from print to digital formats. Library professionals must be ready to help these customers find their news and entertainment sources in online and digital formats (Turban et al. 2018).

Cloud computing is the use of hosted services, such as storage, servers, databases, networking and software over the internet. It is a pool of virtualized computer resources that can host a variety of different workloads including batch-style back-end jobs and interactive user-facing applications, allowing workload to be deployed and scaled out quickly through the rapid provision of virtual machines or physical machines (Padhy, Patra, & Satapathy, 2011)

Interactive White Boards (IWBs) as large touch-sensitive whiteboards typically affixed to the wall or mounted on a portable stand at the front of a room. They can be used like a traditional blackboard or, with the addition of a computer and projector, transformed into life-sized monitors. A smart library provides ways in which libraries can function effectively in a less structured but creatively and innovatively. The idea of smart libraries is to find ways to answer and attend to user needs and demands (Richards et al. 2018). Video conferencing could be exploited and applied in smart libraries for effective service delivery. Zoom's video-first unified communications platform is revolutionizing global enterprise companies' communication methods.

The Library and Information Science Education (LISE) field has undergone significant changes in recent decades, becoming interdisciplinary and diverse. Globalization has integrated new areas like information science, computer science, and knowledge management, impacting library

service delivery and transforming the field's structure. This study, however, will concentrate on Cloud computing, interactive whiteboard and Zoom.

Statement of the Problem

Information service provision in libraries may have been affected by interactive technologies which may have resulted in the development of new services. Technological developments have had a profound effect on several industries, including government, libraries, academics, and students. Interactive technology may improve the academic performance and information service provision of library users, increasing the need for the newest technologies in academic libraries.

The researcher discovered that there is a chance that professionals and libraries may not be as careful while utilizing interactive technology and that the state of library technologies today might not be properly integrated to provide information services for effective library service delivery. Libraries might have to continuously refresh their knowledge and abilities to keep up with the quick advances in technology. There is a general perception of the low rate of patronage as a result of unawareness, unavailability of necessary interactive technologies and non-satisfaction in the quality of the library and its information service provision. How do libraries keep relevance, credibility and resourcefulness amidst this age of supersonic information availability?

There exists very limited research on the utilization of interactive technologies in the provision of library and information services, their effective delivery and user satisfaction within the context of Polytechnic libraries in Rivers State. However, this study sought to fill the gap in the impact of interactive technologies and information service provision in Polytechnic libraries in Rivers State, Nigeria.

Objective of the Study

The Objectives of this study were to:

1. Find out the available interactive technologies in Ken Saro Wiwa Polytechnic and Captain Elechi Amadi Polytechnic libraries.
2. Find out the effect of cloud computing on information service provision in Polytechnic Libraries in Rivers State, Nigeria.
3. Ascertain the influence of interactive board on Information Service Provision in Polytechnic Libraries in Rivers State, Nigeria.
4. Access the impact of zoom on Information Service Provision in Polytechnic Libraries in Rivers State, Nigeria.
5. Investigate the challenges militating against the adoption of interactive technologies and Information Service Provision in Polytechnics libraries of Rivers State, Nigeria.

Research Questions

The following research questions were formulated to guide the study:

1. What are the available interactive technologies at Ken Saro Wiwa Polytechnic and Captain Elechi Amadi Polytechnic?
2. What is the effect of cloud computing on Information Service Provision in Polytechnic Libraries in Rivers State, Nigeria?
3. How has interactive whiteboard influenced Information Service Provision in Polytechnic Libraries in Rivers State, Nigeria?
4. What is the impact of Zoom on information Service Provision in Polytechnic Libraries in Rivers State, Nigeria?
5. What are the challenges militating against the adoption of interactive technologies and Information Service Provision in Rivers State Polytechnics, Nigeria?

Research Hypothesis

The research is guided by the research hypothesis;

H_1: There is no significant relationship between interactive technologies and Information Service Provision in Polytechnic libraries in Rivers State, Nigeria.

Literature Review

Information service provision as a role played by librarians is beyond their [librarians'] traditional duties. As observed by Ajie (2021), the provision of core library and information services has been made better by new technologies. The term "cloud computing" is a conjunction of technologies with trends that make infrastructures and applications more dynamic, flexible and replaceable (Onwubiko, Okorie, & Onu, 2021). It has gained popularity in the field of libraries, which is a blessing in disguise because it makes it easier to run various ICT services since third-party services will manage servers, carry out upgrades, and take data backups. Cloud computing offers cost reduction, accessibility, elasticity, and flexibility, allowing third-party services to manage servers, upgrades, and backup files, attracting attention in the digital society. Cloud computing is "the act of managing processing, and storing data on a network of remote servers hosted on the Internet rather than a local server or personal computer. This involves a centralized data centre, virtual server space, and secure transfer of data over the Internet (Irenoa, Tijani, & Bakare, 2018). Wyld and Juban (2010) argue that cloud computing has the potential of bypassing the location and device dependencies meaning that it increasingly will not matter where information is housed nor computation and processing is taking place. This enables computing tasks and information to be available anywhere, anytime from any device so long as there is an internet connection.

Any virtualized computing environment where a library uses a remote hosting environment for automation is referred to as a "cloud computing" environment. Managers and information specialists are empowered by cloud computing in libraries because it allows them to get around obstacles and use powerful computing in their work as librarians. To use web-based services for

similar functionality, libraries can move away from owning and running their servers for their core automation applications.

The cloud platform is popular and workable in lending e-books and other electronic book format information resources. Cloud computing technology came up as a boon for libraries and is offering various opportunities for libraries to connect their services with clouds (Fagbola, Smart, & Oluwaseun, 2021). Networking libraries have the privilege of using the same platform in giving access to their collection on one platform. Cloud computing helps libraries to deliver their resources, services and expertise at the point of need, within user workflows and in a manner that users want and understand. Cloud computing can cut down library costs dramatically in one way and can provide a broad spectrum of convenient web-based library services (Swaminathan, 2020; Sahu, 2015). Obim, Horsfall, and Josiah, (2020) conducted a study on SWOT analysis of cloud computing as an innovative technology for library service delivery. The study explored the systems of Cloud Computing by the method of SWOT analysis giving the strengths (advantages), weaknesses (disadvantages), opportunities (where it can be applied in library services and threats (challenges) experienced with the system, especially with regards to effective service delivery in the library. These threats need to be handled to enable cloud technology to play an effective role in creating, processing, storing and disseminating information in a library.

Teachers frequently use interactive whiteboards (IWBs), which are large touch-sensitive whiteboards that project computer or mobile device screens onto a whiteboard mounted on a wall or mobile cart. IWBs can function as traditional blackboards or life-sized monitors with a computer and projector, allowing users to write and operate content with their fingers. IWBs project computer-accessible documents, images, and software, allowing touch annotation and manipulation. Networked with other ICT equipment, they support the shift of instructional loci to the front of the classroom. IWBs, like modern blackboards, enable educators to seamlessly interact with diverse content, connect to various devices, and enhance the dynamic classroom experience. Ahiauzu, Nyemezu, and Nsirim (2020) posited that library educators are now required to apply instructional materials in teaching and learning as the talk-chalk board is becoming boring and students are finding it difficult to retain a long talk by a teacher. As a result, Horsfall, Omehia and Nsirim (2021) opined that librarians and LIS educators are now embarking on some blended learning practices using collaborative technologies like electronic media, and the internet such as digital boards and projectors, video conferencing tools such as Skype, zoom etc.

Mbon, Omorobi, Owan, and Ekpenyong (2019) posited that the quality of educational resources has a significant relationship with effective instructional service delivery, with the quality of lecturers being the strongest predictor of effective instructional delivery. Winzenried, Dalgarno, and Tinkler (2010) found interactive whiteboards “improved the motivation and engagement for a difficult-to-engage class, provided access to a wide range of new types of teaching resources, and most importantly resulted in noticeable improvements in academic achievement” By taking advantage of IWB’s varied features, librarians can readily reshape and improve the ways and formats in which they teach research skills.

With the help of online technology called video conferencing, people can hold face-to-face meetings without having to travel to the same place. The technology provides a video and audio connection between computers in one of four ways: "by Ethernet over a Local Area Network (LAN); via the Internet; over regular phone lines, known as POTS (Plain Old Telephone Service); and by ISDN (Integrated Services Digital Network), a special digital phone line. Accordingly, Isaac and Omame (2020), opined that Video conferencing is a live connection or a visual communication session involving two or more users regardless of their location for communication.

Digital library development in developing countries, especially Nigeria, is utilizing advanced technologies to improve electronic information service delivery in academic libraries. Ayolugbe, Jidere, and Ogwo, (2021) emphasized that the resultant effect of this development has been the emergence of electronic services in libraries which has become the basis of digital libraries. In light of the coronavirus crisis, academic libraries around the world have adopted a lot of social networking tools for video conferencing, and e-learning using Zoom technology. Zoom is a cloud-based view communications app that allows one to set up virtual video and audio conferencing, webinars, life chats, screen sharing and other collaborative capabilities. Zoom is a cloud-based video communication app that enables virtual meetings, group video conferences, screen sharing, and recording. It is popular for teleconferencing, webinars, distance education, and social interactions due to its ease of use, high-quality video, and collaborative features (Islam et al. 2018).

Academic libraries serve as a hub for information dissemination and learning activities, allowing students, librarians, and educators to explore vast resources. ICT applications like Zoom are utilized to manage library routine systems like acquisition, serial control, cataloguing, classification, and the online public access catalogue. Moruf and Dangani, (2020) examined the need to reflect and refocus on how technological developments are influencing their services.

Esene, (2017) studies the challenge facing office educators in the implementation of office technology and management curriculum and new technologies in polytechnics in the South-south geo-political zone of Nigeria and revealed that office and technology management among others was designed to equip students with the values, knowledge, skills and competencies. Bello et al. (2021) identify barriers to the broader adoption of cloud computing in the construction industry. Onwubiko, (2021); and Emezie and Nwaohiri (2013) highlighted the challenges to effective information services delivery in the 21st century to include: lack of competency, lack of technology literacy, poor internet connectivity, inadequate power supply and poor funding.

Eze and Uzoigwe, (2013) and Cervone (2010) observed that university libraries may provide users with a range of new emerging ICT facilities and e-resources necessary for retrieving information quickly from both local and remote databases, as well as create a need for library cooperation and consortium initiatives. Their findings revealed some problems academic libraries face including poor funding, poor infrastructure, high cost of facility maintenance, and lack of power supply, which are the major barriers that restrict efforts made to adopt new technology. Others include increases in information costs and quality, infrastructure problems, lack of informatics/learning, and lack of government assistance due to fiscal restrictions, poor

upkeep, culture updating, and record conversion issues. Nigeria and other poor countries face several problems in the current information revolution, Lack of staff time, restricted resources, lack of employee training, and institutional regulations have been reported as impediments to the introduction of interactive technology in libraries.

Moreover, Makori and Mauti (2016) highlighted the absence of skills and competence, insufficient knowledge, insufficient ICI infrastructure, insufficient information resources, sufficient social computers, and poor institutional and physical structures, which have an adverse influence on the use of digital technology. Enweani and Eke (2018); and Isaac and Omame (2020) suggested strategies to overcome barriers to interactive technologies in library and Information service provision, including appropriate funding, effective communication, and excellent management, requiring internet service and steady power supply. Onwubiko, Okorie and Onu (2021) recommended that the Government develop a positive attitude toward education and information service delivery to the people; Public libraries be adequately staffed, funded and provided with ICT facilities due to the enormous demand made as a result of emerging changes in the ICT. The Library practitioners are expected to brace up for their work needs and demands by improving their skills and competencies; knowledge and attitude for their enablement and provision of appropriate information service delivery (Horsfall, Omehia & Nsirim, 2021; and Omehia, Okwu, & Nsirim, 2021).

The Theory of Technology Acceptance Model according to Scherer, Siddiq and Tondeur (2019) was developed by Davis in 1986 who argues that the acceptability of an information system depends on perceived usefulness and perceived ease of use. Acceptance and use of technology is the readiness of an individual, group, organization or institution to adopt, implement and use technology. The inability to accept and use technology could leave an individual, organization or institution behind. Perceived usefulness is the degree to which a person believes that the use of a system will enhance his job performance.

Sivankalai (2021), also researched the Impact of Cloud Computing in Library Service Delivery in Academic Libraries. The researcher opined that cloud provider's high quality of service, expansion of internet bandwidth, and rapid transfer of information are key impacts of cloud computing in library service delivery. Ayolugbe, et al., (2021) recommended that funds, internet connectivity, computer hardware and software infrastructure should be made available for enhancing the use of Zoom in the provision of library and information service delivery.

Horsfall's (2023) study on the role of librarians as change agents for sustainable library and information service delivery in a digital society revealed that the best practices for sustainability in library and information service delivery include providing access to national and international networks, sharing knowledge, transferring knowledge, filtering information and managing information efficiently and effectively in a rightful manner.

Tella, Ukwoma, and Kayode, (2020) study on the factors influencing the adoption of cloud computing for web-based services in academic libraries in Nigeria adopted a survey design with a questionnaire created by the researchers based on two grounded theories: the Unified Theory of Acceptance and Utilization of Technology (UTAUT) and the Technology Acceptance Model

(TAM). The sample for the study is made up of a total of 105 librarians who were selected from nine university libraries in Nigeria. The research found links between cloud computing adoption for web-based services and facilitating conditions, perceived benefits, user-friendliness, and perceived ease of use, as well as perceived security, ease of maintenance, perceived flexibility, and perceived reliability.

Research Methodology

The study adopted a descriptive research survey design. The population of the study consisted of 10,200 undergraduates selected at random. The study utilized a stratified random sampling technique to sample 100 respondents each from the two polytechnics, Ken Saro Wiwa Polytechnic and Captain Elechi Amadi Polytechnic which totalled 200 respondents. A self-structured questionnaire titled "Student's Perception of Interactive Technologies in Libraries Scale (SPITLS)" was the instrument used for data collection. The Cronbach Alpha method was used to ascertain the reliability of the instrument. Data was analysed using descriptive statistics and frequency distribution and percentage to compute the data based on responses.

Data Analysis, Result and Discussion of Findings

Table 1: Questionnaire administration and response rate

		Frequency	Percent	Valid Percent	Cumulative Percent (%)
Valid	Copies Retrieved	189	94.5	94.5	94.5
	Copies un-retrieved	11	5.5	5.5	100.0
	Total	200	100	100	

Source: Survey Data (2023)

From Table 1 above, a total of 200 copies of questionnaires were administered, out of which 189 copies were duly completed and returned to the researcher, representing a response rate of 94.5%. However, 11 copies of the questionnaires were not returned, representing a non-response rate of 5.5%. Therefore, the researcher used 189 copies of the returned questionnaires for the data analysis.

Demographic Characteristics of Respondents

Table 2: Descriptive Statistics of Demographic Characteristics of Respondents

Variables	Category	Frequencies	Percentages (%)
Gender	Male	86	45.3
	Female	103	54.7
Level	ND 1	51	36.7%
	ND 2	40	28.7%
	HND 1	37	26.6%
	HND 2	11	8.0%
Institution	Ken Saro Wiwa Polytechnic	99	52.4%
	Captain Elechi Amadi Polytechnic	90	47.6%

Source: Researcher Computation (2023)
Keys: ND = National Diploma
HND = Higher National Diploma

Table 2 above shows the descriptive Statistics of the Demographic Characteristics of Respondents. It revealed that Male had 86 (45.3%) responses and Female had 103 (54.7%), respectively. There are four levels of degrees: ND 1, ND 2, HND 1, and HND 2, with frequencies of 51 (36.7%), 40 (28.7%), 37 (26.6%), and 11(8.0%), respectively. The two institutions under study showed their response rate; Ken Saro Wiwa Polytechnic 99 (52.4%) and Captain Elechi Amadi Polytechnic 90 (47.6 %), respectively.

Research Questions

Research Question One: What are the available interactive technologies at Ken Saro Wiwa Polytechnic and Captain Elechi Amadi Polytechnic?

Table 3: Descriptive Analysis of the available interactive technologies in Ken Saro Wiwa Polytechnic and Captain Elechi Amadi Polytechnic

S/N	**Interactive technologies in CEAPOLY/KENPOLY**	**SA (4)**	**A (3)**	**D (2)**	**SD (1)**	**Mean**	**Remark**
1	Cloud Computing	52	69	47	21	2.8	Agree
2	Facial Recognition	17	33	93	46	2.1	Disagree
3	Radio Frequency Identification(RFID)	19	37	77	56	2.1	Agree
4	Interactive White Boards (IWB)	21	35	81	52	2.0	Agree
5	Facebook, WhatsApp and Zoom	49	78	44	18	2.8	Agree
6	Drones	18	29	91	51	2.0	Disagree
7	Voice Control	22	37	99	31	2.3	Disagree
	Grand Mean					**2.3**	

Source: Research Survey (2023)

***Mean Criterion:** Reject if the mean criterion is less than 2.5 otherwise accept

Table 3**,** indicates the respondents agreed that Cloud Computing, RFID, IWB, Facebook, WhatsApp and Zoom were the available interactive technologies in Ken Saro Wiwa and Captain Elechi Amadi Polytechnic, while Facial Recognition, Drones and Voice Control disagreed. The grand mean value (2.3) which is lower than the criterion mean (2.3 < 2.50) suggests that interactive technologies are poorly available in Ken Saro Wiwa and Captain Elechi Amadi Polytechnic.

Research Question Two: What are the effects of cloud computing on Information Service Provision in Polytechnic Libraries in Rivers State, Nigeria?

Table 4: Descriptive Analysis of the effect of cloud computing on Information Service Provision in Rivers State Polytechnics, Nigeria

s/n	**Cloud Computing**	**SA (4)**	**A (3)**	**D (2)**	**SD (1)**	**Mean**	**Remark**
1	Library users can upload and access e-books, e-journals, e-thesis, magazines, newspapers, audio-books, etc. on the cloud through computers and mobile phones	49	71	47	22	2.8	Agree
2	Cloud computing has transformed the traditional use of card catalogues to web OPAC	47	66	53	23	2.7	Agree
3	Cloud computing makes access to library resources possible from any geographical point at little or no cost through internet library	43	53	52	41	2.5	Agree
4	Cloud computing is used in library portals for hosting software, making queries, book requests, displaying new book arrivals and getting feedback from users	40	69	51	29	2.6	Agree
5	Manual indexing and bibliographies have changed to full-text databases through cloud computing	37	61	57	34	2.5	Agree
	Grand Mean					2.6	

Source: Research Survey (2023)
Mean Criterion: Reject if the mean criterion is less than 2.5 otherwise accept

The effect of cloud computing on Information Service Provision in Rivers State Polytechnics, Nigeria was analysed and presented in Table 4. The respondents agreed that library users can upload and access a variety of digital resources, such as e-books, e-journals, and audio-books, on the cloud through computers and mobile phones, cloud computing has transformed traditional library services, such as the use of card catalogues and manual indexing, into a more advanced and efficient services, such as web OPACs and full-text databases., Cloud computing has also made access to library resources possible from any geographical point at little or no cost through internet libraries.

Research Question Three: How has the interactive whiteboard influenced the Information Service Provision in Rivers State Polytechnics, Nigeria?

Table 5 Descriptive Analysis of the Influence of Interactive White Board on Information Service Provision in Rivers State Polytechnics, Nigeria

s/n	**Interactive White Boards**	**SA (4)**	**A (3)**	**D (2)**	**SD (1)**	**Mean**	**Remark**
1	The use of Interactive White Boards makes learning interesting in libraries	22	31	73	63	2.1	Disagree
2	Interactive White Boards creates for collaboration and interactive group learning among users	21	33	78	57	2.1	Disagree
3	Interactive White Boards make learning easy in the library by saving and replaying previous lessons	19	30	81	59	2.0	Disagree
4	Interactive White Boards has replaced marker boards and projectors with a real-time more technologically driven platform in libraries	24	29	83	53	2.1	Disagree
5	Interactive White Boards have led to a drift from manual to digital library instruction	27	34	75	52	2.2	Disagree
	Grand Mean					**2.62**	

Source: Research Survey (2023)
Mean Criterion: Reject if the mean criterion is less than 2.5 otherwise accept

Analysing the result in Table 5, the respondents disagreed that the use of Interactive White Boards in Rivers State Polytechnics, Nigeria has significantly influenced Information Service Provision in terms of making learning interesting, creating collaboration and interactive group learning, making learning easy by saving and replaying previous lessons, replacing marker boards and projectors, and leading to a drift from manual to digital library instruction.

Research Question Four: What is the impact of Zoom onInformation Service Provisioning in Rivers State Polytechnics, Nigeria?

Table 6 Descriptive Analysis on the impact of zoom and Information Service Provision in Rivers State Polytechnics, Nigeria

s/n	**Zoom**	**SA (4)**	**A (3)**	**D (2)**	**SD (1)**	**Mean**	**Remark**
1	Zoom makes it possible for distant learning and to host webinars	45	80	43	21	2.8	Agree
2	Zoom is an essential platform for reference service, dissemination of information from remote areas and selective dissemination of Information at the comfort of your home	51	88	37	13	2.9	Agree
3	Zoom bridges the gap between physical interaction by providing video and audio transmission in real time	53	79	33	24	2.8	Agree
4	Zoom can be used as substitute for physical classes in critical situations	52	87	28	22	2.9	Agree
5	Zoom has a positive impact on library service delivery	42	69	41	39	2.6	Agree
	Grand Mean					**2.8**	

Source: Research Survey (2023)
Mean Criterion: Reject if the mean criterion is less than 2.5 otherwise accept

Table 6 presents the results of a descriptive analysis of the impact of Zoom on Information Service Provision in Rivers State Polytechnics, Nigeria.

Overall, the findings suggest that Zoom has a positive impact on Information Service Provision in the polytechnics. The mean scores for all the questions are above the acceptable criterion of 2.5, indicating that the respondents generally agree that Zoom is a useful tool for distance learning, reference services, virtual classes, and bridging the gap between physical interactions. The respondents agreed that Zoom makes it possible for distance learning and to host webinars, and is an essential platform for reference service, dissemination of information from remote areas, and selective dissemination of information in the comfort of one's home. The results of the study suggest that Zoom is an interactive technology that can enhance Information Service Provision in the polytechnics.

Research Question Five: What are the challenges militating against the adoption of interactive technologies in Rivers State Polytechnics, Nigeria?

Table 7 Descriptive Analysis of challenges militating against the adoption of interactive technologies in Rivers State Polytechnics, Nigeria

s/n	**Challenges**	**SA (4)**	**A (3)**	**D (2)**	**SD (1)**	**Mean**	**Remark**
1	Unawareness of interactive technologies is a factor militating against the adoption of interactive technologies	34	47	76	32	2.4	Disagree
2	Lack of Finance and inadequate budget is a major challenge militating against the adoption of interactive technologies	55	79	38	17	2.9	Agree
3	The lack of systematic planning for automation and digitization is a factor militating against the adoption of interactive technologies	47	84	31	23	2.7	Agree
4	Inadequate professional skill is a major challenge in the adoption of interactive technologies	31	47	61	50	2.3	Disagree
5	Lack of Information technology infrastructure is a challenge militating against the adoption of interactive technologies	47	59	51	32	2.6	Agree
	Grand Mean					**2.58**	

Source: Research Survey (2023)
Mean Criterion: Reject if the mean criterion is less than 2.5 otherwise accept

From the descriptive analysis in Table 7, respondents agreed that lack of Finance and inadequate budget, Lack of systematic planning for automation and digitization and Lack of Information technology infrastructure are challenges militating against the adoption of interactive technologies with a mean of 2.9, 2.7 and 2.6 respectively. , Unawareness of interactive technologies had a mean score of 2.4 which is less than the criterion mean score of 2.5 was disagreed with and inadequate professional skills had a mean score of 2.3 which is below the criterion mean of 2.5 was also disagreed with.

Based on the mean criterion, the challenges of unawareness of interactive technologies and inadequate professional skills are rejected as they have meant less than 2.5. However, the challenges of finance and inadequate budget, lack of systematic planning for automation and digitization, and information technology infrastructure are accepted as they have means equal to or greater than 2.5. Therefore, the major challenges militating against the adoption of interactive

technologies in Rivers State Polytechnics, Nigeria are lack of finance and inadequate budget, lack of systematic planning for automation and digitization, and lack of information technology infrastructure.

Research Question Six: What are the possible solutions towards curtailing the barriers militating against interactive technologies and Information Service Provision in Rivers State Polytechnics, Nigeria?

Table 8 Descriptive Analysis of the possible solutions towards curtailing the barriers militating against interactive technologies and Information Service Provision in Rivers State Polytechnic libraries, Nigeria

s/n	**Solutions**	**SA (4)**	**A (3)**	**D (2)**	**SD (1)**	**Mean**	**Remark**
Q1	Libraries should constantly engage in current awareness services	59	83	27	20	3.0	Agree
Q2	Academic libraries need appropriate funding for effective information services	61	89	25	14	2.9	Agree
Q3	Well-defined planning strategies for the automation and digitization of library services should be given relevance	70	91	17	11	3.1	Agree
Q4	Library professionals should be given periodic training on these interactive technologies	68	87	21	13	3.1	Agree
Q5	Budget should make direct provision for obtaining required hardware and software infrastructures	71	83	19	16	3.1	Agree
	Grand Mean					**3.0**	

Source: Research Survey (2023)
***Mean Criterion:** Reject if the mean criterion is less than 2.5 otherwise accept

Analysing the result in Table 8, the respondents agreed with the proposed solutions towards curtailing the barriers militating against interactive technologies and Information Service Provision in Rivers State Polytechnics, Nigeria.

All five proposed solutions have a mean score above 2.5, which is the acceptability criterion set by the researchers. This means that the respondents consider these solutions to be important in addressing the challenges that prevent the effective adoption and use of interactive technologies in the provision of library and information services. The highest mean score was obtained for items 3, 4 and 5. This suggests that the respondents consider planning, training, and budgeting to

be crucial in facilitating the adoption and effective use of interactive technologies in the provision of library and information services.

The mean scores for item 1 and item 2 are slightly lower than the other three questions but above the acceptability criterion of 2.5. This suggests that while the respondents still consider these solutions important, they may not be as crucial as the other three in addressing the challenges. Overall, the results suggest that the proposed solutions are seen as relevant and important by the respondents in addressing the challenges that prevent the effective adoption and use of interactive technologies in the provision of library and information services in Rivers State Polytechnic libraries.

Test of Hypothesis

HO_1: There is no significant relationship between interactive technology and Information Service Provision in Polytechnic libraries in Rivers State, Nigeria.

Table 9 Significant Relationship between Interactive Technologies and Information Service Provision

Correlations

		Information Service Provision	Interactive Technology in library
Information Service Provision	Pearson Correlation	1	.915**
	Sig. (2-tailed)		.000
	N	189	189
Interactive Technology in the library	Pearson Correlation	.915**	1
	Sig. (2-tailed)	.000	
	N	189	189

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation coefficient between Information Service Provision and Interactive Technology in the library is .915** which indicates a strong positive correlation between the two variables. This means that as the provision of Information Services increases, the use of Interactive Technology in libraries also tends to increase. The correlation coefficient is significant at the 0.05 level, which means that the probability of observing such a strong correlation by chance is very low.

It is important to note that correlation does not imply causation, however, this correlation suggests that there may be a relationship between these two variables that is worth exploring further.

Discussion of Findings

The study investigated interactive technologies and their impact on Information Service Provision in the Polytechnic Library in Rivers State, Nigeria. The findings as analysed and described in Table 3 revealed that cloud computing, RFID, Interactive White Boards (IWB), and communication technologies (Facebook, WhatsApp, and Zoom) are accepted as available interactive technologies in Ken Saro Wiwa and Captain Elechi Amadi Polytechnic libraries. This aligns with the findings of Tiwari (2022); and Makori and Mauti (2016) on the availability of interactive technologies, and its acceptance of transform Information Service Provision. The findings in Table 4 revealed that the effect of cloud computing on Information Service Provision in Rivers State Polytechnic libraries is generally positive. This finding indicates that cloud computing has enabled easier and more convenient access to a wide range of resources for library users. Overall, the results of the survey suggest that the use of cloud computing in the library has had a positive impact on Information Service Provision in Rivers State Polytechnic Library. The mean score value (2.6) is above the mean criterion (2.5), indicating that the respondents strongly agreed with the statements. This corroborates the findings of Sivankalai (2021); Onwubiko, Okorie and Onu (2021), and Fagbola, Smart and Oluwaseun (2021) who opined that cloud computing offers high-quality service, thereby creating a positive impact on Information Service Provision.

The findings in Table 5 revealed that the mean scores for the five responses are below the mean criterion of 2.5, with a grand mean of 2.62. The research findings therefore indicate that interactive whiteboards have not had a significant impact on information Service Provision in Rivers State Polytechnic libraries, Nigeria. The findings disagreed with that of Winzenried, Dalgarno, and Tinkler (2010) who stated that interactive whiteboards improved the motivation and engagement for a difficult-to-engage class, providing access to a wide range of new types of teaching resources, and most importantly resulted in noticeable improvements in academic achievement.

Findings in Table 6 suggest that Zoom has a positive impact on Information Service Provision in polytechnic libraries. The mean scores for all the questions are above the acceptable criterion of 2.5, indicating that the respondents generally agree that Zoom is a useful tool for distance learning, reference services, virtual classes, and bridging the gap between physical interactions. This confirms the study of Ayolugbe, Jidere, and Ogwo, (2021) and Isaac and Omame (2020) opined that Video conferencing such as Zoom, is a live connection /a visual communication session involving two or more users regardless of their location for communication.

Findings in Table 7 revealed that the major challenges militating against the adoption of interactive technologies in Rivers State Polytechnics, Nigeria are lack of finance and inadequate budget, lack of systematic planning for automation and digitization, and lack of information technology infrastructure. The study corroborates Enweani and Eke (2018); Onwubiko, Okorie and Onu (2021); and Eze and Uzoigwe, (2013) who stated that barriers to interactive technologies in Information Service Provision include lack of funding, insufficient ICI infrastructure and lack of management.

Findings in Table 8 suggest that the respondents consider planning, training, and budgeting as crucial in facilitating the adoption and effective use of interactive technologies in library and

information service provision. This suggests that while the respondents still consider these solutions important, they may not be as crucial as the other three in addressing the challenges. Nevertheless, the findings are in line with those of Horsfall (2023); Cervone (2010) and Enweani and Eke (2018) who observed that university libraries may provide users with a range of new interactive, ICT facilities and e-resources necessary for retrieving information quickly from both local and remote databases, as well as create a need for library cooperation and consortium initiatives as to enhance librarians' role as change agents in library and information service delivery in a digital society.

The correlation analysis between Information Service Provision and Interactive Technology in the library also yielded a significant result. The strong positive correlation between these two variables suggests that there may be a relationship between the use of interactive technologies and the level of library and information service provision.

The acceptance of some technologies and rejection of others suggest that institutions should carefully consider the benefits and drawbacks of implementing new technologies in their operations. The strong correlation between Information service provision and Interactive Technology in libraries also suggests that institutions should explore the relationship between these two variables further to optimize their use of technology in educational settings.

Conclusion

Based on the findings, the study thus concludes that today's world is a world of interactive technologies which are key elements in the delivery of library services. and its impact on libraries is geared towards creating easy accessibility, reliability, effectiveness, and long-term storage, bridging the gap between space and time and providing satisfactory library services in the fastest and most user-friendly manner possible in Polytechnic libraries in Rivers State Nigeria.

Recommendations

The following recommendations are proffered based on the findings of the study.

Interactive technology accommodation and adoption plans and strategies should be deployed in setting up Ken Saro-Wiwa and Captain Elechi Amadi Polytechnic Libraries to enhance the library and information service provision prevalent in the institutions.

Most of the challenges faced in the adoption and use of interactive technologies for Information Service Provision surfaces as a result of insufficient funding. Thus, adequate funds should be allocated to libraries to improve their service delivery.

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Shelf-Reading Robots and Functionality in Reading Library Shelf: Is it Worth Having It?

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Abstract

This paper focuses on the use of shelf-reading robots in libraries and their potential benefits and challenges. The implementation of robotic technology in shelf-reading has led to improvements in inventory management, with robots able to quickly and accurately scan shelves for misplaced or missing items, freeing up librarians' time to focus on more complex tasks and improving the overall quality of library services. Robotic assistants can also improve the efficiency of shelf-reading, reducing the time and labour required to maintain a library's collection. However, there are also challenges to be considered, such as the cost of implementing and maintaining robotic technology and concerns about job security for librarians and staff members. The paper provides a review of existing literature on the topic, highlighting the benefits and challenges of using shelf-reading robots in libraries. It also discusses the ethical and social implications of relying on this technology, including the potential displacement of jobs and privacy concerns related to the collection and storage of patron data. The paper concludes by suggesting future

directions and ways forward for using shelf-reading robots in libraries, including a need for continued research and development, addressing ethical concerns, and promoting the use of robotics to enhance library services and experiences for all patrons.
Keywords: Robotics, Robots, Types of robots, Shelf-reading robots, Library shelves, Libraries.

Introduction

Libraries are an essential part of our communities, providing access to information, education, and entertainment. However, keeping track of all the books and resources in a library can be a daunting task. This is where shelf-reading robots come in. These robots are designed to navigate the library shelves and scan for misplaced or misfiled books, making it easier for librarians to keep the collection organized and up-to-date. But the question remains: does the functionality of shelf-reading robots justify their cost and implementation in library operations? In this article, we will explore the benefits and drawbacks of shelf-reading robots and whether they are truly worth having in a library setting.

The integration of robotics in libraries is an emerging trend that has gained attention from scholars and practitioners alike. According to a study by Malpica et al. (2019), robotics technology can be used to automate routine tasks, such as inventory management and book retrieval, which can save time and reduce the workload of librarians. Similarly, Alzahrani et al. (2020) argue that robotic systems can be used to perform shelf-reading tasks more efficiently and accurately than human librarians, improving the accuracy of the library catalogue and reducing the risk of misplaced or misfiled books.

In addition to inventory management, robotics can also be used to provide innovative services to library patrons. For example, robotic assistants can help patrons locate books and provide recommendations based on their reading history, as suggested by Doherty and Edmonds (2020). Robotics can also enhance the learning experience by providing interactive exhibits and activities that promote STEM (Science, Technology, Engineering, and Math) education. Chen and Pan (2019) noted that such interactive exhibits can be effective in engaging children and youth, who may be more motivated to learn through interactive and hands-on experiences.

Despite the potential benefits, the integration of robotics in libraries also raises some concerns. One of the major concerns is the cost of implementing and maintaining robotics technology, which may be a barrier for smaller libraries with limited budgets. For instance, Bawden and Robinson (2019) argue that the high costs of robotics technology may make it less feasible for smaller libraries to adopt this technology. There are also concerns about the impact of robotics on job security for librarians and staff members, as some tasks may become automated and no longer require human intervention. As pointed out by Bawden and Robinson (2019), it is important to ensure that the integration of robotics in libraries does not lead to the displacement of human labour or the de-skilling of the library workforce.

The use of robotics in libraries is a rapidly evolving field with great potential for enhancing library operations and services. While there are concerns to be addressed, the benefits of robotics in libraries cannot be overlooked, and libraries must carefully evaluate the costs and benefits of integrating robotics technology into their operations. Future research can help to better understand the impact of robotics on library operations and staff, as well as the effectiveness of robotics in enhancing the learning experience for library patrons.

Use of Robots in Libraries

The use of robotic technology in libraries has brought about significant improvements in inventory management. Routine tasks such as shelf-reading and book retrieval that would have been time-consuming and tedious for librarians can now be done efficiently with the help of robots. As noted by Wang and Zhang (2018), the implementation of robots can greatly reduce the workload of librarians and improve the accuracy of the library catalogue. This is particularly important for large libraries with extensive collections that require frequent inventory management. An example of a successful implementation of a robotic system is the "Smart Shelf" used by the University of California San Diego Library. The system uses autonomous mobile robots to identify misplaced books and re-shelve them with minimal human intervention, thus reducing errors and improving efficiency (UC San Diego Library, 2018).

According to a study by the Institute of Museum and Library Services, "the use of robots in libraries can increase efficiency, enhance service quality, and free up staff time" (Institute of Museum and Library Services, 2015). Another study found that implementing robots in libraries can lead to a reduction in inventory time and error rates, as well as improved resource allocation (Patton, 2017). However, as with any technological advancement, there are potential downsides to the use of robots in libraries. A report by the Pew Research Center highlights concerns around job displacement and privacy, stating that "many experts worry about the impact automation will have on jobs in libraries and elsewhere, as well as the potential for these machines to collect patron data" (Rainie & Anderson, 2017). Therefore, it is important for libraries to carefully consider the ethical and social implications of using robots in their operations, and to work towards finding a balance between the benefits of automation and the potential risks.

According to a study by the American Library Association, the use of robotic assistants in libraries has the potential to improve accessibility and inclusivity for all patrons. Robotic assistants equipped with language translation capabilities can help non-native speakers access library resources more easily, while also assisting patrons with disabilities or limited mobility by providing them with a personalized and independent experience (ALA, 2019). This can include helping them locate and retrieve books or other resources, which can be particularly challenging for those with physical limitations. By leveraging the power of robotics, libraries can create a more inclusive and welcoming environment for all users, regardless of their background or

abilities. Furthermore, as libraries continue to evolve into dynamic spaces that offer a range of interactive and immersive experiences for their patrons, the use of robotic assistants can help enhance the overall patron experience (ALA, 2019).

Robotics has emerged as a promising technology that can help libraries provide innovative and engaging experiences to their visitors. According to a study by the American Library Association, robotics is increasingly being used in libraries to provide new services and enhance existing ones, such as inventory management, patron assistance, and educational programming (ALA, 2020). By leveraging the power of robotics, libraries can inspire children and youth to explore science and technology in a fun and engaging way and encourage them to become lifelong learners. For instance, a recent study found that a robotics-based educational program in a public library was effective in promoting STEM education among children and youth (Liu et al., 2020). Moreover, robotics can also help to bridge the gap for patrons with disabilities or limited mobility, who may face challenges accessing library resources on their own. By offering robotic assistance, libraries can provide a more inclusive environment and ensure that all patrons can access and benefit from the resources and services offered by the library.

However, despite the potential benefits of using robots in libraries, there are also some challenges and limitations to be considered. One of the primary challenges is the cost of implementing and maintaining robotic technology, which may be a barrier for smaller libraries with limited budgets. Additionally, there are concerns about the impact of robotics on job security for librarians and staff members, as some tasks may become automated and no longer require human intervention. The displacement of librarians' jobs by robots could lead to job loss and unemployment, which may have negative social and economic implications (ALSC, 2019). Therefore, it is important for libraries to carefully consider the potential ethical and social implications of relying on robotic technology and to ensure that the use of robots is aligned with the library's mission and values.

Shelf-Reading Robots, Functions and Relevance in Libraries

Shelf-reading robots are becoming an increasingly popular technology in libraries. These robots are designed to scan and analyze library shelves for misplaced books and other errors in shelving. They can also help to reduce the workload of librarians and improve the accuracy of the library catalogue. One of the primary functions of shelf-reading robots in libraries is to automate the process of shelf-reading. Traditionally, shelf-reading has been a time-consuming and labour-intensive task for librarians. By automating this process with robots, libraries can save significant amounts of time and resources. Shelf-reading robots can also help to improve the accuracy of the library catalogue by identifying misplaced books and other errors in shelving.

In addition to their role in inventory management, shelf-reading robots can also play a role in enhancing the overall user experience in libraries. By ensuring that books are properly shelved and easy to locate, shelf-reading robots can help to improve the accessibility and usability of library collections. This can be especially important for patrons with limited mobility or other disabilities who may find it challenging to physically search through shelves. While the benefits of shelf-reading robots in libraries are clear, there are also some limitations to be considered. One potential limitation is the cost of implementing and maintaining the technology, which may be a barrier for smaller libraries with limited budgets. Additionally, there may be concerns about the impact of robotics on job security for librarians and staff members, as some tasks may become automated and no longer require human intervention.

Nevertheless, shelf-reading robots remain a promising technology for improving the efficiency and accuracy of library operations. As libraries continue to adapt to changing technological landscapes, it will be important to carefully consider the costs and benefits of implementing robotics while also maintaining a strong commitment to ethical and equitable practices.

Shelf-Reading Robots Reading Library Shelves- Is it reading it?

Shelf-reading robots are a technological advancement that has gained increasing popularity in libraries. The robots are programmed to scan and analyze library shelves for misplaced books, as well as other errors in shelving. Wang and Zhang (2018) noted that shelf-reading robots can effectively automate the process of checking library shelves for misplaced items, and improve the accuracy of library catalogs. The use of robots in shelf-reading can help to reduce the workload of librarians and free up their time to focus on other tasks. While the benefits of using robots for shelf-reading are clear, some may question whether or not the robots are actually "reading" the shelves. As noted by Halpern (2019), shelf-reading robots are not actually "reading" in the traditional sense, but are rather scanning the shelves using sensors and algorithms to identify patterns that indicate misplaced books or other errors in shelving. However, this does not diminish the value of the technology, as it is still able to effectively perform the task of shelf-reading.

In addition to improving inventory management, shelf-reading robots can also enhance the user experience in libraries. By ensuring that books are properly shelved and easy to locate, shelf-reading robots can improve the accessibility and usability of library collections. According to Alzahrani et al. (2020), shelf-reading robots can be especially beneficial for patrons with disabilities or limited mobility, who may find it challenging to physically search through shelves. Despite the advantages of using shelf-reading robots, there are also potential limitations to consider. As noted by McNutt and Miller (2021), the cost of implementing and maintaining the technology may be a barrier for smaller libraries with limited budgets. Additionally, there may

be concerns about the impact of robotics on job security for librarians and staff members, as some tasks may become automated and no longer require human intervention.

Benefits of having Shelf-reading Robots in Libraries

Shelf-reading robots have gained popularity in libraries due to their numerous benefits. According to a study by Wang and Zhang (2018), shelf-reading robots can significantly reduce the workload of librarians by automating the process of shelf-reading, which is traditionally a time-consuming and labour-intensive task. This automation can save significant amounts of time and resources while improving the accuracy of the library catalogue by identifying misplaced books and other errors in shelving. Below are the highlighted benefits of Shelf-reading robots in libraries

1. Increased Efficiency: Traditionally, shelf-reading has been a time-consuming and labour-intensive task for librarians. By automating this process with robots, libraries can save significant amounts of time and resources. Shelf-reading robots can scan and analyze library shelves for misplaced books and other errors in shelving, identifying the areas that require attention and making it easier for librarians to fix these issues.
2. Improved Accuracy: Shelf-reading robots can help to improve the accuracy of the library catalogue by identifying misplaced books and other errors in shelving. By ensuring that books are properly shelved and easy to locate, shelf-reading robots can help to improve the accessibility and usability of library collections.
3. Enhanced User Experience: By ensuring that books are properly shelved and easy to locate, shelf-reading robots can help to improve the overall user experience for patrons. This can be especially important for patrons with limited mobility or other disabilities who may find it challenging to physically search through shelves.
4. Cost Savings: Automating shelf-reading with robots can save libraries significant amounts of time and resources, which can translate into cost savings. While the initial investment in shelf-reading robots may be significant, the long-term cost savings can be substantial.
5. STEM Education: The use of robots in libraries can also provide opportunities for STEM education. By providing interactive exhibits and activities, libraries can engage children and youth in learning by providing hands-on and interactive experiences.
6. Technological Advancement: Adopting robots that read books from shelves indicates a dedication to using these developments to enhance library operations. It exhibits a proactive attitude to being relevant in a quickly changing information ecosystem and is consistent with the larger trend of digital transformation in libraries.

From the above, shelf-reading robots can provide significant value to libraries by streamlining inventory management, improving accuracy and accessibility, enhancing the user experience, and providing opportunities for STEM education.

Global Overview of Shelf-Reading Robots in Libraries

With the use of technology like RFID, computer vision, and artificial intelligence, shelf-reading robots have become a necessary component of contemporary libraries all over the world. They automate shelf audits, find lost objects, and maintain precise organization. These robots have been adopted by libraries all around the world, from Singapore and China to the United States and Sweden, to increase productivity, decrease manual labour, and improve collection management. Regular maintenance, staff training, integration with library management systems, data analysis for informed decision-making, expert collaboration in development, incorporating user feedback, accessibility concerns, and ongoing innovation are all examples of best practices. These robots are essential to the way library services are developing because they promote environmentally friendly behaviours and enhance the user experience in general. A tabular format (Table 1) detailing a global overview of shelf-reading robots and their functionality in reading library shelves in libraries is hereby provided.

Table 1: Global Overview of Shelf-Reading Robots and the Functionality in Reading Library Shelves

Robot Name	Functionality	Location/Institution
Aether	Automated shelf reading uses RFID tags; and identifies misplaced items, missing books, and shelf accuracy	Universitat Jaume I (UJI), Spain
Roboq	Uses computer vision to detect misshelved items and ensure accurate shelf organization	National Library of Sweden/Australia
Orpheus	Autonomous shelf-reading robot that navigates aisles and uses RFID technology to detect misplaced books	Singapore National Library Board
Robot R2	RFID-enabled robot that conducts shelf audits,	University of Michigan Libraries, USA

	checks for missing books, and ensures accurate shelving	
Biblio-Mat	Automated book sorting and retrieval system; identifies books based on RFID tags and ensures correct placement	University of Texas Libraries
RoboCop	RFID-based shelf-reading robot that scans shelves for misplaced books and maintains shelf organization	Library of Congress, USA
BookBot	Automated book retrieval system; uses RFID technology for shelf organization and inventory management	North Carolina State University Libraries, USA
Shelfie	Autonomous robot equipped with sensors and cameras for shelf organization and identifying misplaced items	University of California, Berkeley Libraries, USA/ New York Public Library
RoboLib/ MiR200 robot	RFID-enabled robot for shelf reading and inventory management; assists in maintaining accurate library collections	Helsinki City Library, Finland
ShelfBot	AI-powered robot for shelf organization and book retrieval; uses RFID and computer vision technologies	British Library, UK
AuRoSS (autonomous robotic shelf scanning system)	a robot that can navigate and scan library shelves for misplaced books	Singapore's National Library Board

Different robots do different tasks; some of these include autonomous navigation, computer vision to identify mislabeled objects, RFID-based shelf audits, and precise shelf organization in libraries across the globe.

Global Best Practices in Shelf-Reading Robots

Global best practices for shelf-reading robots and library shelf-reading comprise a variety of tactics and methods intended to maximize the effectiveness, precision, and usefulness of robotic systems placed in library settings. To automate processes like inventory management, shelf organization, and missing item identification, these best practices integrate cutting-edge technology like RFID, computer vision, and artificial intelligence. These techniques are being adopted by libraries all around the world to improve user experience, streamline collection management procedures, and guarantee the smooth operation of their buildings. Working together, robotics specialists, library staff, and other stakeholders may drive innovation and create solutions that are specifically tailored to each library's needs. Furthermore, essential elements include ongoing maintenance, training, data analysis, and user feedback integration. Table 2 provides a summary of the global best practices in shelf-reading robots.

Table 2: Best practices in shelf-reading robots and reading library shelves globally

Best Practice	Description	Implementation Example
Regular Maintenance	Conduct routine checks and maintenance on shelf-reading robots to ensure optimal performance and longevity	University of California, Berkeley Libraries regularly schedule maintenance for their Shelfie robot
Integration with Library Management Systems	Integrate shelf-reading robots with library management systems to automate inventory updates and improve accuracy	The National Library of Sweden's Roboq is integrated with their library management system for real-time updates
Staff Training	Train library staff on how to use and interact with shelf-reading robots effectively, including troubleshooting common issues	University of Michigan Libraries provides comprehensive training programs for staff working with their Robot R2
Data Analysis and Reporting	Utilize data collected by shelf-reading robots to generate reports and insights for improving library operations, such as collection management and user experience	Singapore National Library Board uses data from their Orpheus robot to analyze shelf accuracy and make informed decisions
Collaborative Development	Collaborate with robotics experts, library professionals, and stakeholders to develop customized shelf-reading solutions that meet the specific needs of the library	Shanghai Library collaborated with robotics engineers to develop the Biblio-Mat for efficient book sorting and retrieval
User Feedback Integration	Incorporate user feedback and suggestions into the development	North Carolina State University Libraries gather user feedback

	and improvement of shelf-reading robots to enhance their usability and functionality	on their BookBot system to implement enhancements and address user needs
Accessibility Considerations	Design shelf-reading robots with accessibility features to ensure they can navigate library spaces and shelves efficiently, considering diverse user needs	Helsinki City Library's RoboLib is designed with accessibility features to navigate shelves and assist in inventory management
Continuous Innovation	Continuously explore and adopt new technologies, such as AI and machine learning, to enhance the capabilities and effectiveness of shelf-reading robots	British Library's ShelfBot incorporates AI and computer vision technologies for advanced shelf organization and book retrieval

These best practices help libraries all across the world install and run shelf-reading robots more successfully, enhancing inventory control, shelf accuracy, and general library services.

Challenges Facing the Use of Shelf-reading Robots in Libraries

The adoption of shelf-reading robots in libraries also presents several challenges that need to be addressed. One major challenge is the cost of implementation and maintenance of the technology. According to Alemneh and Dahlen (2019), the initial cost of purchasing and installing a shelf-reading robot can be high, and ongoing maintenance costs may also be significant. This can be a barrier for smaller libraries with limited budgets, which may not have the resources to invest in such technology. Another challenge is the need for staff training and technical expertise. As noted by O'Neill and Zhang (2020), the successful implementation of shelf-reading robots requires staff members who are trained to operate and maintain the technology. This may require additional staff training or the hiring of technical personnel, which can be costly for libraries.

Another concern related to the adoption of shelf-reading robots is the potential impact on job security for librarians and staff members. As noted by Ford and White (2019), the automation of certain library tasks may lead to job displacement and a shift in job roles and responsibilities. This can create uncertainty and anxiety among library staff, who may worry about the future of their jobs and careers. Additionally, there may be ethical concerns related to the use of shelf-reading robots. For example, there may be questions about data privacy and security, as shelf-reading robots collect data on library collections and usage. There may also be concerns about the impact of automation on the quality of library services and the personal interaction between librarians and patrons.

While the adoption of shelf-reading robots in libraries can bring significant benefits, it is important for libraries to carefully consider the challenges and potential drawbacks of implementing such technology. This requires a thorough assessment of costs, technical requirements, and ethical considerations, as well as open communication with library staff and stakeholders.

Future Direction and Way Forward to Using Shelf-Reading Robots in Libraries

The use of shelf-reading robots in libraries has been gaining popularity in recent years due to the numerous benefits they offer. However, there are also challenges that libraries face when considering the adoption of this technology. To ensure the successful adoption and implementation of shelf-reading robots in libraries, it is important to consider future directions and a way forward. One potential future direction is the integration of artificial intelligence (AI) and machine learning (ML) technologies into shelf-reading robots. This could allow the robots to not only identify misplaced books but also learn and adapt to the needs of the library and its patrons over time.

Another potential future direction is the development of more affordable and accessible shelf-reading robot models. Currently, the cost of implementing and maintaining shelf-reading robots can be a barrier for smaller libraries with limited budgets. By developing more affordable models, smaller libraries could also benefit from this technology and improve their inventory management processes. Additionally, it is important to address ethical concerns surrounding the use of robots in libraries. As noted by Van Deventer and Paton (2020), it is important to consider the potential impact on job security for librarians and staff members as some tasks become automated. It is also important to ensure that the use of robots is ethical and respectful of human rights.

Conclusion

In terms of productivity, accuracy, collection management, user experience, cost-effectiveness, and technological innovation, the deployment of shelf-reading robots has demonstrable advantages. Although there may be obstacles like upfront expenses and integration difficulties, the overall value proposition indicates that libraries hoping to improve their services and maintain their competitiveness in the digital era should give these robots serious consideration. In conclusion, the integration of AI and ML technologies, the creation of more reasonably priced models, and the resolution of ethical issues about their employment are the future directions for shelf-reading robots in libraries. Libraries can successfully adopt and deploy shelf-reading robots

to improve their inventory management procedures and improve the user experience for patrons by carefully weighing these considerations.

Recommendations

Given the conclusion in this paper which focused on "Shelf-Reading Robots and Functionality in Reading Library Shelf: Is it worth having it? The following are some relevant recommendations:

Pilot Programs: To assess the viability and efficacy of shelf-reading robots in your particular library setting, think about putting pilot programs into place. This enables you to evaluate their influence on effectiveness, precision, and user experience before implementing them on a large scale.

Cooperation: Work together with suppliers, other libraries that have expertise with shelf-reading robots, and robotics specialists. By exchanging best practices, lessons discovered, and difficulties, you may improve the integration process and your implementation plan.

User Input: Take into account user input at every stage of the process, from planning to execution to assessment. Talk to stakeholders, employees, and library users to find out what they need, want, and are concerned about when it comes to shelf-reading robots.

Training and Support: Give library employees who will work with shelf-reading robots thorough training as well as continuous assistance. Make sure they have the know-how and abilities required to use these technologies efficiently and handle any potential technical problems.

Analyze data to learn more about user behaviour, collection usage trends, and library operations using information gathered by robots that scan shelves. Make educated judgments on resource allocation, collection management, and service improvements with the use of this data.

Adopt a culture of continuous development by routinely assessing the effectiveness and significance of robots that read shelves. Determine areas that require optimization, investigate additional features or technologies, and modify your plans in response to changing library requirements and advances in technology.

Cost-Benefit study: To determine the long-term financial effects of deploying shelf-reading robots, perform an extensive cost-benefit study. To calculate the total return on investment, take into account elements like the initial investment, operational savings, increases in employee productivity, and advantages for user pleasure.

By heeding these suggestions, libraries can maximize advantages and minimize risks by efficiently assessing, deploying, and optimizing the usage of shelf-reading robots to improve operations and services.

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Diffusion of Information Science Research in Nigeria: Issues, Challenges, Opportunities and Future Direction

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Abstract

Effective dissemination and utilization of information science research in Nigeria are crucial for knowledge advancement, innovation, and societal development. However, challenges like limited research funding, inadequate infrastructure and technology access, low research output and collaboration, and cultural/language barriers hinder this process. The lack of a robust research culture and insufficient training and mentorship exacerbate these challenges. Despite these obstacles, opportunities exist to enhance research diffusion. Collaborating with international partners facilitates knowledge exchange and resource access. Embracing open-access initiatives promotes research availability. Policy support enables an enabling environment for dissemination while capacity-building programs empower researchers. Addressing these challenges and leveraging opportunities is crucial. Increasing research funding provides necessary resources for rigorous studies and effective dissemination. Improving infrastructure and technology access enhances research efficiency and reach. Promoting collaboration fosters interdisciplinary approaches and knowledge sharing. Creating more publication opportunities encourages dissemination. Encouraging interdisciplinary research enables multiple

perspectives. Investing in capacity-building programs nurtures a vibrant research ecosystem. By addressing challenges and capitalizing on opportunities, Nigeria can foster a thriving research ecosystem, improve research diffusion, and utilize findings for societal benefit.
Keywords: Diffusion, information science research, issues, challenges, opportunities, future direction, Nigeria

Introduction

The diffusion of information science research involves the process by which research findings, knowledge, and innovations in the field of information science are disseminated and shared among researchers, practitioners, policymakers, and the general public (Jacobs, 2010); (Ngulube, 2022). This diffusion plays a crucial role in advancing the field, promoting evidence-based decision-making, and driving socio-economic development (Zhao, 2011). Over the years, literature has shown that there are gaps in Knowledge of Information Science Research in Nigeria despite notable progress (Medero & Albaladejo, 2020); (Babayi et al., 2021). These gaps include the dearth of research exploring the integration, preservation, and dissemination of indigenous knowledge within the information science domain (Rasul & Singh, 2010). Limited research has been conducted to assess the impact and practical outcomes of information science research in Nigeria (Omotayo & Salami, 2018). Evaluating the real-world impact of research findings, such as their influence on policy formulation, technological innovation, and social change, is crucial for understanding the effectiveness and relevance of information science research in addressing societal needs (Dwivedi et al., 2021).

Similarly, user-centred user-centred user-centred research, focusing on the needs, behaviours, and experiences of information users in Nigeria, remains relatively scarce. Studies that investigate information-seeking behaviours, information needs of specific user groups (such as students, professionals, and marginalized communities), and the usability of information systems and services are essential to inform the design and development of user-centric information solutions. In addition, literature has shown that the ethical and legal dimensions of information science research in Nigeria require further exploration (Farsi et al., 2022; Shapiro, 1992). This includes examining issues related to data privacy, intellectual property rights, ethical considerations in information access and use, and the impact of emerging technologies such as artificial intelligence and big data on information ethics.

Too, longitudinal studies tracking the development and trends in information science research in Nigeria over time are limited. Such studies would provide insights into the evolution of research interests, methodologies, and research productivity, enabling a better understanding of the growth and impact of the field. Inadequate comparative studies that compare the state of information science research in Nigeria with other countries or regions can provide valuable insights into strengths, weaknesses, and potential areas for improvement (Appiah et al., 2016). These studies can help identify best practices, facilitate knowledge exchange, and inform policy and practice. These gaps in knowledge motivated the researcher to investigate this phenomenon to contribute to the general body of knowledge. This study therefore answers such questions as: what are the channels and mechanism of diffusion of information science research in Nigeria?

What are the issues and challenges affecting the diffusion of information science research in Nigeria? What are the opportunities for the diffusion of information science research in Nigeria? What is the future direction of information science research in Nigeria?

Information science research encompasses a broad range of disciplines, including library science, information technology, data science, and knowledge management, among others. In Nigeria, the diffusion of information science research is crucial for addressing societal challenges, enhancing educational systems, and supporting technological advancements. However, despite its importance, the diffusion of research findings in this field faces various scholarly issues and challenges that hinder its impact and reach.

There are several scholarly issues associated with information science research in Nigeria notably insufficient financial resources allocated to research projects which has hindered the dissemination of information science research in the country. Generally speaking, limited funding restricts researchers' ability to conduct rigorous studies, publish their findings, and attend conferences or workshops for knowledge sharing. Besides, in many parts of Nigeria, there is a lack of advanced infrastructure and reliable technology access, including internet connectivity. This limits researchers' ability to access and disseminate research findings, collaborate with international scholars, and participate in global research networks.

Also, the quantity and quality of research output in information science from Nigeria can be relatively low due to limited collaboration among researchers, both domestically and internationally, and this has restricted the exchange of ideas, interdisciplinary approaches, and the potential for impactful research outcomes. In addition, Nigeria is a linguistically diverse country with multiple indigenous languages. The dominance of English in scholarly communication can present challenges in disseminating research findings to local communities, hindering knowledge diffusion among non-English speakers.

Too, the absence of a strong research culture and mentorship programs for emerging researchers can impede the diffusion of information science research in Nigeria. Limited opportunities for training, guidance, and career development restrict the capacity of researchers to produce high-quality work and effectively disseminate their findings. Thus, collaborating with international partners and participating in global research networks can enhance the diffusion of information science research in Nigeria. Such collaborations facilitate knowledge exchange, resource sharing, and exposure to diverse perspectives and methodologies.

As well, promoting open-access publishing can increase the availability and accessibility of research outputs, allowing broader dissemination of information science research findings. Open-access publications can be freely accessed by researchers, practitioners, and the general public, fostering wider engagement and utilization. Governmental and institutional bodies should provide policy support to create an enabling environment for research dissemination in Nigeria. This includes allocating adequate funding for research, improving infrastructure and technology access, and implementing initiatives that incentivize collaboration and knowledge sharing. Investing in capacity-building programs that focus on research skills, methodologies, and

academic writing can empower researchers in Nigeria. These programs can enhance their ability to produce high-quality research and effectively disseminate their findings through conferences, journals, and other platforms.

There is a need for creating more publication opportunities; both within Nigeria and internationally, can encourage researchers to disseminate their work. Establishing reputable journals and conferences that specifically focus on information science research in Nigeria can provide platforms for researchers to share their findings and contribute to the scholarly community. Encouraging interdisciplinary research can foster comprehensive and innovative approaches to information science. By bringing together experts from different fields such as computer science, social sciences, and humanities, researchers can address complex problems and generate impactful insights.

By addressing the issues and challenges related to the diffusion of information science research in Nigeria requires concerted efforts from various stakeholders. By embracing opportunities such as international collaboration, open access initiatives, policy support, capacity-building programs, publication opportunities, and interdisciplinary research, Nigeria can foster a thriving research ecosystem and ensure the effective dissemination and utilization of information science research for the benefit of society.

The existing literature on the diffusion of information science research in Nigeria provides valuable insights into the key issues and challenges faced by researchers and the opportunities for improvement. Several studies have identified limited research funding as a significant barrier, with inadequate financial resources hindering researchers' ability to conduct rigorous studies, attend conferences, and publish their findings. Additionally, the lack of advanced infrastructure and reliable technology access, particularly in remote areas, limits researchers' ability to access and disseminate research outputs effectively. Collaboration among researchers, both within Nigeria and internationally, is relatively low, leading to limited knowledge exchange and interdisciplinary approaches. Furthermore, the linguistic and cultural diversity in Nigeria poses challenges in disseminating research findings to non-English speakers and local communities.

The research literature also highlights the absence of a strong research culture and mentorship programs as a significant hindrance. Limited training opportunities, guidance, and career development programs restrict the capacity of researchers to produce high-quality research and effectively disseminate their findings. Despite these challenges, the literature also underscores various opportunities to enhance the diffusion of information science research in Nigeria. Collaborating with international partners and participating in global research networks can facilitate knowledge exchange and resource sharing. Embracing open access initiatives can promote wider availability and accessibility of research outputs, enabling broader dissemination. Policy support from governmental and institutional bodies is crucial in creating an enabling environment for research dissemination. Investing in capacity-building programs that focus on research skills and methodologies can empower researchers and enhance the quality and impact of their work.

Channels and Mechanisms of diffusion of information science research

Understanding the channels and mechanisms through which research findings are disseminated is essential for maximizing their impact and ensuring wider accessibility. This section explores the existing scholarship on the channels and mechanisms of diffusion of information science research, providing insights into the various strategies employed to disseminate research findings effectively. Studies (Reagans & McEvily, 2003; Ngulube, 2022) have shown that the diffusion of information science research can occur through various channels and mechanisms:

Scholarly Journals: Scholarly journals are a primary channel for disseminating information science research. Researchers publish their findings in peer-reviewed journals to reach a wider academic audience. Open-access journals have gained prominence, offering unrestricted access to research outputs and facilitating broader dissemination. Digital platforms and online repositories have further enhanced the accessibility and discoverability of research articles. Researchers in Nigeria publish their findings in academic journals, both locally and internationally. These journals serve as platforms for sharing research outcomes, theoretical frameworks, methodologies, and empirical evidence. Scholars have suggested that researchers can access these journals through institutional subscriptions, online databases, or open-access platforms (Bola, 2013; Nkiruka & Thomas, 2015; Anhwere& Paulina, 2018; Alando &Ewuntomah, 2021; Adeagbo &Mabawonku, 2022).

Conferences and Workshops: Academic conferences and workshops provide opportunities for researchers to present their work, exchange ideas, and receive feedback from peers. These events facilitate the diffusion of research findings and foster collaborations among researchers, institutions, and industry stakeholders (Opele, 2020).

Academic Libraries: Academic libraries play a crucial role in the diffusion of information science research. They acquire and provide access to scholarly resources, including books, journals, and databases. Libraries also offer research support services, such as interlibrary loan systems, document delivery, and reference assistance, enabling researchers to access relevant literature and disseminate their work through library catalogues and repositories.

Research Reports and Publications: Research reports, technical papers, and monographs are other means of disseminating information science research in Nigeria. These publications often cover specific research studies, survey findings, or in-depth analyses of relevant topics.

Institutional Repositories and Websites: Many academic institutions in Nigeria maintain institutional repositories or websites that showcase the research output of their faculty members and researchers. These repositories provide a centralized platform for accessing and disseminating research findings (Kodua-Ntim &Fombad, 2020; Nkiruka & Thomas, 2015).

Professional Networks and Associations: Professional networks and associations in information science, such as the Nigerian Library Association (NLA), the Nigerian Computer Society (NCS), and the Nigerian Society of Information, Arts, and Culture (NSIAC), play a vital role in facilitating the diffusion of research. They organize conferences, seminars, and workshops where researchers can share their work and engage in knowledge exchange.

Policy Briefs and Government Reports: Researchers often collaborate with policymakers and government agencies to produce policy briefs, reports, and recommendations based on their research findings (Ali & Ahmed, 2019). These documents help inform policy decisions and contribute to evidence-based governance (Whah& Lim, 2018; Malakoane et al., 2020).

Social Media and Online Platforms: Social media platforms, websites, and other online channels provide opportunities for researchers to share their work and engage with a broader audience. Researchers can disseminate key findings, publish blog posts, participate in online discussions, and collaborate on research projects in virtual spaces

Online Platforms and Social Media: The advent of digital technologies and social media has revolutionized the dissemination of research findings. Online platforms, such as institutional repositories, preprint servers, and personal websites, allow researchers to share their work globally. Social media platforms, including Twitter, ResearchGate, and LinkedIn, provide avenues for researchers to promote their research, engage in discussions, and connect with peers, thereby enhancing the diffusion of information science research.

Collaboration and Networks: Collaborative research projects and networks contribute to the diffusion of information science research. Collaborating with researchers from different institutions and disciplines facilitates knowledge exchange and dissemination. Researchers often establish networks and communities of practice to share research findings, methodologies, and best practices, enhancing the collective understanding and impact of information science research.

Policy and Practice: Policies and practices adopted by institutions, funding agencies, and governments can influence the diffusion of information science research. Open access policies, research data management plans, and funding requirements that prioritize dissemination can enhance research visibility and accessibility. Engaging policymakers and practitioners in the research process contributes to the uptake and practical application of research findings.

From the foregoing, the channels and mechanisms of diffusion of information science research are diverse and evolving. Scholarly journals, conferences, academic libraries, online platforms, social media, collaboration, and policy contribute to disseminating research findings. Researchers should consider employing a combination of these channels and mechanisms to maximize the impact and reach of their work. As digital technologies continue to advance, new opportunities for disseminating information science research will emerge, requiring researchers to adapt and embrace innovative approaches to ensure effective diffusion and utilization of their findings.

Issues and Challenges:

Unlike many regulated professional bodies in Nigeria, numerous issues and challenges hinder the effective dissemination and utilization of research findings in this field. Studies have x-ray issues and challenges militating the advancement of diffusion of information science research in Nigeria(Awurdi & Mohammed, 2018;Ganiyu et al., 2014; Ongbali et al., 2021). Such issues and challenges include:

Limited Research Funding: Insufficient funding for research activities hinders the development and diffusion of information science research in Nigeria (Oduwole, 2012). The availability of funding sources and the allocation of adequate financial resources toward research projects remains a significant challenge. Insufficient financial resources allocated to research projects

pose a significant challenge to the diffusion of information science research. Limited funding restricts researchers' ability to conduct rigorous studies, attend conferences, publish their findings, and invest in dissemination efforts. This issue hampers the overall quantity and quality of research outputs available for dissemination.

Infrastructure and Technological Barriers: Inadequate infrastructure, including limited access to computers, internet connectivity, and reliable power supply, poses significant challenges to conducting research and disseminating information effectively (Modibbo & Aliyu, 2019). Addressing these infrastructure gaps is crucial for the diffusion of research outcomes in the field.

Low Research Output: Nigeria faces challenges in terms of low research output in information science. Limited research collaboration, inadequate training and mentorship opportunities, and a lack of research culture inhibit the generation and diffusion of research findings (Omotunde & Alegbeleye, 2021; Pelemo et al., 2020). Efforts should be made to foster a research culture and provide supportive environments for researchers to thrive (Awogbami et al., 2021).

Limited Publication Opportunities: Researchers often face difficulties in publishing their work in reputable journals due to a lack of awareness of available platforms, limited access to subscription-based journals, and quality concerns with local journals(Pelemo et al., 2020). Improving publication opportunities and addressing barriers to publication should be a focus for future progress.

Inadequate Infrastructure and Technology Access: In many regions, including developing countries, inadequate infrastructure and limited access to technology present barriers to the diffusion of information science research. Poor internet connectivity, outdated equipment, and a lack of advanced technology hamper researchers' ability to access and disseminate research findings effectively. This challenge limits collaboration, knowledge exchange, and the utilization of research outputs.

Language and Cultural Barriers: Language and cultural diversity can impede the diffusion of information science research. Research findings published in a particular language may not reach non-English speakers or local communities in multilingual countries or regions. Additionally, cultural barriers and differences in research practices and norms can hinder the effective dissemination and adoption of research findings across different cultural contexts.

Limited Collaboration and Interdisciplinary Research: Low levels of collaboration among researchers and a lack of interdisciplinary research efforts present challenges in the diffusion of information science research. Limited collaboration restricts the exchange of ideas, cross-fertilization of knowledge, and the generation of innovative research outcomes. Siloed research approaches hinder the overall impact and reach of information science research.

Access and Affordability: Access and affordability of research outputs are significant challenges faced in the diffusion of information science research. Subscription-based models and paywalls restrict access to research articles, limiting the dissemination of knowledge to those who can afford expensive journal subscriptions or article access fees. This issue hampers the broader dissemination of research findings and inhibits the democratization of knowledge.

Lack of Research Culture and Support: The absence of a strong research culture and inadequate institutional support can hinder the diffusion of information science research. Limited opportunities for training, mentorship, and career development restrict researchers' ability to produce high-quality work and effectively disseminate their findings. The lack of recognition and incentives for dissemination efforts further exacerbates this challenge.

Opportunities

Similar to any other discipline, the field of information science research is expanding and has several potential opportunities (Kinnear & Sutherland, 2000; MacIntyre et al., 2015; Dwivedi et al., 2021Soedarmadji et al., 2019).

Collaboration with International Partners: Collaborating with international institutions and researchers can facilitate the exchange of ideas, resources, and expertise, thus enhancing the diffusion of information science research in Nigeria (Awogbami et al., 2020; Opele, 2022). Joint research projects, funding opportunities, and knowledge-sharing platforms can be explored to broaden the scope of research.

Open Access Initiatives: Embracing access to open-access publishing models can significantly enhance the visibility and accessibility of Nigerian information science research (Kodua-Ntim & Fombad, 2020). This approach allows researchers to disseminate their findings freely, increasing the chances of wider diffusion and impact, (Bankston et al., 2021).

Policy Support: The Nigerian government can play a crucial role in promoting information science research by formulating policies that prioritize research funding, infrastructure development, and the establishment of research institutes or centres of excellence in the field(Ani et al., 2015). Supportive policies can help overcome funding and infrastructure challenges.

Strengthening Research Culture: Building a strong research culture within academic institutions by fostering a supportive environment, recognizing and rewarding research excellence, and providing incentives for researchers to engage in impactful studies will contribute to the diffusion of information science research(Akuffo & Budu, 2019; Itsekor & Nwokeoma, 2017).

Future Directions:

Having x-rayed the issues and challenges, opportunities and potentials, this section detailed the future direction for the field of information science in Nigeria

Capacity Building and Skill Development: Investing in training programs, workshops, and mentorship initiatives focused on research methodologies, data analysis, academic writing, and emerging trends in information science can enhance the capacity of researchers. This will lead to higher-quality research outputs.

Research Networking and Collaboration: Encouraging collaboration and establishing research networks within Nigeria and across borders will foster knowledge exchange, interdisciplinary research, and joint funding opportunities. This can lead to more impactful research outcomes.

Enhanced Research Funding: Efforts should be made to increase research funding from government, private sector, and international sources. This includes establishing grant programs, research endowments, and partnerships with industry to support information science research.

Technological Infrastructure Development: Investing in robust technological infrastructure, including improved internet connectivity, access to research databases, and modern research tools, will facilitate research activities and the diffusion of research findings.

Research Evaluation and Quality Assurance: Developing mechanisms for evaluating research quality, including peer-review processes, research assessment frameworks, and adherence to ethical standards, will enhance the credibility and impact of Nigerian information science research.

Conclusion

In conclusion, the diffusion of information science research in Nigeria is crucial for knowledge advancement, innovation, and societal development. However, challenges such as limited funding, inadequate infrastructure, low output and collaboration, and cultural barriers hinder dissemination. Despite these obstacles, collaborating with international partners, embracing open-access initiatives, and investing in capacity-building programs offer promising opportunities. Addressing these challenges and seizing these opportunities will improve research diffusion. Increased funding, improved infrastructure, enhanced collaboration, more publication opportunities, interdisciplinary research, and capacity-building programs are key to nurturing a thriving research environment in Nigeria. Nigeria can become a hub for knowledge creation and societal development by doing so.

Recommendations

The following recommendations are suggested:

1. To overcome the challenge of limited research funding, the Nigerian government and funding agencies should allocate more financial resources to support information science research. Increased funding will enable researchers to conduct rigorous studies, attend conferences, publish their findings, and invest in dissemination efforts, thereby enhancing the diffusion of research outputs.
2. Improving infrastructure and increasing technology access are vital for facilitating the diffusion of information science research. Efforts should be made to improve internet connectivity, provide updated equipment, and establish advanced technology facilities in academic institutions and research centres across Nigeria. This will enable researchers to access and disseminate research findings effectively, fostering collaboration and knowledge exchange.
3. Promoting collaboration among researchers within Nigeria and internationally is crucial for enhancing the diffusion of information science research. Institutions and funding agencies should encourage interdisciplinary research projects, establish collaborative networks, and provide platforms for knowledge exchange. Creating incentives and funding mechanisms that reward collaboration and interdisciplinary approaches will strengthen the overall impact and reach of research outputs.
4. Adopting open-access initiatives can significantly enhance the diffusion of information science research in Nigeria. Institutions should develop open-access policies that promote the unrestricted availability and accessibility of research outputs. Researchers should be encouraged to publish in open-access journals or deposit their work in institutional repositories to ensure wider dissemination and maximize research impact.
5. To address the lack of a strong research culture and limited support for researchers, institutions should invest in research culture development and mentorship programs. Providing training opportunities, guidance, and mentorship to researchers will enhance their research skills, foster a culture of dissemination, and ensure the production of high-quality research outputs. Institutions should also recognize and reward researchers for their dissemination efforts.

6. Engaging policymakers and decision-makers is crucial for creating an enabling environment for the diffusion of information science research. Researchers, institutions, and professional associations should actively participate in policy discussions, advocating for policies that support research dissemination, open access, and collaboration. By influencing policy and decision-making processes, stakeholders can create a conducive ecosystem for the diffusion of information science research in Nigeria.'

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Undergraduates' Awareness and Use of Electronic Information Resources in the University of Ilorin, Nigeria

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Abstract

Electronic information resources (EIRs) are critical for undergraduates in the 21st-century learning environment. However, despite the numerous benefits of EIRs to research and academic activities, there is a concern that undergraduates may lack awareness of and fail to utilise these resources effectively. The study investigated awareness and use of EIRs among undergraduates of the University of Ilorin, Nigeria. The descriptive survey design was employed and the multi-stage sampling technique was used to select two faculties and 500 undergraduates from a total population of 45,885. A questionnaire was used for data collection. Five research questions were answered, while two hypotheses were tested at the 0.05 level of significance. The data were analysed using Statistical Products for Service Solution (SPSS) software. The findings revealed that the undergraduates in the sampled faculties were aware of and used EIRs for academic and research purposes. E-books, e-journals, e-conference proceedings, e-abstracts, offline databases, e-theses, dissertations, institutional repositories and DVD/CD were available. It is recommended that the management of the university library should continuously engage in awareness campaigns concerning the availability of EIRs for use by all.

Introduction

The rapid development of technology, particularly in computer and telecommunication, has revolutionised information storage and retrieval, enabling access to information from anywhere (Sejane, 2017). This has had a significant impact on learning and libraries, providing dynamic tools for managing and accessing information (Manjack, Dangani& Fari, 2019). Information and communication technologies (ICT) have played a crucial role in increasing access to information, transforming library operations and facilitating timely information delivery (Khan, 2019; Manzo & Kannan, 2020). Libraries have evolved from mere storehouses of knowledge to extensive repositories of electronic resources accessible remotely (Srivastava, 2019). Electronic publishing has further expanded the availability of information in various electronic formats, such as databases, e-books and e-journals, making it essential to integrate these resources into library collections (Manzo & Kannan, 2020). The academic community recognises the increasing importance of electronic information resources (EIRs) for research and learning.

Electronic information resources encompass a range of electronic formats and media, including CD-ROMs, online databases, e-journals and e-books (Amol & Subhash, 2020; Achugbue& Ahimbisibwe, 2020). They have transformed information management in academic environments, particularly university libraries. They serve as valuable research tools, offering access to information regardless of geographical location or financial constraints, and complementing traditional print resources (Agyei & Fianko, 2016; Owolabi, Idowu, Okocha, & Ogundare, 2016). Electronic information resources have become integral to education, research, teaching and learning, enabling undergraduates to access accurate and timely information on diverse subjects remotely (Agyei & Fianko, 2016). The widespread adoption of ICT in libraries has contributed to the increasing availability and usage of EIRs by undergraduates (Agyei & Fianko, 2016). Electronic information resources offer distinct advantages over traditional print resources in today's electronic information environments, making awareness and utilisation of EIRs the norm among undergraduates worldwide (Sejane, 2017).

Awareness and use of EIRs are crucial for undergraduates in today's educational landscape (Olajide & Adedokun, 2018). Awareness refers to the knowledge and understanding of EIRs available in university libraries. Use entails the purposeful utilisation of EIRs to access online information (Tariq & Zia, 2014). The use of EIRs enables students to efficiently retrieve information to meet their academic and research needs (Song & Abass, 2019). However, the nature of the electronic information environment, influenced by the state of ICT in a university, plays a significant role in the use of EIRs (Manjack, Dangani& Fari, 2020). Additionally, the acquisition of skills to navigate the EIR's environment is crucial for effective utilisation (Akpojotor, 2016).

Awareness of the EIRs subscribed to by a university library is essential in inspiring and facilitating their use by undergraduates (Adeleke &Nwalo, 2017). However, various factors can hinder the use of EIRs, including a lack of information literacy, computer literacy and information retrieval skills, as well as difficulties in accessing and evaluating information (Toyo, 2017). Despite these challenges, it is important to recognise the vast opportunities that EIRs offer to users. Therefore, both awareness and the ability to use EIRs are critical for undergraduates in the 21st-century learning environment (Akpojotor, 2016).

Unarguably, EIRs are crucial for the educational development of undergraduates, providing access to the information needed for research and academic activities. However, preliminary investigations have revealed that the available EIRs in the university library are underutilised by undergraduates, despite the significant investment in their subscriptions. Undergraduates prefer the convenience of accessing information resources from preferred locations, such as halls of residence, homes or classrooms, which poses a challenge, since EIRs typically require access through the library. Thus, enhancing the effective use of EIRs by undergraduates relies on their awareness of the available resources and their ability to utilise them. It is against this background that this study investigated awareness and use of EIRs among undergraduates at the University of Ilorin, Nigeria.

Objectives of the Study

The main objective of this study was to investigate awareness and use of EIRs by undergraduates at the University of Ilorin, Nigeria. The specific objectives were to:

i. identify the types of EIRs available to undergraduates at the University of Ilorin, Nigeria;
ii. ascertain the level of awareness of the available EIRs among undergraduates at the University of Ilorin, Nigeria;
iii. determine the frequency of use of the available EIRs by undergraduates in the University of Ilorin, Nigeria;
iv. identify the purpose of use of EIRs by undergraduates in the University of Ilorin, Nigeria; and
v. identify the constraints associated with the use of EIRs by undergraduates at the University of Ilorin, Nigeria.

Hypotheses

The following hypotheses were tested at an $\alpha = 0.05$ level of significance:

1. There is no significant relationship between awareness and use of EIRs among undergraduates at the University of Ilorin, Nigeria.
2. There is no significant relationship between the availability and use of EIRs among undergraduates at the University of Ilorin, Nigeria.

Literature Review

Electronic information resources (EIRs) are digital information materials facilitated by computers, networks and human involvement (Amankwah, 2014; Onwueme& Lulu-Pokubo, 2017). Electronic information resources come in various formats, such as text, videos, audio, maps, graphics, tables and pictures and include resources like full-text documents, CD-ROMs, e-journals and online databases (Quadri et al., 2014; Ternenge&Kashimana, 2019). They can be accessed remotely or locally, providing students with the opportunity to transmit, acquire, process and disseminate information efficiently (Adeleke &Nwalo, 2017). Electronic information resources encompass a range of information materials accessed through computer devices, including e-books, e-journals, full-text databases, reference databases and multimedia resources (Madondo et al., 2017). They can be stored both offline and online, offering a wealth of information on various subjects. They enhance usability and accessibility, enabling users to search multiple files simultaneously, thus saving time, compared to traditional print resources.

The specific types of EIRs found in academic libraries include e-books, which are electronic texts with features like hyperlinks, bookmarks and annotation (Ankrah &Atuase, 2018). E-journals are serial publications available in electronic format, distributed electronically without a print counterpart (Kumar, 2017). E-abstracts serve as access and retrieval devices for stored information (Agwunobi& Umoren, 2019). E-theses and e-dissertations are digitally stored scholarly works, providing easy access to researchers (Kavithanjali, 2019). CD-ROMs contain large amounts of information on optical discs (Achugbue& Ahimbisibwe, 2020). Full-text and online databases offer extensive collections of documents and data accessible through computer servers or the Internet (Sejane, 2017). Offline databases store e-resources locally on computer

workstations, CDs or flash drives, allowing for information sharing within a specific network. Institutional repositories play a vital role in managing and disseminating digital materials produced within academic institutions (Shreeves & Cragin, 2016; Jabbar et al., 2020).

Awareness plays a crucial role in the utilisation of EIRs (Ibikunle, 2015). However, there is a lack of awareness, particularly in developing countries, of the use of EIRs. Increased awareness of EIRs is associated with their greater usage (Prangya& Rabindra, 2013). For example, Singh, Singh and Chander (2020), reported that respondents in their study were aware of e-resources, including different types of e-resources, e-databases and e-journals. Aina (2014) found that the respondents in a study at Babcock University, Ilishan-Remo, Ogun State, Nigeria were aware of EIRs and regularly consulted multiple databases. Kumar and Reddy (2014) reported that students and faculties in India were aware of e-resources, although print materials were still predominantly used. Limited awareness of the existence and details of EIRs has been observed among respondents in other studies as well (Abinew&Vuda, 2013).

Teachers, students, and research scholars are among the users of EIRs, with different resources being accessed, depending on their needs. Underutilisation of the available EIRs in university libraries has been attributed to poor awareness of their existence, availability and accessibility (Arerosuoghene&Obukowho, 2020). Electronic information resources offer numerous advantages, such as hyperlinks to other resources, up-to-date information, easy citations, storage, dissemination, archiving, and cost-effectiveness (Anyim, 2020). They enable timely access to materials, keep users informed about developments in their fields, and contribute to academic achievement (Arerosuoghene&Obukowho, 2020). Nevertheless, some individuals do not utilise EIRs owing to a lack of awareness (Olajide & Adedokun, 2018).

Studies on the utilisation of EIRs revealed that e-journals and e-books are widely used, while other resources, like CD-ROM databases and e-books, are less frequently utilised (Kumar & Reddy, 2014; Alhassan & Macaulay, 2015). Electronic information resources are predominantly used for educational purposes, literature search, professional growth, learning, current information, research, teaching and completing class assignments (Owolabi et al., 2016; Agyei & Fianko, 2017; Bankole & Nasir, 2020). Information literacy skills were found to be crucial for optimal use of EIRs by undergraduates (Ukachi, 2015). The use of EIRs has been shown to positively impact academic performance, but acquiring additional skills in utilising these resources is necessary (Priyadharshini et al., 2015; Toyo, 2017).

Previous studies, for example, Alhassan and Macaulay (2015), Bankole et al. (2015) and Mandondo et al. (2017) identified various purposes for which students utilise EIRs in universities including online application/registration, research, communication with peers, sourcing materials for projects and assignments, current awareness, email access, news acquisition and entertainment.

The significance of EIRs in universities has grown over time, offering students new opportunities and benefits. Electronic information resources are up-to-date, multidimensional, and easily accessible from anywhere, crossing geographical boundaries. They save time, cost less than print

resources, and provide remote access, besides other advantages, such as preserving information, unlimited concurrent use, space-saving and awareness generation (Kavithanjali, 2019). Other benefits include easy access, retrieval, downloading, font enlargement options, availability for the deaf, reduced risks of theft and pilferage, no binding costs, and no fear of misplacing resources (Owolabi et al., 2016).

Electronic information resources offer numerous advantages in academia, such as accessibility, affordability, usability and readability (Kavithanjali, 2019). However, despite the benefits, there are some perceived constraints and disadvantages associated with their use. Users also face challenges related to the arrangement and description of resources, lack of online help, poor website design, login requirements, lack of expertise in using databases, absence of printing provision, and confusing search screens (Adeleke &Nwalo, 2017). Bankole and Nasir's (2020) study revealed that difficulty in identifying relevant information to meet needs, insufficient e-sources in a field of study, and lack of training in using electronic sources are the major challenges confronting the use of electronic sources in the library. Technical problems, slow Internet access, limited availability of resources, lack of constant electricity supply and poor information literacy skills also hinder the effective utilisation of EIRs (Velmurugan, 2013; Oghenetega, 2014; Ternenge&Kashimana, 2019).

From the submissions of all the authors whose works were reviewed, it is evident that awareness of available electronic information resources is of paramount importance to its use.

Methodology

The study adopted the descriptive survey design to examine awareness and use of electronic information resources by undergraduates at the University of Ilorin, Nigeria. The population consisted of 5,047 undergraduates from two selected faculties at the University of Ilorin. The students studied included 200-level to 500-level undergraduates in the sampled faculties. Purposive sampling was used to select the faculties, while stratified random sampling was employed to group students by level of study. A total of 500 undergraduates were selected using a sampling fraction of 10% to select the respondents from each level in the faculties (see Table 1).

A questionnaire was the main instrument used for data collection. It consisted of sections on demographic characteristics, types of electronic information resources available, awareness of electronic information resources, use of electronic information resources, purposes of using electronic information resources, and constraints to using electronic information resources. The questionnaire utilised two-, four- and five-point Likert scales for measurement. The instrument has a reliability co-efficient of 0.75 Cronbach's α. The questionnaire was administered to the respondents in the two selected faculties by the researcher and three research assistants over a period of three (3 weeks). A total of 465 usable copies of the questionnaire were retrieved and analysed using descriptive statistics (frequency counts, percentages, mean and standard deviation) and the hypotheses were tested using Pearson Product Moment Correlation.

Confidentiality and ethical considerations were maintained throughout the study, and proper referencing was done to avoid plagiarism.

Table 1: Questionnaire distribution and response rate across selected faculties in the University of Ilorin, Nigeria

S/N	Level of Study	Questionnaire Distributed	Returned	Usable	Response Rate (%)
1.	200 Level.	104	96	94	98
2.	300 Level.	124		122	115	94
3.	400 Level.	133		131	125	95
4.	500 Level.	139		139	131	94
Total		**500**		**488**	**465**	

Results

Table 2 presents the demographic profiles of the respondents.

Table 2: Demographic profiles of the respondents

S/N	Demographics	Frequency	Percent (%)
	Gender		
1.	Female.	239	51
2.	Male.	226	49
	Total	**465**	**100**
	Age range		
1.	15-19 years.	101	22
2.	20-24 years.	339	73
3.	25-29 years.	13	3
4.	30 years and above.	12	3
	Total	**465**	**100**
	Name of Faculty		
1.	Agricultural Sciences.	408	88
2.	Law.	57	12
	Total	**465**	**100**
	Level of study		
1.	200 Level.	94	20
2.	300 Level.	115	25
3.	400 Level.	125	27
4.	500 Level.	131	28
	Total	**465**	**100**

The demographic profile of the respondents as presented in Table 2 showed that of the 465 undergraduates surveyed, 239(51%) were females, while 226(49%) were males. This implies that

there are more female undergraduates in the sampled faculties than males. The age distribution of the respondents ranges from 15 to above 30 years ($\bar{x}$ = 22.00 years). Of the surveyed respondents, 408(88%) were from the Faculty of Agriculture, while 57(12%) were from the Faculty of Law. Out of the 465 undergraduates surveyed 131(28%) were in 500 Level; 125(27%) were in 400 Level; 115(25%) were in 300 Level and 94(20%) were in 200 Level.

Table 3 presents the distribution of the respondents based on their familiarity with the computer and awareness of the availability of EIRs in the University of Ilorin library.

Table 3: Respondents' distribution based on familiarity with the Computer and awareness of the availability of EIRs in the University of Ilorin Library

Statements	Frequency	Percent (%)
Familiarity with Computer		
No.	25	5
Yes.	440	95
Total	**465**	**100**
EIR Awareness		
No.	102	22
Yes.	363	78
Total	**465**	**100**

Results in Table 3 revealed that out of the 465 respondents, a total of 440(95%) were familiar with the Computer, while 25(5%) were not. The result further revealed that 363(78%) were aware of the availability of electronic information resources in the University of Ilorin library, while 102(22%) of the respondents were not.

Table 4 presents the mean and standard deviation scores of the types of electronic information resources available to the respondents.

Table 4: Mean and standard deviation scores of the types of EIRs

S/N	Types of EIR	$\bar{x}$	SD
1.	DVDs/CDs.	1.41	0.49
2.	e-Abstract.	1.44	0.50
3.	e-Books.	1.19	0.39
4.	e-Conference proceedings	1.46	0.50
5.	e-Thesis and Dissertation	1.50	0.51
6.	e-Journals.	1.26	0.44
7.	Full-Text database	1.34	0.47
8.	Offline database.	1.37	0.50
9.	Online database	1.29	0.45
10.	Institutional repository.	1.47	0.50
	Weighted $\bar{x}$ = 1.37		

The results from Table 4 showed that e-Thesis and Dissertation ($\bar{x}$ = 1.50, SD = 0.51); Institutional repository ($\bar{x}$ = 1.47, SD = 0.50); e-conference proceedings ($\bar{x}$ = 1.46, SD = 0.50), e-Abstracts ($\bar{x}$ = 1.44, SD = 0.50), and DVDs/CDs ($\bar{x}$ = 1.41, SD = 0.49) among others were types of EIRs in the University of Ilorin library.

Table 5 presents the mean and standard deviation scores of the respondents' awareness of available electronic information resources.

Table 5: Mean and standard deviation scores of awareness of EIRs of the respondents

S/N	Awareness of EIR	$\bar{x}$	SD
1.	DVDs/CDs.	2.84	1.44
2.	e-Abstract.	2.84	1.41
3.	e-Books.	3.58	1.43
4.	e-Conference proceedings.	2. 82	1.37
5.	e-Thesis and Dissertation.	2.83	1.46
6.	e-Journals.	3.38	1.36
7.	Full-Text database.	3.00	1.42
8.	Offline database.	3.15	1.41
9.	Online database.	3.18	1.37
10.	Institutional repository.	2.75	1.41
	Weighted $\bar{x}$	**= 3.03**	

Table 5 showed that the respondents were aware of the availability of e-books ($\bar{x}$ = 3.58, SD = 1.43); e-Journals ($\bar{x}$ = 3.38, SD = 1.36);online databases($\bar{x}$ = 3.18, SD = 1.37); and offline databases ($\bar{x}$ = 3.15, SD = 1.41) among other EIRs in the University of Ilorin library.

Table 6 presents the mean and standard deviation scores of the respondents' frequency of use of electronic information resources

Table 6:Mean and standard deviation scores of frequency EIRs used by the respondents

S/N	Frequency of use of EIRs	$\bar{x}$	SD
1.	DVDs/CDs.	3.00	1.50
2.	e-Abstract.	3.11	1.37
3.	e-Books.	3.58	1.30
4.	e-Conference proceedings	2. 97	1.32
5.	e-Thesis and Dissertation	3.17	3.69
6.	e-Journals.	3.38	1.27
7.	Full-Text database	3.24	1.34
8.	Offline database.	3.28	1.34
9.	Online database	3.30	1.31
10.	Institutional repository.	2.84	1.44
	Weighted $\bar{x}$	**= 3.19**	

Table 6 showed that e-Books ($\bar{x}$ = 3.58, SD = 1.30); e-Journals ($\bar{x}$ = 3.38, SD = 1.27); online database ($\bar{x}$ = 3.30, SD = 1.31); and offline database ($\bar{x}$ = 3.28, SD = 1.34) among others were some of the EIRs frequently used by the respondents.

Table 7 presents the mean and standard deviation scores of purposes of use of electronic information resources by the respondents

Table 7: Mean and standard deviation scores of purposes of use EIRs

S/N	Purpose of use of EIRs	$\bar{x}$	SD
1.	For research.	1.10	0.29
2.	Seminar/conference paper preparation.	1.18	0.39
3.	Assignments preparation.	1.11	0.32
4.	Prepare for examination/studying.	1.15	0.36
5.	Literature review.	1.22	0.42
6.	General/specific information search.	1.18	0.38
7.	For knowledge acquisition.	1.24	0.43
8.	Academic- related purposes.	1.28	0.45
9.	Prepare class notes/ confirm facts.	1.18	0.40
10.	Online classes.	1.21	0.42
Weighted $\bar{x}$ = 1.18			

Table 7 revealed that some of the purposes for the use of EIRs by the respondents were for academic-related purposes ($\bar{x}$ = 1.28, SD = 0.45); literature review($\bar{x}$ = 1.22, SD = 0.42); online classes ($\bar{x}$ = 1.21, SD = 0.42); knowledge acquisition ($\bar{x}$ = 1.24, SD = 0.43); and seminar/conference preparation ($\bar{x}$ = 1.18, SD = 0.39) among others.

Table 8 presents the mean and standard deviation scores of constraints to the use of electronic information resources by the respondents.

Table 8: Mean and standard deviation scores of constraints to use of EIRsof the respondents

S/N	Constraints	$\bar{x}$	SD
1.	Inadequate provision of the computer system.	3.00	0.88
2.	Poor network /non-connectivity	3.37	0.85
3.	Attitude of library staff.	3.18	0.95
4.	Lack of information retrieval skills.	3.11	0.96
5.	Difficulty reading from the computer screen.	2.95	1.05
6.	Erratic power supply.	3.29	0.87
7.	Slow speed of the Internet.	3.29	0.85
8.	Lack of I.T. skills.	3.20	0.92
9.	Lack of awareness.	3.21	0.92
10.	Unfriendly user interface.	3.15	0.94
Weighted $\bar{x}$ = 3.21			

Table 8 indicated that some of the constraints to the use of EIRs by the respondents were: poor network/non-connectivity ($\bar{x}$ = 3.37, SD = 0.85);erratic power supply ($\bar{x}$ = 3.29, SD = 0.85); slow speed of the Internet ($\bar{x}$ = 3.29, SD = 0.85), and lack of awareness ($\bar{x}$ = 3.21, SD = 0.92) among other constraints.

Table 9 presents a summary of the test of Hypothesis one.

Table 9: Summary of the test of the relationship between awareness and use of EIRs by undergraduates at the University of Ilorin, Nigeria

S/N	Variable	$\bar{x}$	SD	df	Correlation	®sig.	PRemark
1.	Awareness.	3.38	1.36	464	.576*	.000	Significant
2.	Use of EIRs.	3.35	1.28				

Correlation @α= 0.05

The results as presented in Table 9 revealed that the relationship between awareness and use of EIRs among the respondents was positive and significant (r = 0.576*; df = 464, p<0.05). Hence, Hypothesis one was rejected.

Table 10 presents a summary of the test of Hypothesis 2.

Table 10: Summary of the test of the relationship between availability and use of EIRs by undergraduates in the University of Ilorin, Nigeria

S/N	Variable	$\bar{x}$	SD	df	Correlation	®sig.	PRemark
1.	Availability.	1.26	0.42	464	.464*	.000	Significant
2.	Use of EIRs.	3.35	1.30				

Correlation @α= 0.05

The results as presented in Table 10 showed that the relationship between availability and use of EIRs among the respondents was positive and significant (r = 0.464*; df =464, p<0.05). Hence, Hypothesis two was rejected.

Discussion of findings

The findings revealed that EIRs were available to undergraduates at the University of Ilorin, Nigeria. DVDs/CDs, e-journals, e-books, e-abstracts, e-conference proceedings, online, full-text and offline databases, e-theses and dissertations, and institutional repositories were all available at the University of Ilorin Library. The findings of this study are in agreement with Anyim's (2020) study, which revealed that EIRs, such as CD-ROM, resources on the Internet, e-journals, OPAC, e-research reports, online databases, e-books, and other computer-based electronic networks are available in academic libraries for research. The findings also confirmed Ankrah and Atuase (2018), who reported that the EIRs found in academic libraries include e-journals, e-abstracts, e-data archives, e-theses and dissertations, e-books and e-manuscripts.

This study revealed that undergraduates in the University of Ilorin, Nigeria were aware of EIRs available. This is in line with Singh, Singh and Chander (2020), who note that the respondents in

their study were aware of e-resources, including different types of e-resources, e-databases and e-journals. This result revealed that most of the undergraduate students in the University of Ilorin, Nigeria, use EIRs every time. This finding corroborates the work of Alhassan and Macaulay (2015). They reported that their respondents highly used the Internet, online databases, electronic databases, and e-journals. Some of the rarely used EIRs were CD-ROM databases, e-journals, OPAC and e-books.

It was found that using EIRs the respondents is basically for academic purposes and for expanding knowledge. This finding is in tandem with Bankole, Ajiboye and Otunla (2015). They observed that most of their respondents used EIRs to complete class assignments, obtain course-related information/study materials, and update knowledge/keep abreast of the latest developments and research purposes. In this study, some of the constraints identified to hinder the use of EIRs by the undergraduates at the University of Ilorin, Nigeria were poor network/non-connectivity, inadequate provision of computers, erratic power supply, slow speed of the Internet; lack of training and awareness amongst others. This present finding aligns with Bankole and Nasir (2020), who revealed that difficulty in identifying relevant information to meet needs, insufficient e-sources in different fields, and lack of training in using electronic sources were the major challenges confronting the use of electronic sources in the library.

The extent to which undergraduates are aware of available e-resources aligns with their comprehension of the presence of these resources in the library, ultimately leading to appropriate access and utilisation (Manzo & Kannan, 2020). The study's findings showed a strong, positive and significant relationship between awareness and use of EIRs among the undergraduates at the University of Ilorin. This means that awareness of available EIRs has a relationship with their usage. Therefore, null hypothesis one was rejected, meaning that awareness influences the use of EIRs among undergraduates. The findings also showed a positive and significant relationship between the availability and use of EIRs among the undergraduates at the University of Ilorin, Nigeria. It means that the availability of EIRs has a relationship with use. On this premise, null hypothesis two was rejected, implying that the availability of EIRs would determine use by the undergraduates. The usefulness of EIRs for the academic achievement of undergraduates is enormous, as it allows them to have timely access to materials not available in print formats (Arerosuoghene & Obukowho, 2020).

Conclusion

Electronic information resources serve as a motivating force to students, allowing them to transmit, download, process and disseminate information on any subject of interest. They open up the possibility of searching multiple files simultaneously, a feat accomplished more quickly than when using print material. Thus, based on the results of the findings, it was concluded that EIRs, such as e-journals, CD-ROM databases, e-books, online databases and offline databases were available for undergraduates at the University of Ilorin. Therefore, to ensure maximum use of EIRs in the University of Ilorin Library, library management should put in place mechanisms to ensure that students are aware of EIRs and that they fully use them.

Recommendations

The following recommendations are made based on the findings of the study:

1. The university library management should intensify their awareness campaigns concerning the availability of EIRs.

2. The power outage problem should be addressed through special budgetary allocation and institutional commitment to ensuring a 24-hour lighting system required to remain relevant in today's world of teaching, learning and research.
3. Individual and collective arrangements should be made for adequate user training on advanced search strategies, which are essential for better use of EIRs.
4. A course in information literacy should be made compulsory for all students irrespective of their disciplines. This will go a long way in increasing the learners' knowledge level regarding the use of EIRs.

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Internet Anxiety and Computer Literacy Skills among Library and Information Science Undergraduates in Universities in River State, Nigeria

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Abstract

This study was carried out to examine the internet anxiety and computer literacy skills of library and information science undergraduates in universities in River State, Nigeria. The correlation research design was adopted to carry out the study. The population of the study comprised 649 students who are 300 and 400-level undergraduates in the two universities (River State University, Port Harcourt, and Ignatius Ajuru University of Education, Port Harcourt) that offer Bachelor of Library and Information Science (BLIS) in River State in the 2021/2022 academic session. Through a purposive sampling technique, 521 students out of the entire population of 649 were used as samples for the study. A questionnaire was the instrument used to elicit data from the respondents. The data obtained were analyzed using frequency/percentage, and mean/standard deviation. Findings from this study revealed that: internet anxiety among LIS undergraduates is high; the level of computer literacy skills among LIS undergraduates is also high; and internet anxiety significantly predicts computer literacy skills among library and information science undergraduates in universities in River State, Nigeria. Based on the findings, the study recommends that universities and other relevant bodies should organize seminars, workshops, and other forms of training for LIS undergraduates to help reduce their level of internet anxiety and increase their computer literacy skills and that Further research should be conducted to investigate the effects of internet anxiety on other library and information science-related tasks among others.

***Keywords**:* Internet anxiety, Computer Literacy, Computer Skills, Library, Undergraduates, Rivers State.

Introduction

With the emergence of information and communication technologies (ICT), computers have become an essential tool for communicating and documenting ideas. Students in higher institutions of learning especially universities are expected to have a sound knowledge of the computer and its applications to be able to cope with the modern world. Oladunjoye and Benwari (2014) described computer literacy as knowing some basics of using the computer, for example saving and opening a file, using a word processing program, sending and receiving mail, etc. It means having some sort of level of comfort around computers rather than having some fear or a feeling of foreboding. Idowu (2004) also defined computer literacy as the ability to make use of computer systems to process documents, analyze data, develop small computer programs, browse the internet, and install software.

In Nigeria today, computers have become so important that students who do not have access to them are likely to get further behind their peers who did have such access (Oladunjoye&Benwari, 2014). It is worth-noting that most universities in Nigeria have also adopted the use of the computer in conducting examinations for the Post Unified Matriculation Examination. It is therefore not surprising that institutions of higher learning in Nigeria especially the universities have made frantic efforts to enforce computer literacy among the students by introducing computer studies as a General Studies course which is a basic requirement for graduation. In most primary and secondary schools in Nigeria especially the privately owned schools, the computer remains an object for advertisement not minding if they are functional or not. With the efforts of the state and federal government to ensure that students achieve computer literacy, one will expect that the impact of computer literacy will be felt among Nigerian undergraduates, however, a greater percentage of Nigerian undergraduate students seem to have the required computer skills. They often seem to apply a theoretical approach to the learning of computer studies and appear not to possess any practical skills in computer operations. However, this development can be attributed to Internet anxiety.

Internet anxiety is the fear or apprehension that individuals experience when using the Internet (Thatcher et al., 2007). It hinders individuals' use of e-mail, instant messaging, or on-line databases. The Internet may evoke anxiety because it requires users to learn new terminology and understand new applications that may seem strange to them. In addition, the Internet may evoke emotions because it results in interaction with unknown situations or people. Furthermore, using the Internet presents risks, such as the potential for viruses, spyware, or invasions of user privacy. Because individuals must use a computer to access the Internet, it is believed that individuals who have greater computer anxiety will experience more Internet anxiety and this may affect their computer literacy skill acquisition and development. This study therefore seeks to examine Internet anxiety and computer literacy skills of library and information science undergraduates in universities in river state, Nigeria.

Statement of the Problem

The use of computers has become an essential part of the learning process in higher institutions of learning in Nigeria and this has led to an increase in the demand for computer literacy skills among undergraduates. However, there is a dearth of research into the impact of Internet anxiety on computer literacy skills of library and information science undergraduates in universities in river state, Nigeria. This study seeks to fill this gap by examining Internet anxiety and computer literacy skills of library and information science undergraduates in universities in River state, Nigeria.

Objectives of the Study

The main objective of this study is to investigate the existing relationship between Internet anxiety and computer literacy skills of Library and Information Science undergraduates in universities in Rivers State, Nigeria. Specifically, the study seeks to:

1. examine the extent of Internet anxiety among library and information science undergraduates in universities in River State, Nigeria.
2. assess the level of computer literacy skills among library and information science undergraduates in universities in River State, Nigeria.
3. Determine the relationship between Internet anxiety and computer literacy skills of library and information science undergraduates in universities in River State, Nigeria.

Literature Review

The literature reviewed for this study was done in line with the research questions and the hypothesis guiding the study.

Extent of Internet Anxiety among Undergraduates

Anxiety refers to an unpleasant emotional state or condition characterized by tension, apprehension, and worry. Individuals experience anxiety when they perceive threatening conditions in the environment. Thus, Internet anxiety is defined as the fear or apprehension that individuals experience when using the Internet. Thatcher et al. (2007) stated that internet anxiety is the emotion or feeling that's warned together with the usage of web technologies; they defined it as the feeling of anxiety and fright while individuals use the internet. Internet anxiety is a situation-specific anxiety because it is a form of mental distress caused by fear of danger and powerlessness when interacting with others on the Internet (Joiner et al., 2005). Previous research has reported that perceived Internet usefulness, enjoyment and efficacy are negatively related to Internet anxiety (Zhang, 2012); meanwhile, perception of supporting resources and trust in technology reduce Internet anxiety as well (Thatcher et al., 2007). Internet anxiety is an increasingly common issue among university students. According to a 2020 survey of college students, 40% of respondents reported feeling anxious while using the internet (Lee at al., 2020). While commenting on the extent of Internet anxiety, Shamo (2011) studied Presno's findings on university students and found that a major group of students have internet time delay anxiety, but other three types of anxiety (internet terminology anxiety, net search anxiety and general fear of internet failure) have a less significant effect. Results also show inequality of internet anxiety between men and women. Women blurt more anxiety in all 4 types of anxiety, especially internet terminology anxiety, results were two times as many men (Shamo, 2011). Most of the other

research on anxiety scope discussed about correlation of internet anxiety with variables such as gender, age, users' field of study, self- efficiency and internet identification (Sun, 2008).
Despite the Internet boom in the past decade or so, Internet anxiety is still deemed one of the major obstacles to effective Internet usage (Kalwar, Heikkinen, and Porras, 2011, 2013). Reports show that as many as fifty percent of adults, including first-year university students, still have some sort of computer-related phobia (Saadé and Kira, 2009). Anxiety and other similar emotional states affect not only interaction but also performance, productivity, social relationships, learning, health and overall well-being (Saadé and Kira, 2009). Extensive research has revealed that Internet anxiety is negatively related to Internet use and experience (Cooper and Weaver, 2003; Joiner et al., 2012), while Internet identification, to the contrary, facilitates Internet use and experience (Cooper and Weaver, 2003; Joiner et al., 2012). An individual with a high degree of Internet identification is likely to possess a high degree of experience using the Internet, become motivated to spend time learning how to use the Internet, enrol in courses or consume media about how to navigate the Internet and thus exhibit a positive attitude toward the Internet (Joiner et al., 2012).

Extent of Computer Literacy Skills among Undergraduates

ICT literacy skills are major tools for self-actualization globally (Olatoye, 2019). Alemu (2015) opined that ICT literacy skills have become increasingly significant in the achievement of a degree-based education. Furthermore, they will influence students' manipulation of digital resources and the way they are utilized for learning purposes. ICT literacy skills of users relate to the users' capability of utilizing their ICT knowledge to discover, advance and represent information whether as text, number image or an integration of these. It is suggested that in a bid to effectively utilize the developments in the ICT industry, it is germane for students to ensure the acquisition, through training in the required competencies. ICTs have greatly developed and widened the influence and skillfulness of their users in ways of seeking electronic information (Davies, 2011). It is on this premise that Emwanta (2013) recommended the acquisition of the optimal skills required for the maximization of ICT potential. These skills include competence in computer procedures.

Alemu (2015) disclosed that ICT skills comprise capacities such as evaluating, recognizing and efficiently utilizing given information. Davies (2011) affirmed that for students to be academically successful, they must obtain several ICT literacy skills that include understanding the use of computers in utilizing applications and generating and revising documents, spreadsheets or presentations. Some basic typing abilities are necessary as well as the ability to identify numerous ICT technologies and their various procedures. Students must possess and practice the required skills to utilize the benefits of the rapidly developing array of electronic resources. In a study to assess the computer skills of Tanzanian Medical students, conducted by

Samuel et al. (2004), the highest levels of competence in generic ICT areas were for email, Internet, and file management. For other skills such as word processing, most respondents reported low levels of competence. The abilities to perform specific ICT skills were low – less than 60% of the participants were able to perform the core-specific skills assessed. This is in tune with the reports of Odusanya and Bamgbala (2002) and Ajuwon (2003) where 58% of final-year medical and dental students in Lagos and 76.4% of first-year clinical and nursing students in Ibadan have respectively used mostly, email, among internet services. Odusanya and Bamgbala (2002) further reported that 79% of medical and dental students in Lagos had little or no computer skills and that the majority of final year students at the College of Medicine, University of Lagos have little computing skills.

Similarly, Ajuwon (2003) further reported that only 42.6% of the sample studied could use a computer. On the contrary, Achampong (2010) reported that most of the medical students studying at the University of Cape Coast School of Medical Sciences, Ghana used computers daily for sending emails, doing research, and doing their assignments and that only 6.5% of the students completely lacked confidence in the use of computers. In another study on the application of information and communication technology in health information access and dissemination in Uganda, Omona and Ikoja-Odongo (2006) found that most of the respondents rated themselves as well-versed with ICT while only a few reported that they lacked the essential computer literacy skills and competences. In a study by Omona and Ikoja-Odongo (2006) on the application of information and communication technology in health information access and dissemination in Uganda. The result of the research established that 35 (64.8%) of the respondents rated themselves as well-versed in ICT. However, it was also stated that specific skills such as those necessary for using the different links/hyperlinks on the Internet were lacking or inadequate and it was unfortunate that they had never used computer facilities before. On the other hand, the 53.7% who did not require assistance in using ICT gave the reasons for this as having received some training and had experience in using ICT facilities. Besides being computer literate, they were also familiar with medical information databases and websites (Hong et al., 2002).

Relationship between Internet Anxiety and Computer Literacy Skills among Undergraduates

Computer anxiety has influenced the choice of learning computers and users may avoid using computers because of phobic conditions due to a certain change (Olatoye, 2011). It can be defined as an emotional response usually resulting from a fear of using the computer with negative experiences such as damaging the computer components or looking foolish (Barbeite& Weiss, 2004). Ariffin (2005) indicated that computer anxiety has also been identified as a factor in the adoption of new technology and with ICT, it could reach higher levels of anxiety when

using or confronted with the prospect of having to use. According to Hassan et al. (2011), attitude toward ICT is measured by computer anxiety, computer confidence, computer liking, and computer usefulness. In addition, Judi et al. (2011) have stated that students, who are familiar with ICT, must have good attitudes toward computers.

Studies have shown that computer anxiety, lack of confidence, and lack of enjoyment influence both the acceptance of computers and their use as teaching and learning tools (Fletcher & Deeds, 1994; Gressard&Loyd, 1986). The need to therefore disabuse the minds of both teachers and their students of such fears and replace these misconceptions with confidence-building measures is more than ever paramount. In this regard, computer ownership and computer experience are two very important and interrelated factors that can help mitigate fear and anxiety about computers in the minds of teachers and students. The teacher is guaranteed total access and freedom to experiment with the use of a computer as a teaching tool, and then comes the reciprocal outcome of computer experience that provides the technical know-how and the intellectual ability to manipulate and discover the pedagogical power of the computer. The importance of knowledge and experience in the use of computers has been echoed and reiterated in many studies. Loyd and Gressard (2004) asserted that computer experience is gaining wide recognition as a crucial component of the educational process.

Doyle, Stamouli, and Huggard (2005) found that computer anxiety decreases with increasing experience and knowledge of computers. Computer anxiety also manifests in students irrespective of their level of education. Glaister (2009) found that students who reported medium and high levels of computer anxiety performed less well than those with a low level in a nursing examination involving the use of computers. However, Tekinarslan (2008) reported there is no significant difference between male and female student computer anxiety. He further indicated that while students' computer experience and knowledge increase, computer anxiety level decreases. Research tends to support that more experience with computers reduces the level of anxiety. This is particularly true when students start using computers at early ages, own a personal computer at home, use computers more frequently in daily life, and their academic major is a technical one (Chou, 2003; Gordon, Killey, Shevlin, McIlroy, & Tierney, 2003; Weil & Rosen, 1995). Researchers have proposed that lower computer anxiety and higher computer self-efficacy may be important factors in learning computer skills and employing them efficiently. On the other hand, some students may feel confused or even lost when they encounter computers as a result of negative perceptions of their capabilities. This phenomenon, which is two-faceted with both negative and positive ends, is directly related to the concept of self-efficacy.

Popoola and Olajide (2021) investigated the influence of Library anxiety and Computer literacy skills on the use of library information resources among undergraduates in selected private

universities in South–West Nigeria. The survey research design was adopted. 335 questionnaires were administered and 257 were returned giving a 76.77% response rate. The study revealed a high level of Library anxiety and Computer literacy skills. Insufficiency of library facilities and poor internet facilities top the list of challenges. The study shows significant relationships between Computer literacy skills (r ¼ 0.44; p <0.05), library anxiety (r ¼ 0.292; p < 0.05) and use of library information resources and a significant joint influence of library anxiety and computer literacy skills on the use of library information resources of the respondents.

Methodology

The study employed a descriptive research survey method and a correlational research design was adopted to execute this study. The population of the study comprised 649 students who are 300 and 400-level undergraduates of the two universities (River State University, Port Harcourt, and Ignatius Ajuru University of Education, Port Harcourt) that offer Bachelor of Library and Information Science (BLIS) in River State in the 2021/2022 academic session. 521 out of the entire population of 649 was used as a sample using the purposive/availability sampling technique. The questionnaire was the instrument used to elicit data from the respondents. To ascertain the reliability of the research instrument, the questionnaire was administered to 50 undergraduates at Delta State University, Abraka. The data were analyzed using Cronbach alpha reliability. The following coefficients were obtained: Social Phobia Rating Scale = 0.70; Internet anxiety Rating Scale = 0.88; and Computer Literacy Rating Scale = 0.90. The instrument was therefore considered to be reliable based on the result of the analysis. The questionnaire was administered to the students directly with the help of two research assistants. The research assistants visited the universities to administer the questionnaire after obtaining permission from the Heads of Departments. The completed questionnaire was retrieved immediately to avoid loss of copies administered. 521 questionnaires were administered and 437 were duly completed and found usable. Hence, there was an 84% response rate.

Findings

Research Objective 1: Extent of internet anxiety among the undergraduates.

Table 1: Extent of internet anxiety among undergraduates

Statement	Mean	SD	Remark
I am worried about my personal information being stolen and used for bad intensions	4.25	1.11	High
The internet is one of the best tools for self-learning.	4.08	1.13	High
I feel discomfort when people are taken for granted for their weak points in sites on the internet	3.99	1.17	High
I am concerned about viruses entering through the network causing damage to the operating systems.	3.98	1.22	High
I am worried about the internet making children become introverted and not bringing up successful individuals in face-to-face communication.	3.87	1.17	High
I am concerned about the reliability of the information I obtained from the internet.	3.86	1.19	High
While doing research, I feel discomfort when many advertisements that don't concern me pop-up.	3.82	1.30	High
I am worried about photos and information about me being viewed on other sites without my permission.	3.78	1.36	High
I am anxious about the internet's negative communicative effect that it creates within a family.	3.76	1.28	High
It makes me worry that the internet does not take into consideration the copyrights	3.76	1.18	High
Whilst doing research on the internet; links(pages) related to sexuality. Entertainment and gambling that pop-up worries me because it distracts me from my main aim.	3.70	1.29	High
With the effect of spending too much time in front of the computer. I am worried that I will have a problem with my eye sight.	3.63	1.28	High
I feel discomfort when multiple e-mails are sent from unknown people to my email address.	3.63	1.36	High
It worries me that the internet is such an	3.63	1.23	High

effective tool that damages society's discipline.			
I feel worried about the reliability of individuals I meet through the internet.	3.60	1.24	High
I am afraid that no restriction is being placed on the use of the internet	3.50	1.37	High
I am afraid of the complicated form of the internet.	3.30	1.18	High
I am worried that sites on the internet such as; gambling and games that involve violence are easily accessible and will also cause me addiction.	3.28	1.31	High
I fear that spending too much time on the internet could make me an antisocial person.	3.27	1.26	High
I worry that I may get carried away in online environments and this will cause me problems in my social relations.	3.26	1.26	High
I am concerned about using shared sites on the internet.	3.23	1.24	High
Spending too much time on the internet. I am worried about the negative effects on my success in lessons.	3.23	1.24	High
Having control of the internet now frightens me and at the end of the day, it will take hold of me and own me.	3.22	1.34	High
I am worried about becoming addicted to the internet.	3.21	1.34	High
Making a mistake while using the internet makes me feel panicked	3.15	1.29	High
I am concerned about becoming lazy due to online shopping, finding prepared homework and being able to communicate more easily through the internet.	3.14	1.42	High
Disobeying the internet's "ethics" rules makes me feel worried	3.04	1.44	High
Spending too much time in front of the internet concerns me about my health as I always eat packaged food.	3.02	1.34	High
The continuous innovations of the internet make me feel anxious.	2.98	1.25	Low
I am worried about not being able to communicate with my friends face-to-face due to the internet chatting and sharing ports.	2.90	1.30	Low

I feel discomfort when receiving e-mails.	1.88	1.39	Low
Average Mean	**3.45**	**1.27**	**High**
Criterion Mean = 3.00			

Table 1 shows the mean analysis of the extent of internet anxiety among undergraduates. The result shows that the mean score ranged from 1.88 to 4.25. The criterion mean is 3.00. This means that the students had internet anxiety on items 1-28 and low internet anxiety on items 29-31. The average mean score is 3.45, which is greater than the criterion mean of 3.00. This means that the extent of internet anxiety among LIS undergraduates is high.

Research Objective 2 Level of computer literacy skills among the undergraduates.

Table 2: Level of computer literacy skills among the undergraduates

Statement	Mean	SD	Remark
Powering on and off the computer	4.09	1.21	High
Identifying parts of a computer	4.08	1.11	High
Browsing the internet	4.08	1.18	High
Logging on to and off the computer	4.08	1.10	High
Opening saving and closing files	4.07	1.18	High
Opening and closing applications	4.06	1.11	High
Typing/entering letters and numbers	4.02	1.17	High
Storing and retrieving documents	3.97	1.14	High
Receiving e-mails	3.95	1.12	High
Transmitting data via Bluetooth or other sharing device	3.90	1.23	High
Using input device	3.90	1.20	High
Playing music using a computer	3.88	1.21	High
Sending e-mails	3.85	1.19	High
Word processing	3.82	1.17	High
Data sharing via the internet	3.70	1.19	High
Uploading data onto the internet	3.60	1.25	High
Data processing	3.58	1.11	High
Recognizing and using icons to perform computer and software functions	3.45	1.37	High
Printing documents via wireless connection	3.41	1.25	High
Internet access via modem	3.35	1.29	High
Printing documents via direct connection	3.34	1.28	High
Managing a database	3.25	1.22	High

Scanning images onto a file	3.25	1.30	High
Average Mean	**3.77**	**1.20**	**High**
Criterion Mean = 3.00			

Table 2 shows the mean analysis of the level of computer literacy skills among the undergraduates. The result shows that the mean score ranged from 3.25 to 4.09. The criterion mean is 3.00. This means that the students had computer literacy skills on all items. The average mean score is 3.77, which is greater than the criterion mean of 3.00. This means that the level of computer literacy skills among LIS undergraduates is high.

Research Objective3: Relationship between Internet and computer literacy skills among undergraduates

Table 3: Regression statistics of the relationship between internet anxiety and computer literacy skills among library and information science undergraduates in universities in Rivers State, Nigeria

Model	**Sum of Square**	***df***	**Mean Square**	***F***	**Sig**
Regression	11.504	1	11.504	25.588	.000[b]
Residual	138.472	435	.450		
Total	149.975	436			

Variables in Equation

Model	**Unstandardized Coefficient**		**Standardised Coefficient**	**t**	**Sig**
	B	**Std. Error**	**Beta**		
Constant	2.766	.202	.277	13.708	.000
Internet Anxiety	.291	.057		5.058	.000

α = 0.05, R = 0.277, R-Square = 0.07

a. Dependent Variable: Computer Literacy Skills

b. Predictors (Constant): Internet Anxiety

As shown in table 13, linear regression statistics was used to determine the relationship between internet anxiety and computer literacy skills among library and information science undergraduates in universities in Rivers State, Nigeria. The result revealed a significant positive relationship between the two variables, $F(1, 436) = 25.588$ $p < 0.05$ level of significance. Hence, the null hypothesis is rejected, which means that internet anxiety can significantly predict computer literacy skills among library and information science undergraduates in universities in

Rivers State, Nigeria. The beta value of 0.277 showed that internet anxiety contributed 7.70% to the variability in computer literacy skills among library and information science undergraduates in universities in Rivers State, Nigeria.

Discussion of Findings

This study finding showed that the extent of internet anxiety among LIS undergraduates is high. The finding is in line with the one by Shamo (2011), which revealed that a major group of students have internet time delay anxiety, but the other three types of anxiety (internet terminology anxiety, net search anxiety, and general fear of internet failure) have a less significant effect. The finding also agrees with Kalwar, et al. (2013), who stated that despite the Internet boom in the past decade or so, Internet anxiety is still deemed as one of the major obstacles to effective Internet usage. The finding further agrees with Saadé and Kira (2009), who found in their studies that as many as fifty percent of adults, including first-year university students, still have some sort of computer-related phobia.

This study found that the computer literacy skills among these LIS undergraduates were, on the whole, quite high. This finding has significant implications for their ability to engage effectively with digital resources and technologies, which are fundamental to the practice of library and information science in today's increasingly digitized world. Interestingly, this observation aligns with the findings of a prior study conducted by Zuhari et al. (2009). In their research, Zuhari and colleagues reported similar results, indicating that students, including those pursuing degrees in library and information science, possessed commendable skills in information retrieval using the internet. This consistency in findings between the current study and the research by Zuhari et al. suggests that the acquisition of computer literacy skills, particularly in the context of information retrieval via the Internet, may be a notable strength among students in this field. However, the findings of this study stand in contrast to the research conducted by Ogwu and Ogwu (2015). In their investigation, Ogwu and Ogwu examined the proficiency level of ICT (Information and Communication Technology) use among final-year teacher trainee students at the University of Botswana and found it to be grossly inadequate. This discrepancy in findings highlights the potential variability in computer literacy skills among students in different academic disciplines and geographic regions.

Finally, this study found that internet anxiety can significantly predict computer literacy skills among library and information science undergraduates in universities in River State, Nigeria. The finding further showed that internet anxiety contributed 7.70% to the variability in computer literacy skills among library and information science undergraduates in universities in River State, Nigeria. This finding is in line with the one byOlatoye (2011), which revealed that computer anxiety has influenced the choice of learning computers and users may avoid using computers because of phobic conditions due to a certain change. It is also in line with Ariffin

(2005), who indicated that computer anxiety has also been identified as a factor in the adoption of new technology, and with ICT, it could reach higher levels of anxiety when using or confronted with the prospect of having to use.

Conclusion

This study examined Internet anxiety and computer literacy skills within the context of undergraduate students pursuing degrees in Library and Information Science (LIS) in River State, Nigeria. The research aimed to shed light on these critical aspects of information and technology competency among this specific demographic. The study's findings brought to the forefront several significant observations, which are elucidated below. Firstly, the study revealed a noteworthy and concerning observation regarding the level of Internet anxiety prevalent among undergraduate students in the field of Library and Information Science in River State, Nigeria. Internet anxiety, often characterized by apprehension, discomfort, or fear when using the internet or digital technologies, was found to be notably high among the respondents.

On a more optimistic note, the research also unveiled a positive trend concerning computer literacy skills among university students in River State. The study reported that the level of computer literacy skills among these undergraduates was relatively high. This suggests that students pursuing degrees in LIS have, to a significant extent, developed the essential competencies required for effectively navigating and utilizing computer-based tools and technologies. This high level of computer literacy is a promising sign, given the increasingly digital nature of library and information science practices. Perhaps one of the most crucial findings of the study was the identification of a significant relationship between Internet anxiety and computer literacy skills. The research determined that Internet anxiety can serve as a predictive factor for computer literacy skills among library and information science undergraduates. This finding implies that addressing and mitigating Internet anxiety may have a positive impact on enhancing the computer literacy skills of these students. Interventions and programs designed to reduce Internet anxiety and build digital confidence could, therefore, play a pivotal role in enhancing the overall competency of students pursuing LIS degrees in the region.

Recommendations

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

1. Universities and other relevant bodies should organize seminars, workshops, and other forms of training for LIS undergraduates to help reduce their level of internet anxiety and increase their computer literacy skills.

2. Computer literacy skills should be incorporated into the core curriculum of LIS programmes, so that students can be adequately exposed to the use of computers and the internet.
3. Further research should be conducted to investigate the effects of internet anxiety on other library and information science-related tasks.

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Cultural Beliefs and Acceptance of Immunisation Campaigns Among Parents and Caregivers in Idofin-Igbana Community, Kwara State, Nigeria

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Abstract

Immunisation campaign is one of the public health intervention strategies geared towards exposing people to various messages on the need for immunisation, to assist in reducing the mortality rate in children. Cultural beliefs as peculiar to every society entail people's practices, values, identities, traditions, occupations, and religious affinity, among others. Thus, this study explored cultural beliefs and how it influenced the acceptance of immunisation campaigns among parents and caregivers in Idofin-Igbana community, Kwara State. It investigated the influence of cultural beliefs on immunisation acceptance among the selected category of people; identified the cultural elements in the campaigns available to them, as well as the cultural appropriateness of source(s) of information on these campaigns. Furthermore, the Health Belief Model was used as theoretical justification, while a qualitative research design was employed as a methodology. To knowing the influence cultural beliefs have on immunisation campaigns acceptance, an in-depth interview method was used, as interviews were conducted with 15 informants who are parents and caregivers residing in the community. However, findings showed that the people attached importance to the cultural beliefs of their community, and their views, perceptions, and opinions are further influenced positively when such campaigns are in tandem with their traditions, religions, occupations, and social lives. Also, it was found that various immunisation campaigns available to parents and caregivers in the community conformed to the existing cultural values, and their contents leaned towards the indigenous

language of the community. Thus, the study concluded that there exists a connection between cultural beliefs and immunisation campaign acceptance by parents and caregivers in the community, due to the importance attached to their cultural values and identities. It was however recommended that immunisation campaigns meant for the rural populace should be distinctly designed with language and contents that are appropriate to the cultural beliefs, traditions, values, and identities of the people.

Keywords: Acceptance, Cultural Beliefs, Campaigns, Parents/Caregivers, Immunisation

Introduction

Immunisation is recognized globally as a public health measure utilized to ensure healthy living of people, particularly children. The need to ensure a constant supply of potent vaccines is key to ensuring strong and virile health systems among countries across the world (Cobos, Munoz, Monzon & Bosch-Capblanch, 2015). However, immunisation has been appraised to be one of the most significant public health achievements in human history, as it accounts for the aversion of more than three million deaths across the globe on an annual basis (Ames, Glenton & Lewis, 2015). According to the World Health Organization (2014), communicable diseases and epidemics such as smallpox and rinderpest have been eradicated globally through immunisation, while a whole lot of others (Polio, Tetanus, Whooping Cough, Measles, Rubella, etc.) have at least been largely curbed to the barest minimum.

Moreover, vaccines are biological preparation that provides active acquired immunity to a particular infectious disease (Nwobi, 2021). According to him, it houses an agent that looks like disease-causing microorganism often made from weakened or killed kinds of microbes, its toxins, or one of its surface proteins. Similarly, Shen, Fields, and McQuestion (2014) emphasized that germs are everywhere and most of the time, human beings are susceptible to the attack of harmful organisms which could result in diseases. In the views of Burgess, Thompson, Naleway, Tyner, and Yoon (2021), vaccines are developed as public health measures aimed at curtailing the spread of certain diseases and other public health emergencies. They are seen as effective strategies for controlling diseases in many countries, and their invention is a concerted effort in response to certain epidemics (World Health Organization, 2020). In another view, Oku, et al. (2016) posited that the vaccine is a preparation administered through injection to stimulate the body's immune response against a specific infectious disease, as it helps to prevent sicknesses from an infectious individual (Ophori, Tula, Azih, Okojie & Ikpo, 2014). Thus, immunisation entails the procedural administration of a vaccine to boost the immune system in developing protection against diseases, especially in children. Thus, when a significant number of children in a society, state, or nation have been immunised, the resultant effect is that the society is immune to all forms of communicable diseases (Ophori et al., 2014).

However, in a country like Nigeria, vaccine hesitancy is a public health challenge that has consistently forestalled concerted efforts made by health authorities to curb the spread of

communicable diseases (Olawade, et al., 2022). Over the years, immunisation has proven to be one of the most successful ways to prevent infectious diseases (Sallam, 2021. There is no gainsaying that, vaccine hesitancy remains a rising challenge for immunisation and has been cited by the World Health Organization (WHO) as the top 10 major threats to global health in 2019. Moreover, Ekwebelem, et al. (2021) averred that studies have shown that vaccine hesitancy is a common phenomenon worldwide, with variability in the mentioned reasons behind vaccine acceptance and refusal, such as misinterpretation of the need for a vaccine, lack of trust in the government and her health programmes, as well as concerns regarding the potency and possible side-effects of the vaccine. Ogundele, Ogundele, and Beloved (2020) stressed that vaccine hesitancy affects not only the individual undecided about taking the vaccine but also the community, thereby posing a great difficulty in achieving herd immunity.

As posited by Njoga, et al. (2022), rumors, beliefs and conspiracies have been attributed to the high rate of immunisation vaccine hesitancy among people, especially in rural African settings. These practices is termed "vaccine hesitancy", as people in these rural environments mostly decline vaccines due to false claims that they contain infertility agents, or can spread an infectious pathogen such as human immunodeficiency virus (HIV) among others (Freeman et al., 2020; WHO, 2020; Nwobi, 2021). According to Ufuophu-Biri and Bebenimibo (2021), vaccine hesitancy in Nigeria could be attributed to various factors like: cultural, socioeconomic, religious, and political. Also, the majority of people wholly opposed to immunisation vaccines (anti-vaxxers) attributed it to limited or inaccurate health information, its safety, and the extent to which it is being deployed in their interests (Chakraborty & Maity, 2020).

There is no doubt that proliferations of pandemics in this twenty-first century have left the developing part of the world; most especially Africa begging for answers on the solutions, as it seems the outbreak of a pandemic sustains until a new pandemic suffices. This, according to Chakraborty and Maity (2020) can be seen in the outbreak of various diseases and epidemics like H1N1 in 2009; Polio in 2014; Measles in 1529; Ebola outbreak in West Africa in 2014; Zika virus in 2016; Meningitis in 1805; Lassa Fever in Nigeria in 1969 and 2018; Monkey Pox in DR Congo in 1970 and 1986; and Corona virus in Wuhan, China in 2019. The fear of death arising from vaccination through immunisation programmes and other controversies surrounding its safety due to cultural beliefs among people in the developing nations of the world has increased fears and hesitancy among the rural populace in many Nigerian villages and communities (Ngonso & Chukwu, 2021). More importantly, negative claims about the effectiveness of the vaccine have continued to affect the uptake and acceptance of immunisation vaccines among the rural populace in the African continent.

As averred by Oku, et al. (2016) immunisation programs are means of vaccinating children between 0 and 24 months, to prevent them from contracting certain public diseases and to ensure their healthy living. This necessitated why this study was narrowed to Idofin-Igbana community in Oke Ero local government area of Kwara State. According to Clement (2022), Idofin-Igbana is a rural community which is located in the Northern district of Oke Ero Local Government Area of Kwara State and presently boasts 6872 inhabitants with farming and agricultural products as their main occupation. Therefore, the outbreak of pandemics, epidemics, and communicable

diseases in African countries has necessitated the need to address the issue of immunisation campaign acceptance among the rural populace in African countries, particularly Nigeria. Also, most importantly how the community's cultural beliefs, religious affiliations, traditions, and social and political beliefs have played a crucial roles in the acceptance of immunisation campaigns by parents and caregivers; which necessitated why a rural community was used. Because rural communities in the African region are always inclined with their culture and traditions.

Moreover, researchers have contributed so much to epidemic outbreaks and immunisation programmes. Where available, these researches focused more on a single epidemics and immunisation campaign, and they are largely domiciled in the field of health, medicine, public health, and applied sciences, while only a few studies are conducted from the field of communication (Bosch-Capblanch, Banerjee & Burton, 2012; Grade, 2013; Steinglass, 2013; Kaufman, Synnot, Hill, Willis, Horey & Lin, 2013; Shen, Fields & McQuestion, 2014; Larson, Jarrett, Eckersberger, Smith & Paterson, 2014; MacDonald, 2015; Cobos, Munoz, Monzon & Bosch-Capblanch, 2015; Ames, Glenton & Lewis, 2015; Okuet al., 2016; Dube, Gagnon, MacDonald, Bocquier, Peretti-Watel & Verger, 2018; Donzelli, Palomba, Federigi, Aquino, Cioni & Verani, 2018; Ogundele, Ogundele & Beloved, 2020; Ekwebelem, Aborode, Ofielu, Ann, Onyeaka, Yunusa & Olaide, 2021; Ufuophu-Biri, & Bebenimibo, 2021; Folorunsho et al., 2021; Frenkel, 2021; Olawade et al., 2022; Njoga et al., 2022). Therefore, this current study tends to extend the frontiers of knowledge by looking at cultural beliefs and how it has influenced immunisation campaign acceptance among parents and caregivers in the Idofin-Igbana community, Kwara State.

Study Objectives

1. investigate the influence of cultural beliefs on immunisation campaigns acceptance among parents and caregivers in Idofin-Igbana community;
2. identify the cultural elements in immunisation campaigns available to parents and caregivers in Idofin-Igbana community;
3. understand the cultural appropriateness of source(s) of information on immunisation campaigns available to parents and caregivers in Idofin-Igbana community.

Literature Review

Health Campaigns and Communication

Backer, Rogers, and Sopory (2012) observed that there is a great need for the transmission of health-related information and active promotion of health behaviour change; health communication campaigns can help with this. Weiss (cited in Bello, 2015) defines health communication campaigns as those that use a coordinated set of media, interpersonal, and/or community-based communication activities to change behaviour towards desirable health outcomes. He opined that most of these campaigns, which are developmental, are geared towards behaviour change such as getting more people involved in being vaccinated against epidemics, using methods of family planning, using condoms for HIV prevention, ITNs for malaria

prevention among others. The campaign's ultimate goals may include healthier mothers and children, families and communities or specific policy results that lead to these goals.

In another view, Snyder (2013) defines communication campaigns as an organized communication activity, directed at a particular audience, for a particular period, to achieve a particular goal. Citing Paisley (1981), Snyder asserts that communication campaigns are part of an old democratic tradition dating back to the ancient Athenians campaigning to end slavery. He notes that development campaigns also drew on the diffusion of innovations framework which had shown some success in spreading new agriculture techniques and technologies to farmers in Canada and the United States through media and outreach workers. Also, Haenssgen, Closser, and Alonge (2021) note that health communication campaigns are designed to educate target audiences about important health threats and risky behaviours that might harm them, thereby raising their consciousness about such issues. Health communication campaigns are also designed to move target audiences to action in support of public health. Weiss (2012) further observes that health communication campaigns are growing more sophisticated every day and campaign designers are diversifying their strategies and abandoning the flawed notion that information alone changes behaviour. Bello (2015) averred that some of the approaches used in health communication campaigns include formative research, participatory campaigns, organizational improvements, advocacy, creative formats, multipronged approaches, persuasion, and message design, as well as social marketing.

Culturally Appropriate Sources of Information on Immunisation Vaccine

Immunisation has been attributed to be one of the safest and most effective interventions to prevent disease and death in young and old (WHO, 2012). However, about half of the world's child population is reached with the needed vaccines, especially in the developing nations of the world (Nigeria inclusive) where only half of the children get access to immunization vaccines (WHO, 2012). Moreover, substantial numbers of children in the rural settings of Nigeria are always unable to complete immunization schedules due to the unavailability of culturally-inclined traditional communication mechanisms regularly in their communities (Taiwo et al., 2017). Also, Oladepo, Dipeolu, and Oladunni (2019) posited that the unavailability of timely information through the right channels that are inclined or sensitive to the culture of the rural communities is a major factor that has continued to generate hesitancy and, in most cases, low compliance with vaccination schedules.

Thus, the following culturally sensitive sources were proffered by Gidado (2014) as a medium to inform the rural populace on immunisation vaccination programmes:

1. Radio (Health programmes, Jingles and Adverts, Radio drama serials, e.t.c)
2. Traditional Channels (i.e. Town Hall meetings, Age Grade forum, Town Crier, e.t.c)
3. Community Advocacy Campaigns (Through Healthcare professionals and development experts)
4. Community Leaders (Oba-in-council, Elders council, Religious leaders, Opinion leaders, and so on)
5. Door-to-door Sensitization and Awareness

Routine Immunisation Programme for Children in Nigeria

Immunisation is considered as the cornerstone of public health diseases and the outbreaks of epidemics. The World Health Organization (WHO) estimated in the year 2006 that immunizations saved between two to three million lives annually (Kaufmann & Feldbaum, 2019). Nevertheless, about 1.4 million children were estimated to have died from vaccine-preventable diseases (measles, Haemophilus Influenzae Type B, Pertussis, Tetanus, Yellow Fever, and Poliomyelitis) in early 2000. Also in the year 2006, of the 157 World Health Organization member states tagged as "developing", only 42(27%) had three doses of diphtheria-pertussis-tetanus (DPT) coverage greater than 80% in all districts (Michael et al., 2014). At the same time, new opportunities exist to strengthen immunisation coverage in developing countries, such as increased funding through platforms such as the Global Immunization Vision and Strategy (GIVS), as well as novel ideas for integration with other health services. These developments according to the World Health Organization (2014) have encouraged a macro-analytic approach to ensure that systems function so that children receive needed vaccines. While these new approaches are welcomed, at the micro level, immunization service delivery in health facilities must be strengthened.

As averred by Shilo (2021), immunisation programmes need continued support with proven strategies and fresh approaches to reduce the rate of preventable diseases and epidemics. It also allows for the effective introduction of new vaccines. However, Mogekwu (2021) emphasized that, making vaccines and vaccination a routine programme will substantially increase the level of knowledge and awareness in people, especially on the need to be vaccinated, and shun all forms of conspiracies and false beliefs. Thus, according to the National Primary Healthcare Development Agency (NPHCDA, 2019), every child must receive a complete vaccination. Moreover, a child is considered fully vaccinated if certain vaccines are received during the first year of life, and throughout five visits to the hospital or any healthcare facilities. The vaccines as contained in the child health card are listed in Table 1:

Table 1: Vaccines in the child health card

S/N	ANTIGENS	TIME OF VACCINATION
1.	BCG	At birth
2.	Hep B – 0	At birth, 6 and 14 weeks old
3.	OPV 0, 1, 2 & 3	At birth, 6, 10 and 14 weeks old
4.	Penta 1, 2 & 3	6, 10 and 14 weeks old
5.	PCV 1, 2 & 3	6, 10 and 14 weeks old
6.	Rota 1, 2 & 3	6, 10 and 14 weeks old
7.	IPV 1 & 2	14 weeks and 9 months old
8.	Measles 1 & 2	9 and 15 months old
9.	Vitamin A 1 & 2	6 and 12 months old
10.	Yellow Fever	9 months old
11.	Meningitis	9 months old

Source: NPHCDA, 2022

Theoretical Framework: Health Belief Model

The Health Belief Model is a theoretical model that can be used to guide health promotion and disease prevention programmes. The Health Belief Model (HBM) is a social psychological health behaviour change model developed to explain and predict health-related behaviours, particularly regarding the uptake of health services. The theory was developed by social psychologists: Irwin Rosenstock, Godfrey Hochbaum, Stephen Kegeles, and Howard Leventhal. At that time, researchers and health practitioners were worried because few people were getting screened for tuberculosis (David et al., cited in Asemah, Nwammuo & Nkwam-Uwaoma, 2017). Moreover, the theory explained "the widespread failure of people to accept disease preventives or screening tests for the early detection of asymptomatic disease". It identifies two components that behaviour depends on (1) the desire to avoid illness (or if ill, to get well) and (2) the belief that a specific health action will prevent (or ameliorate) illness. The HBM consists of four dimensions: perceived susceptibility which entails the risk or vulnerability to a health threat, perceived severity which has to do with the seriousness of the threat and its potential consequences, perceived benefits which is all about the efficacy of any action taken to mitigate the threat, as well as perceived barriers which is the negative consequences of undertaking a preventive action.

Also included is the requirement for a "cue to action" to start the process that may be internal, i.e; symptoms, or external, i.e., media coverage of a specific disease. It is recognized that diverse demographic, socio-psychological, and other variables may influence the individuals' perception and thereby indirectly influence health-related behaviour. Research has shown that among the aforementioned dimensions, perceived barriers most frequently influence health-related behaviour, followed by perceived susceptibility, benefits, and severity. Other factors are also recognized as contributing to decisions regarding health-related behaviour such as habitual influences, health-related behaviours followed for non-health reasons (such as dieting to appear more attractive), and also economic and environmental factors. Moreover, the model of health belief relies on the underlying belief that "health" is a valued commodity and that cues to action are prevalent in everyday life. The susceptibility and severity components mobilize the individual to act, whereas the perceived benefits and barriers are used to select a preferred course of action. This model tends to view decision making regarding health-related behaviour as a cognitive process weighing risks and benefits, and does not specifically incorporate the impact of feelings on the decision-making process; rather, it views feelings as arising from the decisions that are made.

The relevance of this model to the study under review is that even though immunisation is a form of prevention against epidemics and diseases, people don't prevent it from happening as a result of their beliefs on vaccination, hence, they result in the orthodox form of treatment. This model explains further that people will not expose themselves to information that can increase their knowledge on certain health issues such as epidemics and diseases, and as a result, they know little about these epidemics and how they can be prevented, the warning symptoms, the causes

and the importance of early vaccination and proper management. Furthermore, this Model emphasises that prevention is far better than cure, as it wants everyone to adopt preventive measures to all kinds of diseases or epidemics. This will not only save money, time, and energy but also eradicate the various beliefs and conspiracies on vaccination.

Methodology

The study employed a qualitative research design through the in-depth interview method. The interviews were carried out among purposively selected informants in the Idofin-Igbana community. A total of 15 informants between the ages of 21 and 60, comprising four males and eleven females who are either parents or caregivers were selected for the interview. Moreover, all the informants were assured of the confidentiality of the study, while adequate information was provided to them on the rationale for the study. Owing to the assurance of confidentiality given to the informants, the use of anonymous identifications was applied. All informants were identified with numbers 1–15. The in-depth interview was conducted in their native language (Yoruba), translated to English, and thereafter thematically analysed with NVivo 10 software. Although the in-depth interview centred on the influence of cultural beliefs on acceptance of immunisation campaigns among parents and caregivers in the Idofin-Igbana community, these parents and caregivers were also asked about their views on the appropriate source of information on health issues to the rural dwellers.

Findings

Analysis of the transcripts revealed three main themes, which were identified and further confirmed by two independent reviewers.

Theme One: Cultural Beliefs and Immunisation Acceptance

Most of the people interviewed expressed their views on how cultural beliefs aided their acceptance of immunisation. Moreover, some of the informants opined that pre-existing cultural beliefs is key in the dissemination of immunisation messages and their eventual acceptance by the people. According to some of them, sharing accurate and updated information about immunisation is very important, but such information must be in tandem with the pre-existing cultural beliefs of the people whom the information is intended. Moreover, the informants shared their responses:

> *"There is various cultures in Idofin-Igbana here, ranging from the masquerade, funeral ceremony, oath-taking in the shrine, especially when someone stole or commit a crime. There is also a river called 'Oro' which the local government Oke Ero took her name from, and they do perform some cultural propitiations in it. So, there are various cultures we are accustomed to in this community". (Informant 1)*

Looking at culture as part of the existing beliefs of the community, Informant 9 emphasized that various cultures that have been in existence for a long can be attributed to what was inherited from their forefathers:

> *"We value culture at Idofin-Igbana, and this culture includes the masquerade festival, new yam festival, Idofin-Igbana day, Oro festival, Ibura, and Oogun Ajobo among others. They have become part and parcel of our existence. They define us as a community that attached so much value to traditions. Even, coronation and other rites for installing a new king and burying the deceased are done uniquely". (Informant 9)*

The majority of the informants also stressed that knowledge of immunisation and its attendant benefits do assist in either accepting partially or wholly every campaign that may be disseminated through various sources. Thus, knowledge of immunisation determines its acceptance or rejection among the people.

Theme Two: Cultural Elements in Immunisation Campaigns

The informants were of the view that the extent of exposure to their indigenous cultural values has to a large extent broadened their understanding and acceptance of immunisation campaigns. Some of them stressed that the various immunisation campaigns they are exposed to conform totally to their culture:

> *"The immunisation messages we've received so far; do not in any way contradict our culture and values here. We have elites among us who sometimes assist to breaking some of the messages for others to understand". (Informant 11)*

In a similar view, some informants opined that the campaign messages exposed to either totally or partially conformed to the cultural values of their community:

> *"The campaign messages on immunisation do conform with our cultural values because of the channels they use to communicate them to us. This shows those in charge of the messages are conversant of our cultural values and how we attach so much importance to it". (Informant 5)*

> *"Majorly, the campaigns conformed to the cultural values of the Idofin-Igbana community. Part of this is the language used in disseminating it, which is most of the times in Idofin dialect". (Informant 13)*

> *"There are some of these immunisation campaign messages that do not consider our cultural values, especially those on posters and other printed materials". They hardly communicate appropriately to the illiterates here". (Informant 5)*

> *"We have certain occasions when the contents of immunisation campaigns are meaningless. This is mostly common through radio and printed materials. (Informant 4)*

> *"I've seen some of the contents of immunisation campaigns, and you wonder at times why it has to be complex in terms of meaning and how it is presented". (Informant 10)*

The above views show that in vaccination campaigns the informants were exposed to either conform totally or partially to the cultural cues and values of the community. Moreover, the nature of the contents of the campaigns in terms of the messages, materials, and information used, as well as the language of disseminating these campaigns, either indigenous or foreign, goes a long way in determining whether there are cultural elements in the campaigns.

Theme Three: Cultural Appropriateness of Sources of Information

Another interesting discovery of this study is the appropriateness of sources of information on immunisation to the culture of people in the community of focus. The statement below indicates that there are certain sources of disseminating information that may not be culturally relevant, while there are sources specifically designed for people domiciled in rural areas. Thus, the informants ascertained that they were exposed to immunisation messages majorly through immunisation agents, town criers and religious leaders. In the views of Informants 6, 2, 4 and 8:

> *"The immunisation agents have helped give us certain information on immunisation. At times, they move around (house to house) wearing their jackets alongside the vaccine box. Most of the time, they will be stationed at the community health centre, and we will go there if the need arises". (Informant 6)*

> *"The town crier is my source of receiving immunisation messages and any other important messages in the community. I believe that any information coming from him is from the real source! That is, it is from government and the community monarch". (Informant 2)*

> *"Through the community's town crier and other various channels, we receive important messages and information on general immunisation and specific ones. The town crier also knows the nitty-gritty of how our houses are built, so he reaches every nook and cranny of the community". (Informant 4)*

> *"Most of the messages on immunisation get to our religious and traditional leaders in the community. They are the ones that disseminate the information to us; via what needs to be done. Also, we so much believe in whatever they tell us". (Informant 8)*

On the other hand, in terms of appropriateness of these sources to the culture of the people, some of them were of the view that:

> *"The various sources of receiving immunisation messages are adequate for us and are in line with our cultural cues. There is no other source that can appeal to a community of ours than the use of healthcare providers, town criers, religious leaders, radio, and printable materials". (Informant 3)*

> *"The aforementioned sources of immunisation messages are the only way we receive information, and are enough. I'm quite sure that other sources are not applicable here. Talking about television, yes, few of our people have it, but they prefer using it to watch home videos, rather than using it to watch programmes". (Informant 5)*

> *"Our culture is in line with majorly all the sources of information such as use of health educators, town crier, posters and letters, text messages and religious leaders". (Informant 11)*

> *"The various sources of receiving immunisation messages that we utilised here, have a way of penetrating our minds in such a way that we will have full knowledge of whatever message that is passed across". (Informant 7)*

> *"The sources of receiving immunisation messages do get to me, irrespective of where I am or what I am doing". (Informant 9)*

Two major points need to be reiterated from this theme, firstly, there are certain sources the informants' were exposed to, and they include immunisation agents, town criers, religious leaders, printed materials, and radio. Secondly, some of these sources are appropriate to the culture of the community, while one at times complements the other.

Discussion of Finding

Results from this study showed that people in Idofin-Igbana community attach importance to their cultural beliefs, and various cultures that are in line with the traditions, religions, occupations and social lives of people are given importance in the community. In their accounts on cultural beliefs and acceptance of immunisation programmes, the informants who are parents and caregivers were of the position that their perceptions, views and opinions on immunisation are influenced positively when such campaigns are in tandem with their culture as a community. Thus, this finding resonates with the position of Daramola (2013) that the culture of every society entails everything involved in their activities on a daily basis, which is then transmitted to younger generations as an acceptable standard of practice. As a society's culture determines what that society will permit or accept as a routine. Studies by Oladepo, Dipeolu and Oladuni (2019) on cultural beliefs and willingness for vaccine uptake found that culture and belief systems to a

great extent play a crucial role in people's willingness to accept health campaigns on immunisation and the need for vaccine uptake. It however contradicts the studies of Haenssgen, et al. (2021) which averred that health communication campaigns are now designed with modern techniques which are aimed at educating target audiences and raising their consciousness about health issues. It is therefore understandable that parents and caregivers in Idofin-Igbana community value their health and wellbeing and that of their children so much, and as a result accept immunisation programmes and it campaigns.

Also, findings on the cultural elements in immunisation campaigns available to parents and caregivers in Idofin-Igbana community showed that various campaigns available to them conformed to the cultural values of the community as a whole and that the campaigns are simplistic in terms of content, and the choice of language for the campaigns are in tandem appropriate with the cultural values of the community. Thus, this finding is in tandem with Gidado (2014) submission that the sources of immunisation messages to the rural populace must be culturally-sensitive if such immunisation programme is to be largely acceptable. It also resonates with that of Crawford and Okigbo (2014) who emphasised that the effectiveness and eventual acceptability of a particular health communication campaign by the people can be attributed to so many factors which include accuracy, availability, simplicity, consistency, balance, cultural competence, evidence-based, reach, reliability, repetition, timeliness, and understandability. Moreover, the majority of the informants thought that the indigenous language (Yoruba) is the most dominant language used in the various campaigns they are exposed to, while the foreign language (English) is sparingly used. This finding agreed with Closser, et al. (2016) that effective health campaigns through the use of the indigenous language of the people is needed to ensure people; especially the rural dwellers comply with immunisation by subjecting their children to accept it.

Findings on the cultural appropriateness of the sources of information on immunisation campaigns available to the informants showed that there exist various sources of receiving immunisation messages in Idofin-Igbana community, and they include the use of immunisation agents, town crier, printable materials, religious leaders, and radio. Moreover, on the use of religious leaders as sources of information, the informants were of the positions that they so much put their trust on their religious leaders owing to the vantage position they occupied, and their stance for truth and rightful endeavours. This finding is therefore consistent with the view of Oku, et al. (2016) that due to the wrong perception of religious leaders, the polio vaccination programme was rejected in the Northern part of Nigeria in the past. This attests to the powerful influence of religious leaders in educating people on their health. Also, it was found that these identified sources of information are relevant to the cultural values of the community in terms of the adequacy and reach of the sources. Therefore, it supported the claims of Oladepo et al., (2019) that the unavailability of timely information through the right channels/sources that are inclined or sensitive to the culture of the rural communities is a major factor that has continued to generate hesitancy and, in most cases, low compliance with vaccination schedules. Also, it contradicts the claims of Danja and Ibrahim (2021) that people in majorly the Northern part of Nigeria and rural environs are mostly susceptible to misinformation about immunisation

programmes that it has come to erode their cultural values and reduce the rate of fertility in them. Hence, their rate of rejection of immunisation irrespective of it benefits.

Conclusion

The main focus of this study was to understand how cultural beliefs influenced the acceptance of immunisation campaigns among parents and caregivers residing in Idofin-Igbana community. The participants acknowledged the importance of their culture and belief system which are derived from traditions, religions, occupations, and social lives. Also, there is evidence that they place so much value on their health and well-being, and as a result, accept immunisation programmes and it various campaigns. This has given the majority of the inhabitants who have been educated the edge to have detailed knowledge of immunisation programmes that are made available from time to time. Moreover, immunisation campaigns targeted at rural environs and communities should conform to the cultural values of such communities in terms of the simplicity of messages, and the use of culturally appropriate language for disseminating those campaigns.

There are also various sources of receiving immunisation messages, especially for people in Idofin-Igbana community, and they include the use of immunisation agents, town crier, printable materials, religious leaders, and radio, while these identified sources of information are relevant to the cultural values of the community. Sources of immunisation campaigns must however be convenient for those the campaigns are meant for. This study however concluded that there exists a connection between cultural beliefs and acceptance of immunisation campaigns among rural dwellers, due to the importance they attach to their cultural values and identities.

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Digital Literacy Skills and Information Sharing Practices among Undergraduates in Universities in Kwara State

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Abstract

Information sharing has become an essential practice that is inevitable for individuals, especially students in the digital era. The study investigates digital literacy skills and the information-sharing practices that are prevalent among undergraduates in universities in Kwara State. The study answers on: the level of digital literacy skills among undergraduates; information sharing practices commonly used by undergraduates; types of information shared on digital media platforms; and the digital media platforms frequently used by undergraduates. The study adopted the descriptive survey design. Three universities were purposively selected. A simple random sampling technique was employed to select a sample for the study. The questionnaire was used to obtain data from 376 undergraduates who were returned and found usable. The findings of the study revealed that the majority of the undergraduates have proficient and expert digital literacy skills, especially in their ability to create online information, evaluate the credibility of online information, use digital tools for everyday tasks, and use online information. The study found sharing of academic information; lecture notes presentation slides and in-person discussion was the most common form of information-sharing practices among undergraduates. The study also revealed that undergraduates prefer to share personal information with their peers and share economic and academic-related information, entertainment, political and religious information, and promotional and skill acquisition programs on WhatsApp rather than other social media platforms. The findings indicate that the frequency of digital media platform usage among undergraduates revolves around daily use of YouTube, WhatsApp, and Blogs; while Facebook, emails, and Instagram are used weekly or when the need arises. The study recommends that university management ensure equitable access to digital resources, including computers and high-speed internet that will enable students to participate fully in the digital space.

Keywords: Digital literacy skills, Information sharing, Undergraduates, Digital media, Universities.

Introduction

The digital age has brought about unprecedented changes to how we live, work and communicate. The widespread availability of technology and the internet has created new opportunities for learning, information sharing, and communication. Digital literacy is the ability to effectively use digital technologies for communication and information processing, which has become an essential 21st-century skill for an individual to succeed in today's rapidly changing world. Digital literacy, as defined by the European Schoolnet (2021), is the ability to effectively and critically navigate, evaluate, and create information using digital technologies. Digital literacy skill refers to an individual ability to find, evaluate, and compose clear information through writing and other mediums on digital platforms. In addition, digital literacy is essential for fostering effective communication and collaboration among students. This is particularly important in today's educational landscape, where students often work in virtual and remote learning environments and must be able to communicate and share information effectively with others.

Digital literacy plays a critical role in promoting student engagement and motivation. By providing students with access to a wealth of online resources and opportunities for collaboration and communication, digital literacy can foster a sense of connection and community among students and enhance their overall learning experiences. Studies show a significant digital divide between developed and developing countries, with the latter having lower levels of digital literacy. This disparity is particularly pronounced in Africa, where limited access to technology, lack of infrastructure, and inadequate digital skills pose significant challenges to digital literacy and information access (Thomas & Omotoke, 2015). For instance, a study by the International Telecommunication Union (ITU) in 2018 showed that only 35% of African households had access to the internet, compared to the global average of 56%. The study also revealed that Africa had the lowest internet access and usage levels compared to other regions of the world.

In Nigeria, the situation is the same. According to a report by the Nigerian Communications Commission (NCC) in 2020, only 47% of the Nigerian population had access to the internet, and only 26% had basic digital skills. The report highlighted several challenges that impede the development of digital literacy in the country, including low levels of education, poverty, and a lack of access to digital technologies. A study by the Nigerian National Bureau of Statistics (NNBS) in 2021 found that most Nigerian youths needed more basic digital skills, with only 30% of young people aged 15-35 having sufficient digital literacy skills. The study concluded that a lack of access to digital technologies and inadequate training programs significantly contributed to the low levels of digital literacy among Nigerian youth. Despite the importance of digital literacy, many students in Nigeria still need to gain the necessary skills.

Undergraduates, as the future workforce and leaders of society, are particularly important to be considered in the context of digital literacy. These students are digitally savvy, have grown up with technology, and are expected to be proficient in utilizing digital tools and platforms for learning, communication, and information sharing. However, despite their frequent use of technology, there is a growing concern about the digital literacy levels of undergraduate students and their ability to utilize technology effectively for academic purposes. Information-sharing practices among undergraduate students have undergone significant changes in recent years due

to the increasing use of digital technology. Social media, messaging apps, and online platforms are now commonly used by students for sharing information and collaborating with their peers (Crouse et al., 2019; Bashir, Malik & Mahmood, 2021). In particular, social media platforms such as Facebook, Twitter, and Instagram have become popular information-sharing tools for students, providing a quick and easy way to share resources, ask questions, and discuss subject material with their classmates (Nasser-Abu Alhija et al., 2020).

According to the definition provided by the International Association of Privacy Professionals (IAPP, 2021), information sharing refers to the exchange of data or knowledge between individuals, organizations, or systems. This exchange can occur through various means, including verbal communication, written reports, and electronic transfers. Information sharing is crucial in modern communication and collaboration, allowing individuals and organizations to share resources, ideas, and information to achieve common goals. Information sharing among undergraduates has increasingly become digital in recent years, as students utilize a variety of online platforms and technologies to collaborate and share information with their peers. A study (Tess, 2013) conducted at a large public university in the United States found that undergraduate students frequently use social media, and email to share information related to their academic coursework.

One significant trend in information sharing among undergraduate students is using social media platforms, such as Twitter and Facebook, for academic purposes. A study of undergraduate students at a large Midwestern university found that 70% of respondents reported using social media for academic purposes (Crouse et al., 2019). These platforms were beneficial for connecting with classmates, sharing resources, and asking questions. Information-sharing practices among undergraduates are essential for effective collaboration and knowledge-sharing. With the increasing use of digital tools and platforms, students have access to various methods for sharing information. However, it is crucial to establish clear guidelines and protocols to ensure reliable information-sharing practices.

Statement of the Problem

Digital literacy skills and information sharing practices among undergraduates have become a phenomenon that has been trending upward globally, studies have demonstrated that digital literacy skills are not innate and cannot be assumed based on undergraduate exposure to digital technologies for information sharing. The myth of the ‘digital native’ (Prensky, 2001) suggests that today’s undergraduates, who have grown up with technology, are inherently proficient in using digital tools and platforms for sharing information. However, research has rationalised this myth and highlighted the need for explicit digital literacy education to develop the necessary skills for the effective use of technologies (Liu et al., 2023; Reid, Button & Brommeyer, 2023).

One of the key issues this study sought to address is the digital divide that exists among undergraduates. While many students have grown up with technology and are comfortable using digital media platforms for social purposes, they do not have the same level of proficiency when it comes to using these platforms for academic purposes. This creates a barrier to academic

success and contributes to disparities in academic outcomes between students who have strong digital literacy skills and those who do not. This lack of skills and practices leads to poor academic performance, lower retention rates, and reduced readiness for the workforce. Furthermore, students who lack these skills and practices struggle to effectively navigate and evaluate the abundance of information available on digital media platforms, which can lead to misinformation and poor decision-making. Given the importance of digital literacy skills as a determinant of information sharing and the potential gap in undergraduates' digital literacy skills, it is crucial to investigate the literacy education of students, particularly, the information-sharing practices among undergraduates.

1.3 Objectives of the study

The specific objectives of this study were to:

i. Examine the level of digital literacy skills among undergraduates;
ii. Investigate the information sharing practices commonly used by undergraduates;
iii. Identify the types of information undergraduates share on digital media platforms; and
iv. Investigate the digital media platforms frequently used by undergraduates in universities in Kwara State.

Research Questions

The following research questions are formulated based on the specific objectives:

1. What is the level of digital literacy skills among undergraduates?
2. What information sharing practices are common among undergraduates?
3. What are the types of information shared on digital media platforms by undergraduates?
4. What are the frequently used digital media platforms by undergraduates?

Literature Review

Tabor and Meniwoze (2022) examined digital devices and digital literacy skills among Library and Information Science undergraduate students in Niger Delta University, Wilberforce Island, Bayelsa State, Nigeria. A survey design was adopted for the study. The population of the study covered the 200 and 300-level students of the Department of Library and Information Science, Niger Delta University. The sample size of the study was 165. The total enumeration sampling technique was used to determine the sample size of the study. The instrument used for data collection was a self-constructed questionnaire. Descriptive statistics were used in the analysis. The findings revealed that students of LIS, Niger Delta University, use their own smartphones, laptops, and other types of digital devices. Poor information search skills, epileptic power supply, inability to provide internet connectivity with free access, and inability to manage myriads of information sources, were some of the major challenges of the respondents.

Tamunoiyala and Williams (2022) also investigated the perceived digital information literacy level of undergraduates at the University of Port Harcourt. Two research questions were raised for the study. An analytical descriptive survey design was adopted. The sample size comprised four hundred and forty-six (446) fourth-year (400 level) undergraduates from seven Departments

in the Faculty of Education. The Perceived Digital Information Literacy Level Questionnaire (PDILLQ) used for data collection consists of 20 items. The study employed mean and standard deviation in answering the research questions while Analysis of Variance (ANOVA) was used in testing the hypothesis. The findings of the study revealed that undergraduates are digitally knowledgeable and that a significant difference exists between undergraduates' digital information literacy levels among the various departments. The study concluded that there is universal recognition of the need for students to be digital and information literate. This is useful for undergraduates who would use digital gadgets and Web 2.0 packages virtually in the course of their academic pursuits.

With the increase in privacy concerns daily, it is essential to understand how university students guard their personal information, particularly in an online environment. Despite the students' perceived readiness and several studies on the topic, they seem not to fully understand what personally identifiable information is to be shared via Online social networks. Therefore, Rafique (2017) examined the personal information sharing behavior of university students through online social networks. The quantitative approach was used and a survey questionnaire was employed to collect the data from 250 out of 712 master's students of the Faculty of Economics and Management Sciences, University of the Punjab in Pakistan. The findings revealed that most of the students shared personal information including first name, last name, and the college they attended on Online social networks. The students mostly used their cell phones to communicate on online social networks and labeled the uploaded photos or videos with their names. This suggests the need for students' orientation and training on the use of social networks for information sharing and the importance of digital literacy.

Okoh and Akpojotor (2014) investigated the use of social media for information sharing among students of the Federal University of Petroleum Resources, Effurun. This study adopted a descriptive survey research design. A sample of 795 was drawn from a population of 1,610 students while a questionnaire was used to elicit data. The study found that students mainly use social media platforms for social interaction, photo sharing, and connecting with their loved ones. One of the challenges found is that students perceived social media as a medium for fun and not for academics. Furthermore, the students opined that the library should promote the use of the platform by extending their services through the media like Library 2.0 and Web 2.0. Abdullahi (2020) in another study examined the extent to which undergraduates use digital information resources in their learning and academic activities. The descriptive survey research design was adopted for the study. The population for the study includes 8090 students from Bayero University, Kano. The questionnaire was used for data collection. Using the research advisor to determine the sample size, 370 copies of questionnaires were distributed across 17 faculties in the university with a response rate of 90%. Findings of the study revealed that the majority of the students are not fully aware of the digital resources available in the university library and that the resources are not adequately utilized. The study also revealed that the respondents possess low digital literacy competencies.

Research on digital literacy is on the increase because it is pertinent for digital natives and immigrants to acquire digital literacy skills to enable them to perform adequately in online environments. Olalere and Soyemi (2022a) also investigated the digital literacy skills of Library

and Information Science undergraduates in South-West, Nigeria. The study adopted a survey research design, and a questionnaire was used to collect data from 184 respondents. The result of the study revealed that the level of digital literacy skills of the undergraduates was high. The study concluded that Library and information science undergraduates in South-West, Nigeria, possess a high level of digital literacy skills. These skills are expected to aid their information sharing activities if appropriately used. Olalere and Soyemi (2022a) recommended that university faculties should leverage this strength to enhance the teaching and learning process by using digital platforms to teach students more often. Dahunsi and Alayande (2001) in an earlier study revealed a high level of digital literacy among school library personnel in selected schools in Oyo State, Nigeria. The study also recommended training and retraining of educators on the acquisition of requisite digital literacy skills to enable the personnel to function effectively in the digital environment.

In a recent study, Smith and Storrs (2023) identified the need to further understand digital literacy (DL) and undergraduates' view of digital literacy as an important tool. Using a cross-sectional survey, the study employed a stratified random sample to select a sample from 2500 undergraduates of a medium sized Canadian undergraduate university. The study investigated the relationship between social media and digital literacy in different disciplinary contexts. The findings revealed that the students value social media for collaboration, discussion, information finding and sharing, and activities related to their learning. Additionally, findings show an observable gap between the high importance students place on digital literacy for learning and daily living, and the lack of coverage on digital literacy topics in their undergraduate curriculum. The study suggested the development of digital literacy within particular disciplines and professions, and also in interdisciplinary or trans-disciplinary learning settings across the curriculum. Eno(2023) also referred to digital media literacy skills and competency as basic requirements for human relationships with the media. Thus, this research is essential considering that digital literacy skills and competency is at present a fundamental requirement for effective use of digital media platforms.

Methodology

The study adopted a descriptive survey design. The University of Ilorin, Kwara State University, and Al-Hikmah University, Kwara State were purposively selected based on ownership structure (federal, state, and privately owned). Yamane's (1969 cited in Umar and Wachiko, 2021) statistical formula was adopted because the population of the study was known. A simple random sampling technique was employed in selecting a sample for the study as presented in Table 1. The questionnaire was used to obtain data. The validity and Reliability of the instrument were ensured with Cronbach's alpha reliability coefficient of 0.75. The questionnaire was self-administered by the researchers to undergraduates who visited the libraries of the selected universities during the period of data collection. A total number of three hundred ninety-eight (398) copies of the questionnaire were administered while three hundred seventy-six (376) were returned and found usable, yielding a response rate of 92.3 percent. Data was analyzed using frequency and percentages while results were presented in tables.

The Taro Yamane (1969) statistical formula is expressed as;

$$n = \frac{N}{\quad}$$

1 + N(e)2
Where:
n = the sample size required
N= the total known population of undergraduates for the study (71,592)
e = level of significance (or limit of tolerable error) = 0.05
1= unit (a constant)

Table 1: Sample Size for the study

Name of Institution	Population of Undergraduates	Sample size of Undergraduates
University of Ilorin	46,657	259
Kwara State University	19,079	106
Al-Hikmah University	5,856	33
Total	71,592	398

Source: Academic Planning and University Annual Report (2023).

Data Analysis and Results

The results are presented based on the research questions raised in the study.

Research Question 1: What is the level of literacy skills among undergraduates?
Table 2 present the results on the level of digital literacy skills among undergraduates in Kwara State.

Table 2: Digital Literacy Skills Level among Undergraduates

Items	Expert F (%)	Proficient F (%)	Advanced F (%)	Beginner F (%)	Novice F (%)
I can use computing skills for personal productivity tools, downloading and installing software (hardware and software) adequately	9(2.4%)	25(6.6%)	95(25.3%)	118(31.4%)	129(34.3%)
I can create information online (start and manage online discussions, add comments to a web page, create a webpage, and create my digital learning materials)	9(2.4%)	60(16.0%)	96(25.5%)	123(76.6%)	88(23.0%)
I can evaluate the credibility of online information (e.g. browsing the internet to download needed resources)	33(8.8%)	54(14.4%)	87(23.1%)	88 (23.4%)	114(30.3%)
I can use digital tools for everyday tasks (e.g. online banking, online shopping, finding information, organising and classifying bookmarks and downloading files)	24(6.4%)	37(9.8%)	102(27.1%)	84(23.3%)	129(24.3%)
I can use online information and communication tools (e.g. emails, video conferencing, WhatsApp, Facebook, instant messaging, blogs, zoom)	9(2.4)	44(11.4%)	84(22.3%)	108(28.7%)	131(34.8%)
I can work with others online to create a shared document or presentation	11(2.9%)	34(9.0%)	94(25.0%)	106(28.2%)	131(34.8%)

Table 2 revealed the respondent's level of literacy skills. Results show that 2.4% were expert and able to use computing skills for personal productivity tools, downloading and installing software, 6.0% were proficient, 25.3% advance, 31.4% beginners, and 34.5% were novices in the use of computing skills for personal productivity. Also, 2.4% of the respondents were experts and able to create information online, 16.0% were proficient, 25.5% advance, 32.7% beginners, and 23.4% were novices. 2.4 % and 8.8% were experts in creating information online and evaluating the credibility of online information respectively, while 14.4% were proficient, 23.1% advance, and 23.1% beginners. Nevertheless, results show that 30.3% of the respondents were novices in evaluating the credibility of online information. Furthermore, in the use of digital tools for everyday tasks, 6.4% were experts, 9.8%- proficient, and 27.1%-advance, 23.3- were beginners, and about 24.3% were novices.

Based on the level of digital literacy skills to use online information and communication tools, 2.4% of the respondents were experts, 11.4% were proficient, 22.3% were advanced, 28.7% were beginners and 34.8% were novices. Likewise, in working with others online to create a shared document or presentation, 34.8% were novices, 28.2% were beginners, 25% were advanced, while only 9% and 2.9% were proficient and experts respectively. The results indicate that a good number of respondents are advanced with digital literacy skills.

Research Question 2: What are the common information sharing practices among undergraduates?

Table 3: Common information sharing practices among undergraduates

Common information sharing practices	SA	A	D	SD
I frequently share lecture notes or presentation slides with my classmate	166(44.1%)	172(45.7%)	24(6.4%)	14(3.7%)
I prefer to share academic information through in-person discussion	154(41.0%)	174(46.3%)	23(6.1%)	25(6.6%)
I use social media platforms to share educational content or academic discussions with peers	190(50.5%)	144(38.3%)	28(7.4%)	14 (3.7%)
I am comfortable participating in online study groups or discussion forums to share and exchange information of different kinds (political, personal, motivational, economic etc.) with other students	159(42.3%)	158(42.0%)	44(11.7%)	15(4.0%)
I share workshops and training development information's (summits, conferences) with classmates	191(50.8%)	148(39.4%)	16(4.3%)	21(5.6%)
I find information on personal research online (undergraduate research)	170(45.2%)	165(43.9%)	30(8.0%)	11(2.9%)
I use social media platforms to interact with my friends and colleagues	184(48.9)	158(42.0%)	31(8.2%)	3(8%)

Results in Table 3 revealed that 44.1% of the respondents strongly agreed that they frequently share lecture notes or presentation slides with classmates, 45.7% agreed, 6.4% disagreed, and 3.7% strongly disagreed. Furthermore, 41.0% strongly agreed they prefer to share academic information through in-person discussion, 46.3% agreed 6.1% of the respondents disagreed on sharing academic information through in-person discussion and 13.7% strongly disagreed. Out of the students that responded, 50.5% strongly agreed and 38.3% agreed respectively that they use social media platforms to share educational content or academic discussion with peers while 7.4% and 3.7% disagreed or strongly disagreed. 42.3% of the respondents agreed that they are comfortable participating in online study groups and discussion forums. 50.8% and 39.4% strongly agreed or agreed respectively that they share workshops and training development information (summits, conferences) with classmates, while only 4.3% and 5.6% disagreed and strongly disagreed respectively. 50.8 % and 43.9% strongly agreed and agreed respectively that they find information on personal research online, while 8.0% disagree and 2.9% of the respondents strongly disagree. Also, the majority of the respondents (48.9% and 42%) strongly agree and agree that they use social media platforms to interact with friends and colleagues while only 8.2% and 8% of the respondents disagree and strongly disagree respectively. The results revealed that most of the respondents strongly agree or agree with the statements on common information sharing practices among undergraduates.

Research Question 3: What are the types of information shared on digital media platforms by undergraduates?

Table 3: Types of Information Undergraduates Share on Digital Media Platforms

Items	Blogs	Instagram	Emails	WhatsApp	Facebook	Zoom	Google meet	YouTube
I share personal information with my peers using	19 (5.1%)	75(19.9%)	15(4.0%)	137 (36.6%)	63(16.8%)	17 (4.5%)	35 (9.3%)	15(4.0%)
I share and receive economic and related information using	30 (8.0%)	19(5.1%)	33(8.8%)	197 (52.4%)	21(6.6%)	-	36 (9.6%)	40(10.6%)
I share and receive entertainment information using	52 (13.8%)	88(23.4%)	-	101 (26.9%)	-	57 (15.2%)	-	78(20.7%)
I share and have access to political information using	95 (25.3%)	54(14.4%)	-	106 (28.2%)	84(22.3%)	-	-	37(9.8%)
I share religious information with students and relatives using	18 (4.8%)	116(30.9%)	-	166 (44.1%)	76(20.2%)	-	-	-
I share and have access to promotional information using	17(4.5)	91(24.2%)	45 (12.0%)	-	90 (23.9%)	50 (13.3%)	30 (8.0%)	53(14.1%)

I share and receive information on skill acquisition program using	92 (24.5%)	118(31.4%)	72 (19.1%)	68(18.1%)	26(6.9%)	-	-	-

The results in Table 3 reveal the types of information undergraduates share on digital media platforms. Out of the total responses, 5.1% of the respondents indicated they use blogs, 19.9% use Instagram, 4.0% use emails, 16.8% use Facebook, 4.5%, 9.3% use Zoom, 35% use Google Meet, and 4.0% use YouTube to share personal information with peers (by building connections and enabling efficient communication). Also, 8.0% of the respondents use blogs, 5.1% use Instagram, 8.8% use emails, 52.4% use WhatsApp, 5.8% use Facebook, 9.6% use Google Meet and 10.6% use YouTube to share and receive economic related information. The results indicate that the majority use WhatsApp to share and receive economic related information. Besides, 13.8% of the respondents use blogs to share and receive entertainment information while 23.4% use Instagram, 26.9% use WhatsApp, 15.2% use Zoom and 20.7% use YouTube.

The results also show that respondents share and have access to political information, to help them make informed decisions when voting and contributing to a well-functioning democratic society; using blogs (25.3%), Instagram (14.4%), WhatsApp (28.2%), Facebook (22.3%), and YouTube (9.8%). Meanwhile, 4.8% of the respondents use blogs, 30.9% use Instagram, 44.1% use WhatsApp and 20.2% use Facebook to share religious information. Also, 4.5% use blogs, 24.2% use Instagram,12.0% use emails, 23.9% use Facebook, and 13.3% use Zoom to share and have access to promotional information. Moreover, 8.0% of the undergraduates sampled use Google Meet to share and have access to promotional information while 14.1% use YouTube, 24.5% use blogs, 31.4% use Instagram, 19.1% use WhatsApp, 18.1% use Facebook and 6.9% use YouTube to share and receive information on a skill acquisition program. The result indicates that most of the undergraduates who responded use Instagram to share and receive information on skill acquisition programs.

Research Question 4: What are the frequently used media platforms by undergraduates

Table 5: Frequently Used Digital Media Platforms Among Undergraduates

Items	Multiple times a day	Once a day	Weekly	Monthly	Inconsistently
I use blogs	26(6.9%)	99(26.3%)	87(23.1%)	76(20.1%)	88(23.4%)
I use Instagram	30(8.0%)	54(14.4%)	87(23.1%)	105(27.9%)	100(26.6%)
I use drop box	16(4.3%)	54(14.4%)	82(21.8%)	97 (25.8%)	127(33.8%)
I use email	74(19.7%)	31(8.2%)	101(26.9%)	85(22.6%)	85(22.6%)
I use WhatsApp	101(26.9%)	125(33.2%)	52(13.8%)	35(9.3%)	63(16.8%)
I use Facebook	61(16.6%)	79(21.0%)	139(37.0%)	41(10.9%)	56(14.9%)
I use google meet	43(11.4%)	97(25.8%)	109(29.0%)	56(14.9%)	71(18.9)
I use Zoom	63(16.8%)	31(8.2%)	54(14.4%)	105(27.9%)	123(32.7%)
I use google classroom	43(11.4%)	42(11.2%)	55(14.6%)	132(35.1%)	104(27.7%)
I make use of Telegram	74(19.7%)	71(18.9%)	117(31%)	65(17.3%)	49(13.0%)
I use WeChat	63(16.8%)	51(13.6%)	44(11.7%)	104(27.7%)	114(30.3%)
I make use of YouTube	130(34.6%)	122(32.4%)	56(14.9%)	36(9.6%)	32(8.5%)

Results in Table 8 revealed the most frequently used digital media platforms by undergraduates. The results revealed that 88 (23.4%) of the respondents use blogs inconsistently, 76 (20.2%) use blogs monthly and 87 (23.1) make use every week. Also, 99 (26.3%) of the respondents use blogs once a day, and 26 (6.9%) use blogs multiple times a day. 26.6% of the respondents use blogs inconsistently, 105 (27.9%) use blogs monthly and 87 (23.1) make use every week. 54 (14.4%) of the respondents use blogs once a day and 30 (8.0%) use blogs multiple times a day. 127 (33.8%) of the respondents use drop boxes inconsistently, 97 (25.8%) use drop boxes monthly and 82 (21.8) make use every week. 54 (14.4%) of the respondents use drop boxes once a day and 16 (4.3%) use drop boxes multiple times a day. Furthermore, 85 (22.6%) of the undergraduates that responded use email inconsistently, 85 (26.9%) use email monthly while 101 (26.9) make use weekly. 31 (8.2%) of the respondents use email once a day and 74 (19.7%) use email multiple times a day.

Likewise, 63 (16.8%) of the respondents use WhatsApp inconsistently, 35 (9.3%) use WhatsApp monthly and 52 (13.8) make use weekly. 125 (33.2%) use WhatsApp once a day and 101

(26.9%) use WhatsApp multiple times a day. 56 (14.9%) of the respondents use Facebook inconsistently, 41 (10.9%) use Facebook monthly and 139 (37.0) make use every week. 79 (21.0%) of the respondents use Facebook once a day and 61 (16.2%) use blogs multiple times a day. For users of Google Meet, 18.9% of the respondents use it inconsistently, 14.9% use it monthly, 29.0% use it weekly, and 25.8% use it once a day while 11.4% use it multiple times a day. Furthermore, 32.7% of the respondents use Zoom inconsistently, 27.9% use it monthly, 14.4% make use of it every week, 8.2% use it once a day, and 16.8% use Zoom multiple times a day. In addition, on the use of Google Classroom, the results revealed that 27.7%, 35.1%, 14.6%, 11.2%, and 11.4% use Google Classroom inconsistently, monthly, every week, once a day and multiple times a day respectively.

Also, 13.0%, 17.3%, 31.1%, 18.9% and 19.7%, use Telegram inconsistently, monthly, every week, once a day and multiple times a day respectively. Meanwhile, 30.3%, 27.7%, 11.7%, 13.6% and 16.8% use WeChat inconsistently, monthly, every week, once a day and multiple times a day respectively. 8.5% of the respondents use YouTube inconsistently, 9.6% use it monthly, 14.9% use it every week, 32.4% use it once a day and 34.6% use YouTube multiple times a day.

Discussion of the Findings

The study revealed that more undergraduates are experts in computing skills for personal productivity tools, downloading and installing software adequately. Also, more undergraduates have proficient skills in their ability to create online information. It further revealed that undergraduates have expert skills in their ability to evaluate the credibility of online information and to use digital tools for everyday tasks, to use online information and communication tools, ability to work with others online to create a shared document or presentation indicating that most undergraduates are highly skilled in digital literacy. This is supported by Olalere and Soyemi (2022) who revealed that the level of digital literacy skills of the undergraduates was high. Tamunoiyala and Williams (2022) also corroborated that undergraduate students are digitally knowledgeable.

This study also revealed that most undergraduates share lecture notes or presentation slides with classmates and prefer to share academic information through in-person discussion for better understanding. It further inferred that they use social media platforms to share educational content or academic discussion with peers, participating in online study groups and discussion forums to share and exchange information of different kinds. The study further pointed out that they practice sharing workshop and training development information with classmates, finding Information on personal research online, and using social media platforms to interact with friends and colleagues. This study indicates that undergraduates share educational and academic content more because it's a learning environment. This is corroborated by Abdullahi's (2020) findings that the majority of undergraduate students use digital information resources for academic purposes. Owens et al. (2021) also ascertained that undergraduates frequently use social media, email, and text to share information related to their academic coursework.

The study revealed that undergraduates prefer to share personal information with their peers, share and receive economic and academic-related information, entertainment information, political information, religious information, and promotional and skill acquisition programs on WhatsApp rather than other social media platforms (Facebook, emails, Instagram and blogs). Indicating that according to this study, WhatsApp is one of the most convenient digital media platforms for sharing all kinds of information that will benefit individuals and society at large. This corroborates Dahunsi and Alayande's (2001) findings that the major purposes of utilisation of social media by the school library personnel include calling for meetings within and outside the school environment, updating knowledge on recent information, supporting research, disseminating minutes of meetings and reports, communicating with school client, sharing knowledge among colleagues and communicating with other school libraries.

The findings of this study revealed that undergraduates use blogs, YouTube, and WhatsApp once daily. Instagram, drop Dropbox Zoom, and WeChat inconsistently, Facebook, Instagram, and email weekly and Google Classroom monthly. This study indicates that the frequency of digital media platform usage among undergraduates revolves around WhatsApp, Facebook, emails, Instagram and others when the need arises. This is further supported by Rafique (2017) who revealed that most of the university students shared their personal information like first name, last name, and the college they attended on online social networks. They mostly used their cell phones to use online social networks and females were conscious to disclose their personal information on OSNs as compared to male students.

Conclusion

This study highlighted the growing importance of digital literacy skills among undergraduates in Kwara State universities. While some have adapted well to the digital age, there is a pressing need for comprehensive digital literacy programs to bridge the gap for those lacking advanced skills. Moreover, promoting critical thinking and digital ethics is essential to address issues related to misinformation and online privacy. To foster a more digitally literate student population, universities should collaborate with relevant stakeholders to provide resources and training needed to promote digital literacy skills and information-sharing practices.

Recommendations

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

1. The Management of Universities, especially those in Kwara State, should integrate digital literacy into their academic curriculum, offering courses or workshops that cover a wide range of digital skills.
2. Universities should incorporate the formation of peer learning communities or study groups where students collaborate and share knowledge and best practices.
3. The universities should ensure equitable access to digital resources, including computers and high-speed internet, to enable all students to participate fully in the digital landscape.
4. Students should create and share their digital content, such as blogs, podcasts, or videos, to apply and showcase their digital literacy skills while contributing to online discussions and communities.

5. Students should reflect on their information-sharing experiences and consider how they can apply what they've learned to future academic and professional endeavors.

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Optimizing Information Resources for Inmates' Rehabilitation: Progress in Correctional Centers in Kwara State, Nigeria

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Abstract
The study aimed to investigate the availability and accessibility of information resources and how inmates optimize their use for rehabilitation purposes. The descriptive research design was adopted for this study. Three objectives were set for the study and a questionnaire was used to obtain information from the respondents. As of the time of data collection, there were 792 inmates in the two selected correctional centers in Kwara State. The simple random sampling technique was adopted to include 214 inmates who were respondents to the study. Analysis was based on the 217 copies of questionnaires returned. Findings of the study reveal that information resources such as the Bible, Quran, calendar, and wall clock were highly available; hymnals, textbooks, and novels were partially available while dictionaries, encyclopedias, health-related materials, e-books, computers, and printers were not available and in the correctional centers. The study also revealed that the Bible, Quran, devotionals, and wall clock were highly accessible to the majority of the inmates. The findings also revealed that the Quran, devotionals, and wall clocks were highly used by most of the inmates The study concluded that the accessible information resources are very much optimized for inmates' rehabilitation and that the Federal and State governments should provide adequate funding for realizing functional correctional center libraries that are equipped with relevant information resources.
Keywords: Inmates, Prisoners, Library and Information Resources, Rehabilitation, correctional center

Introduction

Information has become extremely important in the modern age as it influences the socialisation and education of different categories of users across the globe (Kaushik, 2018). Information resources have contributed greatly to the reformation of people's lives around the world. Information resources are information-carrying materials that assist users in meeting their information needs. Varied classes of information users have benefited from the use of

information resources. As information resources are useful to various organisations; they are useful tools for inmates in both developed and developing countries. Inmates are referred to as persons who after formal scrutiny, are sanctioned by being kept apart and put under surveillance in a solitary place where they are compelled to obey a strict code of official rules. Inmates are sometimes referred to as prisoners or incarcerated persons (Chandani, 2019; Fasae & Folorunso, 2020; Obiano, Ogueri, Chima-James, Moneke, & Bernard, 2023). like other persons, have information needs that may range from basic information required for survival, educational purposes, recreation, legal issues, and healthy living to spiritual development (Sambo, Usman & Rabiu, 2017; Hussain, Batool, Soroya & Warraich, 2018). These needs can mostly be met through the use of relevant information resources.

Library and information resources are useful tools for controlling criminality tendencies in inmates and reducing crime rates in society. Sharda and Tiwari (2021) noted that libraries in correctional centers play a key part in the rehabilitation process of inmates. The information resources available in correctional center libraries aid recuperative activities for inmates and help them lead a crime-free life. These activities include psychological treatment and counseling of inmates, bibliotherapy, reading, essay competitions and quizzes using information resources. With new developments made to correctional centres and technological improvements across the globe, inmates are expected to have unabridged access to information resources for their reformation. Accordingly, a recent study (Asiru, Abioye & Hamzat, 2023) maintains that libraries in various organisations must be stocked with appropriate information resources of different formats such as books, encyclopedias, dictionaries, and many more.

Rehabilitation is therefore concerned with the training and re-training of inmates to reshape their characters and mould them to develop zero tolerance for crime. Jacintha (2013) described rehabilitation as a process that involves education, reformation and re-socialisation of inmates. For a rehabilitation process to be effective and successful, it should include programs that are educational, emotional, work-related, and mentally stimulating. These programs can be best achieved by making adequate provision for information resources that will satisfy the inmates' information needs. Bozick, Steele, Davis and Turner (2018) and Dewy et al. (2020) in a related survey, identified psychosocial, occupational, and educational related programs; as some of the most effective means of improving inmates' outcomes. Furthermore**, c**ountries that use rehabilitative justice often embrace one or all of these programs in their systems (Cullen & Gilbert, 2012; Fadeyi, 2016). Information resources are thereby considered essential for the training and education of inmates. This is because they aid the reformation process of inmates by providing them with the necessary tools and knowledge to succeed upon release.

The use of information resources exposes inmates to the required information for their rehabilitation process and also contributes to success by supporting the curriculum and extra-curricular activities of correctional centres. Information resources are materials that are of huge importance because they support the process of developing humans to become cultured in decision making (Payton, 2014). The right use of information resources will help in meeting the information needs of inmates, correct wrong ideas and habits, and equip them with skills for

profitable decisions. Moreover, inmates who have access to the information resources that meet their needs, and utilise them have been observed to be often ahead of their counterparts who do not have such access (Sambo, Usman & Rabiu, 2017). Therefore, it is vital to ensure that information resources are readily available and accessible to inmates to maximise their potential for successful rehabilitation (Obiano et al., 2020).

Information resources that have been considered relevant for correctional and rehabilitation purposes include audio and visual materials such as computers, radio, MP3, Television series, books, novels, fiction, nonfiction, thesis and dissertation, books (audio, electronic and print), grey literature, novel, dictionaries, encyclopedias, statistical reports, manuscripts, government publications, periodicals (such as journals, newspapers, and magazines), films, maps, documents, CDs, cassettes, videotapes and databases as other useful information resources (Medway Libraries & Archives, 2012; Wakefield, 2017; Madron, 2018).

The availability of information resources entails acquiring and providing means by which users can get the necessary information resources they need. It involves ensuring that every user in society has access to information resources that could satisfy their quest for information. The availability and access to information resources provide library users with the necessary information for immediate use (Nwachukwu, Luky, & Salami, 2014). Thus, to enhance inmates' rehabilitation, it is necessary to increase efforts to improve access to library resources in correctional centres. Obiano et al. (2020) therefore suggest that policymakers and prison authorities prioritise the provision of library resources.

The utilisation of information resources in the correctional centre is key to inmates' reformation. However, the inmates must have access to the relevant resources. Tetteh and Nyantakyi-Baah (2019) averred that the use of library and information resources depends largely on their availability. Also, the available resources must be suitable for learning, teaching, and in the provision of solutions and therapy to users' challenges. For instance, Obiano et al. (2020) study findings revealed that information resources are utilized efficiently by inmates when they are available. Availability and access to information are therefore highly required: considering the focus of correctional centres on ensuring that inmates are successfully rehabilitated using relevant and efficient correctional methods other than corporal punishment.

Information resources have become critical in this modern age, alongside the way they impact character improvement, socialization, reformation, education and training of various categories of people. The information serves as an asset for recuperative exercises for inmates, including psychological treatment, counselling, bibliotherapy, reading, essay competitions and quizzes. However, there appears to be a huge gap between the expected and actual rate of utilisation of information resources in correctional centres. With recent advancements in technologies and developments in correctional centres, it is expected that inmates' access to information resources will be parallel to their information needs. Thus, the a need to investigate the progress of information resources utilisation for inmates' rehabilitation in selected correctional centres in Nigeria. Hence, the study sought to:

v. ascertain the current status of information resources available to inmates for rehabilitation purposes;
vi. identify the extent to which information resources are accessible to inmates; and
vii. ascertain the frequency of information resources utilisation for rehabilitation purposes by inmates.

Review of Related Literature

Information resources are important materials that are made available to ensure that users' information needs are met or satisfied. Access to information, which is one of the core values of librarianship, supports that every member of each community is given equal access to needed information (American Library Association, 2019). Consequently, to ensure that information users have equal access to information, information resources should be made available at various information centres including those in correctional centres, sometimes called prison service centres. Information resources according to Mohammed (2019) are materials that add to existing knowledge, ideas, skills, and experiences of individuals.

Some earlier studies have identified books, newspapers, textbooks, dictionaries, encyclopedias, biographies, novels, and autobiographies as information resources mostly available in correctional centre libraries in Nigeria (Emasealu, 2017; Madron, 2018; Chandani, 2019; Asiru, Horsfall & Modupe, 2023). Ejike (2016) in a study that involved 708 inmates in the South Eastern part of Nigeria examined how library and information resources and services are provided to meet inmates' information needs using a descriptive survey design. The study found that newspapers, journals, novels, biographies, and dictionaries were information resources available in correctional centres in the south-eastern part of Nigeria. Likewise, Obiano et al. (2020) in their investigation on the availability and use of library resources for inmates' rehabilitation in Nigeria identified fiction books, textbooks and magazines as information resources available for inmates' use in Imo and Abia State correctional centres. However, they found that resources such as newspapers, audio documents, videotapes, DVDs, and library software were not available in the correctional centres. Furthermore, the study of Obiano et al. revealed that available information resources were utilised by the inmates to a high extent.

Emasealu, (2018) also examined library resource needs and accessibility among 808 inmates from Kuje and Kaduna correctional centres using the descriptive survey methods; and found newspapers, novels, handbooks, manuals and bulletins as information resources available in the correctional centre libraries. Likewise, Chandani's (2019) study revealed that most information resources such as textbooks, dictionaries, encyclopedias, novels and biographies are also available at Correctional Centers. When information resources are made available to inmates, it enables skill acquisition, and positive creativity and increases their knowledge of things that could help their rehabilitation process.

Moreover, inmates require information and information resources that will meet their various needs including emotional, legal educational, mental, and physical needs. Rafedze and Abrzah (2014) substantiate that information resources in correctional centres focus on recreational, legal

and health-related issues. Atanda Usman and Rabiu (2017) identified information on health conditions, finances, morality, spirituality, life after prison, legal issues, family and friends relationships, literacy education, and rights of inmates as some of the information needs of inmates. Hussain et al. (2018) study on libraries in Pakistani correctional centres indicated the availability of legal-related information resources in their prison libraries. Payton (2014) also emphasised that information resources help in the process of developing humans to become cultured in decision-making**.** Hence, the utilisation of these resources is important to enabling better decision-making and proper reaction to specific situations by inmates within the correctional centres and after their release.

The utilisation of library and information resources by inmates requires that the resources are made available in the correctional centres through the provision of adequate access at the right time. Owusu-Ansah (2012) in a study on prison libraries in Ghana, revealed that the majority of inmates who participated in the study desired library and information resources for their academic, recreational, and rehabilitative purposes. Most of the inmates agreed that recreational information resources for recreational purposes do help them overcome the boredom connected with life in the correctional facility. The study affirmed that information resources could be an effective tool to ensure the restoration of inmates to a socially acceptable life when they leave the correctional centre.

Libraries in correctional centres play a significant role in the rehabilitation of inmates through their information resources and services (Mayrink da Costa, 2003). Libraries in correctional centres also known as prison libraries (IFLA, 2005), provide resources for inmates' education, rehabilitation programs and specific requirements. Information resources in correctional centre libraries allow inmates to develop literacy skills, pursue personal and cultural interests and life-long learning (Sambo, Usman & Rabiu, 2017). The information resources collected in the correctional centres should include print and non-print materials and other formats that would meet the informational, educational, cultural, recreational, and rehabilitative needs of the inmates. These resources when available and accessible will help reduce the criminality nature of the inmates by providing them with relevant information and instructions that will guide their reformation process. Thus, correctional centres cannot do without having active and reliable resources human and information material that would meet or satisfy the inmates' information needs.

Methodology

The study employed a descriptive research design, which enabled the collection of data from a large population of inmates that was remotely dispersed across the locations of the selected correctional services in the Kwara States. A descriptive survey is considered appropriate for the study because it allows for the use of a questionnaire as an instrument for data collection. As a result of ongoing security issues challenging the county, two correctional centres, Oke-Kura Correctional Center and Mandala Correctional Center were purposively chosen from, Kwara state. The population of the study consists of 792 inmates in the selected correctional service centres. The respondents for the study include inmates awaiting trial and those who have been

sentenced for a specified period. A simple random sampling technique was used to draw the sample from the population, with a sample size of 241. The instrument for data collection was a questionnaire. The questionnaire was divided into three sections: A-C, comprising of items on the study objectives. Face and content validity of the questionnaire was ensured by a few Information science professionals in the Department of Library and Information Science and Correctional Center officers. The reliability of the instrument was ensured with Cronbach's alpha reliability coefficient of 0.83. The questionnaire was administered to the inmates with the assistance of four correctional centre officers and the permission of the Controllers of each of the facilities. The collected data were analysed using IBM Statistical Package and Service Solution (SPSS) software version 23.0. The descriptive statistics used include frequency counts and simple percentages. Tables were used for the presentation of the results. A total of 217 copies of questionnaires were duly completed and returned, given a response rate of 90%.

Data Analysis and Results

Results of the analysis of data obtained on research questions one, two, and three are presented in this section.

Research Question 1: What is the current status of information resources available in correctional centres? The results on the current status of information resources available in the selected correctional centres in Kwara state are presented in Table 1.

Table 1: Current Status of Information Resources Available in Correctional Centers

Items	Highly Available		Partially Available		Scarcely Available		Not Available	
	F	%	F	%	F	%	F	%
Academic book	16	7.4%	30	13.8%	41	18.4%	140	64.5%
Religious book	50	23.0%	28	13.0%	38	17.5%	101	46.5%
Health-related materials	0	0.0%	0	0.0%	0	0.0%	217	100.0%
Quran	164	75.6%	40	18.4%	0	0.0%	13	6.0%
Bible	177	81.6%	30	13.8%	0	0.0%	10	4.6%
Biography	0	0.0%	0	0.0%	0	0.0%	217	100.0%
Novel	43	30.4%	23	10.6%	49	22.6%	102	69.6%
Newspaper	0	0.0%	0	0.0%	17	7.8%	200	92.2%
Magazine	0	0.00%	22	10.1	12	5.5%	183	84.3%
Devotionals	102	60.8%	30	13.8%	35	16.1%	50	23%
Dictionary	0	0.0%	0	0.0%	0	0.0%	217	100.0%
Encyclopedia	0	0.0%	0	0.0%	0	0.0%	217	100.0%
Textbook	10	4.6%	10	4.6%	11	5.1%	186	85.7%
Hymnal	51	23.5%	25	11.5%	49	22.6%	92	44.4%
E-book	0	0.0%	0	0.0%	0	0.0%	217	100.0%
Calendar	121	55.8%	48	22.1%	8	3.7%	40	18.4%

Wall clock	170	78.3%	35	16.1%	4	1.8%	8	3.7%
Computer	0	0.0%	0	0.0%	0	0.0%	217	100.0%
Printer	0	0.0%	0	0.0%	0	0.0%	217	100.0%

The results in Table 1 revealed that the information resources that are highly available to inmates include: the Bible (81.6%), Wall-clock (78.3%), Quran (75.6%), Calendar (55.8%), and Devotionals (60.8%). Furthermore, the results show that the following information resources are scarcely available in the correctional centres: novels (22.6%), hymnals (22.6%), academic books (18.4%), religious books (17.5%), newspapers (7.8%, (92.2%), Magazines (5.5%), and textbook (5.1%). The results, however, revealed that our health-related materials (100%), biography (100%), dictionary (100%), encyclopedia (100%), e-book(100%), computers (100%), and printers (100%) are information resources that are not available at all in the correctional centres surveyed. The results indicate that wallclock, Bible, Quran, calendar and devotionals are highly available in correctional centres. However, it can also be deduced that while resources such as novels, hymnals, academic books, religious books, newspapers, Magazines, and textbooks are available, they are in scarce quantity that may not satisfy the population of inmates on the ground.

Research Question 2: To what extent are information resources accessible to inmates?

Table 2: Extent of Information Resources Accessibility to Inmates

Items	**Highly Accessible**		**Partially Accessible**		**Scarcely Accessible**		**Not Accessible**	
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**
Academic book	0	0.0%	0	0.0%	36	16.6%	181	83.4%
Religious book	18	8.3%	139	64.1%	11	5.7%	49	22.6%
Health-related materials	0	0.0%	0	0.0%	0	0.0%	217	100.0%
Quran	164	75.6%	53	24.4%	0	0.0%	0	0.0%
Bible	177	81.6%	40	18.4%	0	0.0%	0	0.0%
Biography	0	0.0%	0	0.0%	0	0.0%	217	100.0%
Novel	11	5.7%	49	22.6%	23	10.6%	134	61.8%
Newspaper	0	0.0%	0	0.0%	53	24.4%	164	75.6%
Magazines	7	3.3%	15	6.9%	12	5.5%	183	84.3%
Devotionals	134	61.8%	30	13.8%	3	1.4%	50	23%
Dictionary	0	0.0%	0	0.0%	0	0.0%	217	100.0%
Encyclopedia	0	0.0%	0	0.0%	0	0.0%	217	100.0%
Textbook	15	6.9%	7	3.2%	12	5.5%	183	84.3%
Hymnal	50	23%	20	9.2%	42	19.4%	105	48.4%
E-book	0	0.0%	0	0.0%	0	0.0%	217	100.0%
Calendar	`111	51.2%	48	22.1%	38	17.5%	20	9.2%
Wall clock	151	69.6%	30	13.8%	26	1.8%	10	4.6%
Computer	0	0.0%	0	0.0%	0	0.0%	217	100.0%
Printer	0	0.0%	0	0.0%	0	0.0%	217	100.0%

The results in Table 2 show the extent to which information resources are accessible to inmates for rehabilitation purposes in the surveyed correctional centres. The results revealed that the information resources that are highly accessible to the majority of inmates include: the Bible (81.6%), Quran (75.6%), Wall-clock (69.6%), Devotional Book (61.8%) and Calendar (51.2%). Furthermore, religious book (64.1%) was found to be partially accessible to most of the respondents. Also, the results show that newspapers (24.4%), hymnal (19.4%), academic books (16.6%) Novels (10.6%), magazines (5.5%) Textbooks (5.5%) are scarcely accessible to a few of the inmates. However, the results revealed that health-related materials, biographies, dictionaries, e-books, computers, and printers are not accessible at all to the inmates (100% each). The results indicate that the Bible, Quran, Wall-clock, Devotional Book and Calendar are to a great extent accessible to most of the inmates. While, all the inmates do not have access to information resources such as: health-related materials, biography, dictionary, e-book, computer, and printer.

Research Question 3: What is the frequency of utilisation of information resources used by inmates?

The results on the frequency of utilisation of information resources by inmates in surveyed correctional centres in Kwara State are presented in Table 3.

Table 3: Frequency of Utilisation of Information Resources by Inmates

Items	Always		Sometimes		Rarely		Never	
	F	%	F	%	F	%	F	%
Academic book	0	0.0%	46	21.2%	32	14.7%	139	64.1%
Religious book	23	10.6%	33	15.2%	22	10.1%	139	64.1%
Health-related materials	0	0.0%	48	22.1%	12	5.5%	157	72.4%
Quran	86	58.1%	41	14.3%	15	16.1%	75	11.5%
Bible	90	41.5%	63	29%	12	5.5%	52	24%
Biography	0	0.0%	0	0.0%	0	0.0%	217	100%
Novel	0	0.0%	75	34.6%	66	30.4%	76	35.0%
Newspaper	0	0.0%	0	0.0%	12	5.5%	205	94.5%
Magazine	0	0.0%	22	10.1	12	5.5%	183	84.3%
Devotional	22	10.1%	77	35.5%	12	5.5%	106	48.8%
Dictionary	0	0.0%	0	0.0%	0	0.0%	217	100.0%
Encyclopedia	0	0.0%	0	0.0%	0	0.0%	217	100.0%
Textbook	0	0.0%	20	9.2%	33	15.2%	164	75.6%
Hymnal	0	0.0%	32	14.7%	46	21.2%	139	64.1%
E-book	0	0.0%	0	0.0%	0	0.0%	217	100%
Calendar	106	48.8%	53	24.4%	21	9.7%	37	17.1%
Wall clock	116	53.5%	53	24.4%	36	16.6%	12	5.5%
Computer	0	0.0%	0	0.0%	0	0.0%	217	100.0%
Printer	0	0.0%	0	0.0%	0	0.0%	217	100.0%

The results in Table 3 on the frequency of utilisation of information resources by inmates revealed Quran (58.1%), wall clock (53.5%), Bible (41.5%) and calendar (48.8%) as information resources always utilised the majority of the respondents. Also, devotionals (35.5%) and novels

(34.6%) were sometimes utilised by some of the respondents while 21.2% rarely utilise hymnals. The results further revealed that 100% of the inmates who responded had never utilised a biography, dictionary, encyclopedia, computer, or printer. The results therefore suggest the Bible, Quran, calendar, wall clock, devotional, novels, hymnals, textbooks and magazines as information resources used by inmates for rehabilitation purposes in the correctional centres surveyed. However, their frequency of use of these resources varies from always to never.

Discussion of the Findings

The study revealed the current status of information resources available in surveyed correctional centres. The findings revealed that wall clocks, Bible, Quran, calendar, devotionals, newspapers, magazines, textbooks, and novels are information resources currently available in correctional centres, though in varying quantities. This finding corroborates that of previous studies like Obiano et al. (2020) who revealed that information resources such as textbooks and magazines are available in correctional centres. However, the result contradicts the finding of Omolola (2015) who identified newspapers and dictionaries as the information resources *available* in the *prison libraries*.

The study further revealed that information resources such as novels, hymnals, academic books, religious books, newspapers, Magazines, and textbooks are limited in supply. Hence, they may not be sufficient to satisfy the rehabilitation needs of the population of inmates. Nevertheless, the findings of this study are in tandem with those of Emasealu (2017), Chandani (2019) and Obiano et al. (2020) that support the unavailability of textbooks, dictionaries, encyclopedias, novels, biographies, newspapers, audio documents, video tapes, DVDs, library software and autobiography as information resources for inmates' rehabilitation in Nigeria correctional centres. The study findings also show that resources such as health-related materials, biographies, dictionaries, encyclopedias, e-books, computers, and printers are not currently available at correctional centres. The unavailability of some information resources may be attributed to poor funding of libraries in Nigerian prisons as suggested by Fasae and Folorunso (2020) and Obiano et al. (2020). It may also be a result of limited or lack of information professionals and librarians to manage the collections of the correctional centre libraries and resources.

This study further revealed the extent to which information resources are accessible to inmates in the correctional centres investigated. From the findings of the study, the Bible, Quran, devotionals and wall clock were found to be highly accessible to most of the inmates. This corroborates the findings of Forkuor (2020), Tucker and Luetz (2021), Melvin (2021) and Garner (2023). Also, calendars, hymnals, textbooks religious books and magazines were found to be partially or scarcely accessible to some or most of the inmates. In line with this finding, Obiano et al. (2020) identified textbooks and magazines as information resources available and accessible to inmates in Imo and Abia State correctional centres.

However, information resources such as health-related materials, biographies, dictionaries, encyclopedias, e-books, computers, and printers were not accessible to the majority of the

inmates. It can be deduced that there is limited access to information resources at the correctional centre, as a good number of inmates do not have access to relevant resources. The findings corroborate Awofeso and Opesanwo's (2023) and Emereonwu and Echedom's (2023) positions, that Nigerian prisons have limited information resources. The reason for the lack of access or partial access could be adduced to the unavailability of these information resources at the correctional centres.

The findings of this study also revealed the extent of information resources utilisation by inmates in Kwara State correctional centres. The findings revealed that the Bible, Quran, wall clock and calendar are the information resources always used by most inmates in the surveyed correctional centres. These findings agree with the study of Kayode and Adeola (2019), which revealed that most of the information resources that are available in correctional centres are frequently utilized. The findings could imply that the utilisation of information resources largely depends on their level of availability and accessibility. The findings of this study further revealed that few of the respondents made use of academic materials, Religious books, e-books, novels, health-related materials, Newspapers, textbooks, Hymnal and magazines, either sometimes or rarely. However, the findings support Chandani (2020) who found that information resources and services that were made available to inmates in the correctional centres were not fully utilized. This study finding further revealed that all the inmates who responded never made use of utilized biography, dictionary, encyclopedia, computer or printer. This is in line with Ajah, et al. (2022) finding that a higher percentage of prison inmates agree with the non-use of ICT devices. Therefore the utilisation of information resources by inmates for rehabilitation purposes could be majorly achieved if the required information resources are made available and accessible within the correctional centers.

Conclusion

Information resources have been distinguished as one of the most useful tools for enhancing the rehabilitation process of inmates, and ensuring they have a change of character before they are been absorbed back into society. Therefore, availability and access to significant information resources will assist inmates in optimizing their use for relevant and life-transforming activities and decision-making. The study findings revealed that the Bible, Quran, calendar, devotionals, newspaper, magazines, religious books, hymnals, textbooks, and novels as some of the information resources currently available in correctional centres. Moreover, resources such as health-related materials, dictionaries, encyclopedias, e-books, computers, and printers were not available. Furthermore, among the available resources, the Bible, Quran, devotionals and wall clock were found to be highly accessible and consistently utilized by a great percentage of the inmates**.** It can be concluded that the surveyed correctional centres in Kwara state utilise the Bible, Quran, and devotionals mostly as part of their rehabilitation tools.

Given the study findings, it is recommended that:

1. Provision of functional libraries that are equipped with relevant information resources and materials that are not at present available and accessible in the Nigeria correctional

centres be ensured. These include health-related materials, dictionaries, encyclopedias, e-books, newspapers and computers;

2. Access to information resources that would facilitate reformation and rehabilitation be granted to inmates;
3. Qualified librarian(s) are employed to manage information resources and other library collections in the correctional centres and also guide inmates on the legitimate use of the resources for rehabilitative purposes.
4. The government makes adequate budgetary provisions for the purchase and maintenance of essential library and information resources in correctional centres.

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Information Needs and Seeking Behaviour of Young Adults in Kwara State Library Board

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Abstract

Information Needs and Seeking behaviour of Young Adults in Kwara State Library Board (KSLB) were examined using Kwara State Library as the resources they use in meeting their Information Needs, how frequently they make use of the Library, the challenges they face and the likely solutions. The population of the study is mainly young adults who registered and used KSLB. The total number as at the time of Data collection was 352, and Purposive Sampling was used to select 60 regular library users as a sample. The instrument for data collection was a questionnaire. The results from the study revealed that young adults in KSLB have different information needs. The greatest information needs of young adults using Kwara State Library Board are Textbooks and Newspapers as the resources most consulted by young adults in the library. Average young adults in KSLB neither use the library daily nor weekly. The study recommended that the management of KSLB should endeavour to put current and relevant information materials in the library to increase library patronage.
Keywords*: Information needs, information seeking behavior, young adults, Kwara State Library Board*

Introduction

Information is an important tool used in the realisation of any objective goal of the library. It is an important factor in any library because they are needed by users. Every Library user needs information of increasing variety and diversity of levels, frequencies, volume and with ease. Thomas Wilson (2000), who was one of the earlier pioneers of information behaviour described information-seeking behaviour"as the totality of human behaviour concerning sources and channels of information, including both active and passive information seeking, and information use", (Wilson 2000). Pettigrew, Fidel, and Bruce (2001) further expanded the scope of the definition as "the study of how people need, seek, give and use information in different contexts, including the workplace and everyday living". The generalized definitions as pointed out by Allen (2011) encompassed the active seeking and purposeful retrieval of information, as well as the passive exposure or chance encountering of information.

Therefore, information needs stem from a vague awareness of something missing and culminates in locating information that contributes to understanding and meaning Library Patrons seek information because they need information resources to survive in all sectors of life (Ajiboye & Tella, 2007, Fiankor& Adams, 2004, Fatima & Ahmad, 2008). Information retrieval systems accessed over the Internet are now globally used for providing access to information (Bates, 2012). Its effectiveness for information retrieval has extended its use beyond general-purpose systems to domain-specific systems within an organization or industry including traditional online retrieval systems (Jansen, 2006). Finding information on these systems is usually done through a search. In other words, one needs to search for information using available retrieval systems. This led to "information seeking" in which the behaviour varies from one person to another. Information seeking is described as the conscious effort to acquire information in response to a need or gap in knowledge (Casey, Calvert, French, & Lewis (2008). Case et. al (2012) further explain that the information seeking behaviour of individuals is different at different times for different purposes.

Information plays a significant role in our daily professional and personal lives and we are constantly challenged to take charge of the information that we need for work, fun and everyday decisions and tasks (Bruce, 2005). It deals with behaviour and actions exhibited by human beings in their search for information to satisfy diverse information needs (Abubakar, 2010). Information seeking behaviour therefore is the purposive seeking for information by individuals as a consequence of a need to satisfy goals (Kakai et al., 2004; Wilson, 2008; Mustaffa et al., 2012). The concept of "information behaviour" was coined in the late 1990s, but it traces its roots to the concept of "information needs and uses" that arose in the 1960s (Khan & Shafique, 2011). In the course of seeking, the individual may interact with annual information systems such as a journal or a library, or with computer-based systems such as the World Wide Web (Kari, 2004). Bajpai et al. (2009) enumerate several advantages of e-resources over the print media. These include multi-access, speed, functionality, content, international reach, unlimited capabilities, reduced cost, convenience, searchability and linking.

Statement of the problem

Information is a valuable resource in this current age of information where acquiring and using information are critical activities, especially among young adults. This corroborates the assertion of Ruthven and Kelly (2011) that the process of information seeking is becoming more fundamental and strategic when dealing with young adults. There is a need to cater to the information needs of young adults to grow them to become library ambassadors. At the same time, managing and controlling the way these young adults seek information in abundance these and other reasons make this study focus on information needs and information seeking behaviour of young adults in Kwara State Library Board.

Objectives of the Study

The objectives of this study are as follows:

i. evaluate the needs of young adults that make use of Kwara State Library Board;
ii. know how young adults seek information in Kwara State library board;
iii. determine the resources used in providing for information needs of young Adults at Kwara State Library Board; and
iv. know the frequency of library visits of young adults in the Kwara State Library Board.
v. Challenges faced by young adults using the KwaraStateLibrary board

Research Questions

viii. What are the information needs of young adults using the Kwara State Library Board?
ix. How do young adults seek information in the Kwara State Library Board?
x. What are the resources used in providing information services to young adults using the Kwara State Library Board?
xi. How frequently do young adults visit Kwara State Library Board?
xii. What are the challenges faced by young adults using the KwaraState Library board?

Methodology

For this study, a descriptive survey design was adopted. The population for the study comprises selected young adults registered users of Kwara State Library Board. The total number of registered users in the Kwara State Library board is 352. Purposive Sampling Techniques were used to select 60 regular users of the library. A self-designed questionnaire was adopted as an instrument for the study. Items on the Questionnaire areclosed-ended questions. The questionnaire consists of two sections (A&B), section A consists of respondent's demographic characteristics such as gender, educational status, and age. Section B consists of sub-sections of items relating to information needs and seeking behaviour of young adults in the Kwara State Library Board.

Presentation of the findings This chapter entails the analysis of the data gathered from the respondents concerning "Information needs and seeking behaviour of young adult in Kwara State Library Board (KSLB)". The data gathered were collected through the administration of a face-

to-face questionnaire for registered young adults in the Library Board. Sixty (60) copies of the questionnaires were administered to the respondents out of which fifty-six (56) copies were returned resulting in a 93.3% return rate.

Demographic Characteristics of the Respondents

Data collected were based on gender, age, and educational qualifications from fifty-six (56) respondents out of sixty questionnaires administered. The following shows the analysis of data and discussion of findings.

Table 1: Demographic Characteristics of Respondents

Demographics		Frequency	Perc. (%)
Gender	Male	26	46.4
	Female	30	53.6
0Age	16yrs - 20yrs	9	16.1
	21yrs - 25yrs	33	58.9
	26yrs - 30yrs	14	25.0
	Basic Education	2	3.6
Educational Qualification	Secondary Education	10	17.9
	Tertiary Education	44	78.6
	Tertiary Education	44	78.6

Table 1. Shows 26(46%) of the respondents are Male while 30(53.6%) are Female. In terms of Age bracket, 9(16.1%) are between 21-25years; and 14(24.0%) of them are between 26-30years. Their educational qualification ranges from Basic to Tertiary Education 2(3.6%) of them have Basic Education, 10(17.9%) have Secondary Education and 44(78.6%) have Tertiary Education. These demographics show that the majority of registered young Adults at the library board are educated. It is expected that their information need will be high.

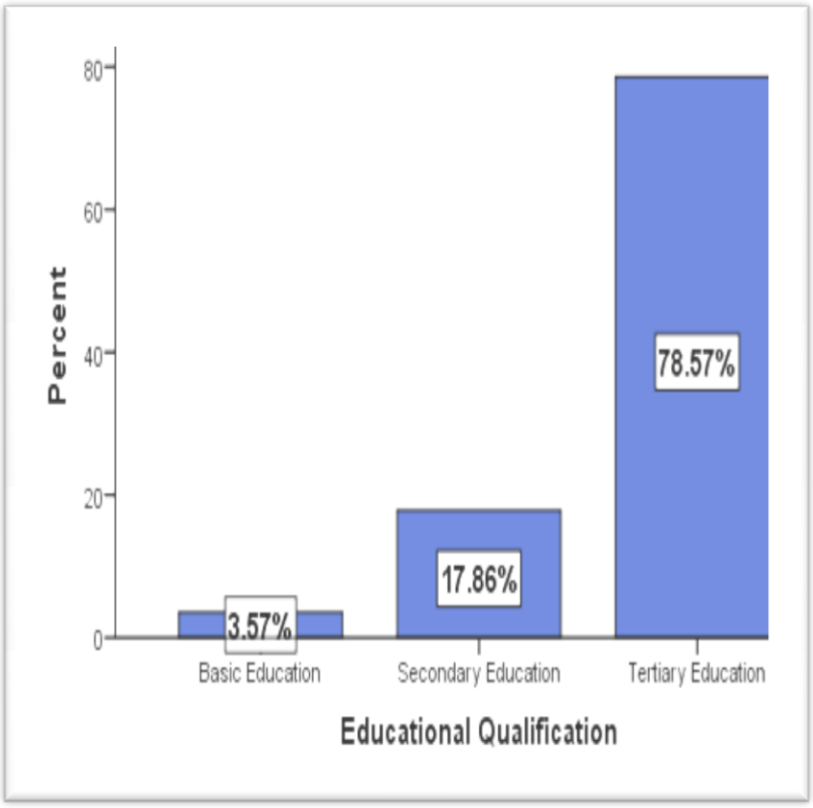

Figure: Bar Chart Showing Educational Qualification of Young Adults

Figure 4.1 also shows a Bar Chart representing their educational qualification.

The Bar Chart above depicts the educational qualifications of the young adults in Kwara State. Demographic analysis showed that 78.57% pursued their academic career up to the tertiary level level (Colleges of Education, Polytechnics, Schools of Nursing, Universities, etc). 17.86% were educated up to the secondary school level while 3.7% had basic qualifications. The implication, however, is that there would need for information needs and seeking behaviour among the educated population up to the tertiary level.

Information Needs of Young Adults Using KSLB

This section revealed the analysis of data collected on the information needs of young adults in the areas of information needs for developing literacy skills, career guidance, health matters, education and training sports, government policies, plans and young adults entertainment.

Table 2: Information Needs of Young Adults using KSLB

Statements	D	SD	N	A	SA	Mean
1. I need information to develop my literacy skills for learning and expression	3 (5.4.8%)	7 (12.5%)	4 (7.1%)	34 (60.7%)	8 (14.3%)	**3.66**
2. I need information on career guidance	1 (1.8%)	5 (8.9%)	2 (3.6%)	32 (57.1%)	16 (28.6%)	**4.02**
3. I need information on health-related matters	1 (1.8%)	2 (3.6%)	1 (1.8%)	13 (23.2%)	39 (69.%)	**4.55**
4. I need information on education and training	4 (7.1%)	2 (3.6%)	6 (10.7%)	15 (26.8%)	29 (51.8%)	**4.13**
5. I need information on games and sports	3 (5.4%)	4 (7.1%)	2 (3.6%)	13 (23.2%)	34 (60.7%)	**4.27**
6. I need information on Govt. policies and plans	8 (14.3%)	5 (8.9%)	2 (3.6%)	25 (44.6%)	16 (28.6%)	**3.64**
7. I need information on entertainment	1 (1.8%)	2 (3.6%)	9 (16.1%)	18 (32.1%)	26 (46.4%)	**4.18**

D=Disagree; SD=Strongly Disagree; N=Neutral; A=Agree; SA=Strongly Agree

Table 2 shows the information needs of Young Adults in the Library Board. The Mean rankings show the level of agreement of respondents to the statements on their information needs. Those who need information to develop their literacy skills for learning and expression have a mean value of 4.55; those who need information for career guidance have a mean value of 4.02; those who need health information-related matters have a 3.66 Mean value; needs related to education and training have mean value of 4.13; those that need information on games have 4.27 mean value; those that need information on Government policies and plans have 3.64 as mean values while 4.18 mean value is for those that need information on entertainment. These results show that young adults need all the specified information but their greatest needs are on health-related issues and literacy skills respectively.

Method of Seeking Information by Young Adults in KSLB

Table 3 below shows the analysis of methods and techniques of information needs and seeking behaviour of the young adults in Kwara State Library Board. These methods and techniques vary according to the respondent's type of information needs.

Table 3: Method of Seeking Information by Young Adults in KSLB

	D	SD	N	A	SA	Mean
1. Discuss with my fellow library users	5 (8.9%)	4 (7.1%)	5 (8.9%)	23 (41.1%)	19 (33.9%)	**3.84**
2. Ask people who are experts in the field	7 (12.5%)	9 (16.1%)	4 (7.1%)	21 (37.5%)	15 (26.8%)	**3.50**
3. Search the library collection	7 (12.5%)	10 (17.9%)	5 (8.9%)	13 (23.2%)	21 (37.5%)	**3.55**
4. Search on the internet	2 (3.6%)	1 (1.8%)	5 (8.9%)	21 (37.5%)	27 (48.2%)	**4.25**
5. I consult the librarians when in need of information	3 (5.4%)	2 (3.6%)	3 (5.4%)	22 (39.3%)	26 (46.4%)	**4.18**

D=Disagree; SD=Strongly Disagree; N=Neutral; A=Agree; SA=Strongly Agree

Different methods used by young adults in seeking information are shown in Table 3. Young adults who use discussion with fellow library users as a method of seeking information have a 3.84 mean; those who ask experts have a 3.50 mean value; those who search library collection have a 3.55 mean; those using the internet to search have a 4.25 mean value while those who consult librarians when in need of information have 4.18 mean value. These findings show that young adults use different methods for seeking information but their greatest method of information is through a search on the Internet.

Resources Used by Young Adults for Seeking Information in KSLB

The resources used by young adults for seeking information in the KSLB as revealed in data collected shows radio, television, textbooks, ask librarians, newspapers, reference sources, and -Journals.

Table 4: Resources used by Young Adults in KSLB

Resources	D	SD	N	A	SA	Mean
1. Radio	15 (26.8%)	17 (30.4%)	10 (17.9%)	10 (17.9%)	4 (7.1%)	**2.48**
2. Television	4 (7.1%)	23 (41.1%)	7 (12.5%)	6 (10.7%)	16 (28.6%)	**3.13**
3. Textbook	1 (1.8%)	1 (1.8%)	1 (1.8%)	23 (41.1%)	30 (53.6%)	**4.43**
4. Ask librarians	10 (17.9%)	17 (30.4%)	5 (8.9%)	10 (17.9%)	14 (25.0%)	**3.02**
5. Newspaper	4 (7.1%)	0 (0.0%)	2 (3.6%)	21 (37.5%)	29 (51.8%)	**4.27**
6. Reference resources	10 (17.9%)	17 (30.4%)	5 (8.9%)	12 (21.4%)	12 (21.4%)	**2.98**
7. E-journals	14 (25.0%)	21 (37.5%)	3 (5.4%)	11 (19.6%)	7 (12.5%)	**2.57**

D=Disagree; SD=Strongly Disagree; N=Neutral; A=Agree; SA=Strongly Agree

Resources used by respondents in seeking information are shown in Table 4.4. Those who use Radio have a mean rank of 2.48, while those who use Television have a mean value of 3.13; Textbook users have a 4.43 Mean Value; those who Ask Librarians have a 3.02 mean value; those using Newspapers have a 4.27 mean value while those using reference resources for their information needs have 2.98 Mean and 2.57 Mean value for those using E-journals. These data show that the use of Radio, Television, Ask Librarian, Reference sources, and E-journals for information resources is low among the respondents while the commonest resources they use are Textbooks and Newspapers. The rate at which these young adults make use of the Library is shown in Table 5.

Library Usage by Young Adults in KSLB

The usage of the library by the young adults in KSLB was found to be on a daily, weekly, fortnightly, and monthly basis as shown in Table 5.

Table 4.5: Frequency of Library Usage by Young Adults in KSLB

	Frequency	Percent
Daily	12	21.4
Weekly	16	28.6
Fortnightly	10	17.9
Monthly	18	32.1
Total	56	100.0

Table 5 shows the frequency of library usage by the respondents surveyed. It was gathered that 12(21.4%) use the library Daily; 16(28.6%) of them use it weekly; 10(17.9%) use it

fortnightly; while 18(32.1%) of them use it Fortnightly. These results show that an average of young adults in KSLB do not use the library daily or weekly.

Challenges Associated with Information Needs and Seeking Behaviour of Young Adults in KSLB

Challenges faced by young adults in searching and seeking information revolve around irrelevant materials, lack of awareness, erratic power supply, language barrier, and power infrastructure.

Table 6: Challenges Associated with Information Needs and Seeking Behaviour of Young Adults in KSLB

	D	SD	N	A	SA	Mean
1. Irrelevant material	3 (5.4%)	2 (3.6%)	0 (0.0%)	17 (30.4%)	34 (60.7%)	**4.38**
2. Lack of awareness	5 (8.9%)	3 (5.4%)	3 (5.4%)	21 (37.5%)	24 (42.9%)	**4.00**
3. Instability of management	10 (17.9%)	3 (5.4%)	7 (12.5%)	18 (32.1%)	18 (32.1%)	**3.55**
4. Erratic power supply	8 (14.3%)	6 (10.7%)	4 (7.1%)	6 (10.7%)	32 (57.1%)	**3.86**
5. Library proximity	7 (12.5%)	3 (5.4%)	10 (17.9%)	26 (46.4%)	10 (17.9%)	**3.52**
6. Language barrier	7 (12.5%)	8 (14.3%)	9 (16.1%)	11 (19.6%)	21 (37.5%)	**3.55**
7. Poor infrastructure	5 (8.9%)	6 (10.7%)	3 (5.4%)	15 (26.8%)	27 (48.2%)	**3.95**
8. The uncooperative attitude of librarians	9 (16.1%)	7 (12.5%)	0 (0.0%)	15 (26.8%)	25 (44.6%)	**3.71**
9. Ignorance of where to obtain material	8 (14.3%)	7 (12.5%)	5 (8.9%)	14 (25.0%)	22 (39.3%)	**3.63**

D=Disagree; SD=Strongly Disagree; N=Neutral; A=Agree; SA=Strongly A

There are many challenges faced by young adults in information seeking as shown in Table 6. The challenges faced are irrelevant materials (Mean=4.38); Lack of awareness ((Mean=4.00); instability of management (Mean=3.55); erratic power supply (Mean=3.86); library proximity (Mean=3.52); language barrier (Mean=3.55); poor infrastructure (Mean=3.95); uncooperative attitude of librarians (Mean=3.71); and ignorance of where to obtain materials ((Mean=3.63). Of all the indicated challenges, the problem of irrelevant materials and lack of awareness are the two greatest challenges.

Solutions to Challenges Faced By Young Adults While Seeking Information in KSLB

The study found it worthy of finding solutions to the challenges faced by young adults while seeking information in KSLB in the areas of materials, power supply, infrastructure, language and library orientation.

Table 7: Suggested Solutions for the Challenges Faced in KSLB

	D	SD	N	A	SA	Mean
1. Provision of relevant materials	2 (3.6%)	1 (1.8%)	2 (3.6%)	12 (21.4%)	39 (69.6%)	4.52
2. Creation of awareness	3 (5.4%)	2 (3.6%)	2 (3.6%)	19 (33.9%)	30 (53.6%)	4.27
3. Stability of management	2 (3.6%)	2 (3.6%)	4 (7.1%)	22 (39.3%)	26 (46.4%)	4.21
4. Stable power supply	2 (3.6%)	1 (1.8%)	4 (7.1%)	15 (26.8%)	34 (60.7%)	4.39
5. Mobile libraries should be created	2 (3.6%)	0 (0.0%)	4 (7.1%)	20 (35.7%)	30 (53.6%)	4.36
6. Usage of international language	1 (1.8%)	0 (0.0%)	6 (10.7%)	22 (39.3%)	27 (48.2%)	4.32
7. Provision of good infrastructure	1 (1.8%)	0 (0.0%)	2 (3.6%)	19 (33.9%)	34 (60.7%)	4.52
8. Librarians should have an accommodating attitude	1 (1.8%)	0 (0.0%)	2 (3.6%)	22 (39.3%)	31 (55.4%)	4.46
9. Young adults should be given proper orientation on where to obtain material	0 (0.0%)	0 (0.0%)	3 (5.4%)	16 (28.6%)	37 (66.1%)	4.61

D=Disagree; SD=Strongly Disagree; N=Neutral; A=Agree; SA=Strongly Agree

None of the respondents suggested other solutions concerning the indicated challenges faced by young adults in KSLB, various suggestions were made by the respondents as shown in Table 7. All their suggestions have very high mean rankings which means that the suggestions will go a long way in taking care of the challenges faced. The suggested solutions are the provision of relevant materials ((Mean=4.52); Creation of awareness (Mean=4.27; stability of management (Mean=4.21); stable of power supply (Mean=4.39); creation of mobile library (Mean=4.36); usage of international languages (Mean=4.32); provision of good infrastructure (Mean=4.52); accommodating attitude of librarian (Mean=4.46); and proper orientation on where to obtain information materials (Mean=4.61).

Discussion of Findings

Young adults using Kwara State Library Board (KSLB) have numerous information needs and it was gathered that many of the young adults using the library need information relating to health, education, skill acquisition, games, sports, government policies and plans, as well as information

on entertainment. The greatest of all the information needs of these young adults is information related to health (Table 2). It therefore means that KSLB has related information in its collection and young adults have a preference for it. The finding is similar to one of the findings of Bopape, Dikotla and Mahlatjithe (2017) who found that most respondents (young adults) viewed information on health matters, educational programmes, and career guidance as very important. Searching through the internet is one of the major ways used in seeking information needs by young adults in using KSLB. Many of them prefer searching through the internet to asking the librarian as a method of seeking information (Table 3). It shows that they may not easily locate information resources in the library if the need arises because they do not like asking librarians.

However, their preference for the Internet corroborates the assertion (Bates, 2012) that Information retrieval systems accessed over the Internet are now globally used for providing access to information. Apart from these, most of them (young adults) use Textbooks and Newspaper each time they come to the library board (Table 4). It is not surprising because almost large numbers of these young adults are educated and they may want to use textbooks for further learning and skill acquisition while they may also use newspapers for the sake of knowing the latest trend about news relating to their areas of interest like fashion, entertainment, sports, and politics, among others. Meanwhile, more than half of them neither use the library daily or weekly (Table 5). With the quest for knowledge by young adults using KSLB through various means, it was gathered that they faced some challenges in the process of seeking information needs.

These challenges include irrelevant materials, Lack of awareness, instability of management, erratic power supply, library proximity, language barrier, poor infrastructure, the uncooperative attitude of librarians, and ignorance of where to obtain materials. Meanwhile, they faced problems of irrelevant materials and lack of awareness problems more than other challenges (Table 6). The issue of irrelevant materials indicated by young adults implies that the library does not consider the demographics of these young adults (in terms of education) before selecting the materials thereby making the materials irrelevant to young adult users. This means that the library is not following Evans and Saponaro (2012) who recommended that demographic data are essential for formulating an effective library collection development programme and further that such information helps to identify the population distribution changes and trends that will affect library service needs especially in rural areas. The nature of the challenges faced made almost all the young adults surveyed suggest a unanimous solution to the challenges. The young adults suggested the provision of relevant materials, Creation of awareness, stability of management, stable of power supply, creation of the mobile library, usage of international languages, provision of good infrastructure, [accommodating attitude of librarian, and proper orientation for them on where to obtain information materials (Table 7).

Conclusion

Young adults in Kwara state have a quest for knowledge and their quest for knowledge is a result of their level of education. This is because only a few of them do not have tertiary education qualifications. Seeking behaviour is not bad because many of them make use of internet search as one of the ways to seek information which happens to be the latest way of seeking information

very fast in this present millennium information age. Catering to the needs of young adults using KSLB will go a long way in changing the literacy level of the Ilorin metropolis because some of these young adults may end up imparting the knowledge gathered through library usage.

Recommendations

Based on the gaps identified in the findings of this study, the following recommendations are proffered:

i. Young adults using the Kwara State Library Board should try as much as possible to increase their low level of library usage because the increase in library usage may imply an increase in knowledge.
ii. The attitude of young adults not asking librarians in KSLB when in need of information should be discouraged. They may depend on other means but the importance of asking a librarian for information needs can never be overemphasized because they know where any information may be found in the library. These librarians may even use their wealth of knowledge to refer them to other libraries or other information resources outside KSLB if the resources are lacking in the library.
iii. The management of KSLB should endeavour to put current and relevant information materials in the library to increase library patronage
iv. The problem of power outages and bad infrastructure in the library should be looked into by the management of the library.
v. Staff in the library should be trained on how they can be hospitable to users. This will go a long way in making the young adults using the library see the library staff as being approachable in times of need.
vi. The needs assessment should be carried out by the management of KSLB before selecting materials for young adults to eradicate the issue of irrelevant materials to young adult users.

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Use of Library Information Resources as Factors Influencing the Effective Study Skills of Polytechnic Students in Federal Polytechnic Ile-Oluji, Ondo State Nigeria

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Abstract
The study examines the use of library information resources as a factor influencing the effective study skills of students in Federal Polytechnic, Ile-Oluji, Ondo state. The use of information communication technology has aided the academic library in its information provision for students which helps to improve their study skills. A descriptive survey method was used for the study. A total of 300 were drawn from the total population of 2,950 students of the Federal Polytechnic, Ile-Oluji, Ondo state. Data was analyzed using the statistical package for the social sciences (SPSS), descriptive statistics of tables, frequencies and percentages were also used in analyzing the data collected. The study confirmed that the library renders the services of charging and discharging, registration of users and user education 300(100%) respectively. The study found out the students made use of electronic books, textbooks and internet facilities 224(74.7%) respectively. Resources like electronic books 131(43.7%), textbooks 131(43.7%) are adequately available, others are loaning materials, newspapers, dictionaries etc, but projectors 37(12.3%) were not available. The library has improved the memorization skills 263(87.7%), preview, question, read, summary and test (PQRST) skills 237(79%) and communication skills 227(74.7%). There is a positive relationship between the use of library information resources and the effective study skills of students (p was 0.000 which was < 0.05). Stakeholders like student unions, faculties, departments and libraries should assist in creating awareness on the use and benefits of the library, also, library users should be educated on the use of online resources and databases for their research work.

Keywords: library resources, library services, polytechnic students, study skills, academic library.

Introduction
The quality of learning and research in any academic system depends largely on the quality and quantity of information resources at the institution's disposal. Availability of information resources, accessibility and use are indispensable to the teaching, learning, research and community activities of students. The use of Information and Communication Technologies has increased exponentially. Many students now search for information online. Many modern libraries have an e-library section. The continued existence and relevance of academics in any tertiary institution depends on the ability to exploit available information resources either in print or electronic formats (Ismail, Mahesar & Idrees, 2017). In line with the ever-evolving

information and communication technologies, academic libraries have become a changing phenomenon. As centres that hold enormous amounts of information, libraries have joined the train of information globalization. Many Nigerian tertiary institutions are bracing to understand their role in the current learning and research environment. "Understanding and evaluating library usage patterns and developmental paths are prerequisites to formulating a critical and appropriate response to widespread, rapid changes in higher education" (Oakleaf, 2018).

The primary purpose of academic libraries is to support teaching, learning, and research in ways consistent with, and supportive of, the institution's mission and goals. In addition, library resources and services should be sufficient in quality, depth, diversity, and currency to support the institution's curriculum. As a result of this, the academic library is often considered the most important resource centre of the parent institution. Adequate library resources and services at the appropriate level for degrees offered should be made available to support the intellectual, cultural, and technical development of students enrolled in Nigerian universities (Kuh & Gonyea, 2013).

Information is very crucial to the overall learning outcome of all polytechnic students. Libraries are established in every institution to meet the information needs of students, members of academic staff and other members of the community. Academic libraries acquire and organize both printed and electronic information resources for accessibility by their clientele. Information in the early 21st century is characterised by information overload, unequal distribution, a strong tendency to triviality and increasing concerns about credibility (Rathinasabapathy, 2015). As the volume of information is constantly increasing, search skills are required to gain access to the information that is available. To gain access to and use these vast resources effectively, information users must learn to overcome information anxiety and as well explore the available information to enable them to interpret and as well utilize information for rational decision-making. The change in formats and organization of information shows that users of information resources need guidance and education to achieve realistic expectations. Unlike print resources which are subject to a variety of quality assurance processes as they pass through authors and publishers and which are sometimes recommended, the quality of information available from electronic information sources cannot be guaranteed (Association of College and Research Libraries, 2010).

Oakleaf (2018) asserts that electronic resources reduce pressure on academic libraries for physical space for storage of books and journals, give the librarian the assurance that the electronic books and journals are complete, unanalyzed and in the right place and provides unlimited access to users. Electronic resources hold huge volumes of information which allow students to retrieve quality information to meet their needs. Olatoye and Ogunkola (2009) reported a close link between study habits and students' use of library resources. It is one thing for library resources to be available; it is another thing for students to make use of them through good study habit skills.

Library resources refer to all input utilized in the library to provide a good learning environment for students, and teachers and for the realization of educational goals. Library resources are in two major categories, human and non-human resources. The human resources in the library refer to the library professionals, library officers, library assistants and others. They are responsible for the smooth running of the library and the effective use of other resources. While the non-human

resources include all print materials such as; reference books, dictionaries, etc and non- print materials such as ; videotapes for instruction, slides and other software for instruction the print and non-print formats (Fakomogbon, Bada, & Omiola, 2012).

Mace (2002) defined study as a systematic acquisition of knowledge and an understanding of facts and principles that enable learners to retain and apply knowledge. The study involves the sum of all behavioural patterns, determined purpose and enforced practices that the individual adapts to learn and achieve competency. EMSTAC (2014) asserts that study skills are learning strategies that facilitate the processing of information. Johnston & Anderson (2010) describe study skills as "conscious use of the processes of learning to achieve effective study practices". Study skills include reading, writing, note-taking, time-management, working with others, engaging in critical and analytical thinking, revising and remembering, and information gathering. The ability to use information resources depends on an individual's skills and study strategies. Anderson (2000) observes that a study skills application involves thinking and meta-cognition, thinking and learning. Therefore, a student's study skill is a life-long continuous and regular performance of the act of reading. Gurcu and Husne (2009) affirmed that the "habit of using libraries means continuous and regular use of a library by the individual to meet his/her intellectual requirements". Meeting these intellectual requirements reveals that students have gained the habit of reading and developed skills necessary for using library information resources.

It must be noted that the key purpose of any academic library is basically to provide information needs for its users. Given this, Adegun, Oyewunmi, Oladapo and Sobalaje (2015) affirmed that "all authorised users of academic and research libraries have a right to expect libraries that are commensurate with their needs, provided by competent librarians and founded on adequate collections which are easily available and accessible". This means that library facilities are important for continued education, self-development and research activities which are requisite for the enhancement of good study skills and also serve as the network for teaching, learning and research activities in any academic environment.

Statement of the Problem

The role of the information provider is to understand the needs of the users and their attitudes towards seeking their needs. Only then can users optimize the benefits that such services tend to offer. The responsibility of supporting learning and research within an academic environment, through the provision of information materials has always been that of the library. However, literature and observation suggest a decline in library usage as some students may not be taking advantage of the resources provided by the library. Where such is the case, students may find it difficult to cope with the rigours of academics. It is in light of the above, that the study investigates the use of library information resources as factors influencing effective study skills of students in Federal Polytechnic, Ile- Oluji, Ondo state, Nigeria.

Research Questions

This study was guided by the following specific questions.

1. What forms of services are rendered to students in the main library;

2. What is the extent to which undergraduate students make use of library resources and services?
3. What is the adequacy of available library resources in addressing the academic needs of the students?
4. What are the ways by which the use of the library has improved the study skills of undergraduate students?
5. What are the benefits of library resources to undergraduate students?
6. What are the challenges faced by undergraduates when using library resources?

Research Hypothesis

There is a significant relationship between the use of library information resources and the effective study skills of polytechnic students.

Scope of the Study

The study focuses on the use of library resources as factor influencing the effective study skills of polytechnic students at Federal Polytechnic, Ile- Oluji, Ondo State, Nigeria. The study will cover the various forms of resources and services rendered at their main library and how it has affected the study skills and use by students in various faculties and departments of the school.

Literature Review

An academic library is regarded as an repository of knowledge and information gateway where various information materials are stored. Ismail, Mahesar & Idrees (2017) pointed out that university libraries are set up to assist in the execution of their statutory duties. To fulfil its mission of supporting the educational objectives of its parent bodies, which include teaching, research and cultural development, the library has to develop and maintain standard books, journals, multimedia, electronic resources and information and communication technologies and services.

One of the objectives of polytechnic libraries in Nigeria is to develop and maintain collections in all formats whether print or electronic and to make these information resources available and accessible to all including lecturers. It is pertinent, therefore, that academic libraries should facilitate uninterrupted Internet access to scholarly electronic publications to meet lecturers' resource needs. Kuh & Gonyea (2013) observed that the central purpose of libraries is to provide service access to information and modern information and communication technologies, especially computers, information networks and software applications are making it possible for libraries to provide a variety of libraries and information services to their clientele.

Library information resources as used in this context are information-bearing materials that are in both print and electronic formats, such as textbooks, journals, indexes, abstracts, newspapers and magazines, reports, CD-ROM databases, Internet/e-mail, videotapes/cassettes, diskettes, magnetic disks, computers, and microforms, (Oakleaf, 2018). Library information services may be viewed as the activities that libraries and their personnel render to meet the information needs of their users. Oyewusi & Oyeboade (2009) define library information resources as collections of all text and bibliographic information sources; also included is information technology, such as those that support browsing, authoring and communication, like the computer and the Internet. Adegun *et al* (2015), in their study observed that the availability of the library is good but the intensive use of its resources and services is of paramount importance, especially in shaping the study skills of the users. Aina (2014) affirmed that libraries play a crucial role in the

development of individuals. The quality of library resources according to the author determines the quality of graduates produced and research development. Aina also gives the primary purpose of setting up libraries as to acquire, process, store, preserve and make available current and relevant print and electronic materials that will meet the needs of its users at the appropriate time. Ntui & Udah (2015) describe library resources as the raw materials that provide crucial services in the teaching and learning process.

Electronic resources have boosted the collection of libraries worldwide and in a special way, the ageing collections of many polytechnics in Nigeria. This also has raised the hope of meeting the user information needs and automated operations. With the increasing availability of electronic resources, users would have better quality collections and that would enable them to appraise their collections effortlessly and to assess the value of expensive journals and databases both within and outside the library. Rathinasabapathy (2015) asserts that traditional libraries store different types of information resources in different formats in their buildings. Various tools and guides to locate these resources were available only when a patron physically visited the library. The situation has now changed and access to these guides has become paramount. He concludes that with the advent of computers and telecommunication technologies, libraries and information centres can provide access to these resources through workstations within the library building. Advances in information technology, particularly the Internet, have enhanced the potential for widespread online search and retrieval of electronic resources by students and other researchers.

Some experts believe that students have the opportunity to learn many skills taught by librarians in academic libraries. Students also have the opportunity to access more organized library systems offering deep web sources that students can rarely access on their own due to cost. Ashraf, Swatman, & Hanisch (2008) found that students typically turn to popular web search engines when they need to find information. These search engines index only the surface web, where less than 7% of the information is appropriate for educational or scholarly purposes. No single web search engine indexes more than 16% of the surface web, yet we have no evidence that students use more than one search engine when they look for information.

In developing countries such as Nigeria, there may not be enough computers per student, and students may not be connected to any virtual libraries on their own. This means that school-based virtual libraries are the option. Thus it is necessary to study awareness and use of online libraries in developing countries. Access to computers (email and internet), affordability of computers and connectivity, telephone and electricity infrastructure, computer literacy, and expertise are some of the constraints to ICT as a globalising agent in developing countries Gumbo, 2003). The ability to find and retrieve information effectively is a useful skill for positive and successful use of information resources in whatever formats. Information resources comprise both print and non-print resources. The non-print resources provide more advantages compared to traditional print-based sources. Such advantages include easy access; information is obtained speedily, more varieties from electronic sources and more often updated than printed tools. Electronic information resources are information resources provided in electronic form, and these include CD-ROMs, information resources available on the Internet such as e-journals, e-prints, and another computer-based electronic networks (Tsakonas & Papatheodorou, 2006). The

availability of relevant information resources affects how frequently students use them. The provision of information resources varies among disciplines. According to Crede & Kuncel (2008), study skills refer to the student's knowledge of appropriate study strategies and methods and the ability to manage time and other resources to meet the demands of academic tasks. Study skills tend to tackle the process of organizing and taking in new information, retaining information, or dealing with assessments. They include mnemonics, which aid the retention of lists of information, effective reading, and concentration techniques, as well as efficient note-taking. More broadly, any skill which boosts a person's ability to study and pass exams can be termed a study skill, and this could include time management and motivational techniques. Study skills are discrete techniques that can be learned, usually in a short time, and applied to all or most fields of study. They must therefore be distinguished from strategies that are specific to a particular field of study e.g. music or technology, and from abilities inherent in the student, such as aspects of intelligence or learning styles.

According to Ismail, Mahesar and Idrees (2017), the ability to effectively use library materials is a function of the skills students possess. Informed library users know that academic libraries hold research resources that are more comprehensive and scholarly than most Internet providers. Libraries provide access to scholarly literature that, as a rule, is not freely available on the Web, or may not be online at all. According to the study, students (67%) visit the library weekly, and 80% of the students responded they used the library for studying. While it is good for students to do well in school, it is also very essential that they understand that they can achieve more or do better by acquiring the skills that enable them to effectively utilize library resources available in the school. However, the ability to effectively utilize these resources heavily depends on students' ability to deploy all the study skills acquired in their educational journey. The skill of scanning through books and other publications in the library is critical to discovering useful and relevant materials without wasting precious time on irrelevant documents.

The ability to effectively use library resources is a function of the skills students possess. This is because informed users know that libraries hold research resources that are more comprehensive and scholarly than most resources found on websites (Ilogho & Iroaganachi, 2014). It must be noted however, that, while it is good for students to perform very well in school, so also is very important that students understand that they can achieve more or do better by acquiring the skills that enable them to effectively utilise library resources.

Theoretical framework

Anomalous stage of knowledge (ASK) by Belkin (1986) states that a user of information, that is, academic staff in Library and Information Science schools has a gap in knowledge to bridge on a particular random phenomenon, that is, how to improve his/her teaching effectiveness. He/she has to seek, access and use information to meet his/her needs. Information utility theory by Curres (1986) postulates that users of information are rational human beings and that they will continue to consume a given product or service as long as they are deriving maximum satisfaction from its usage. The theory is derived from the concept of consumer behaviour in

economics. Information utility theory is the bedrock of collection development. To a librarian, as long as a user makes use of information materials, you keep them.

Conceptual Model of the study

The study was conceptualized in a framework explaining the relationship between the independent variables (use of library resources and library service provided), and the dependent variables: effective study skill of students in Polytechnic.

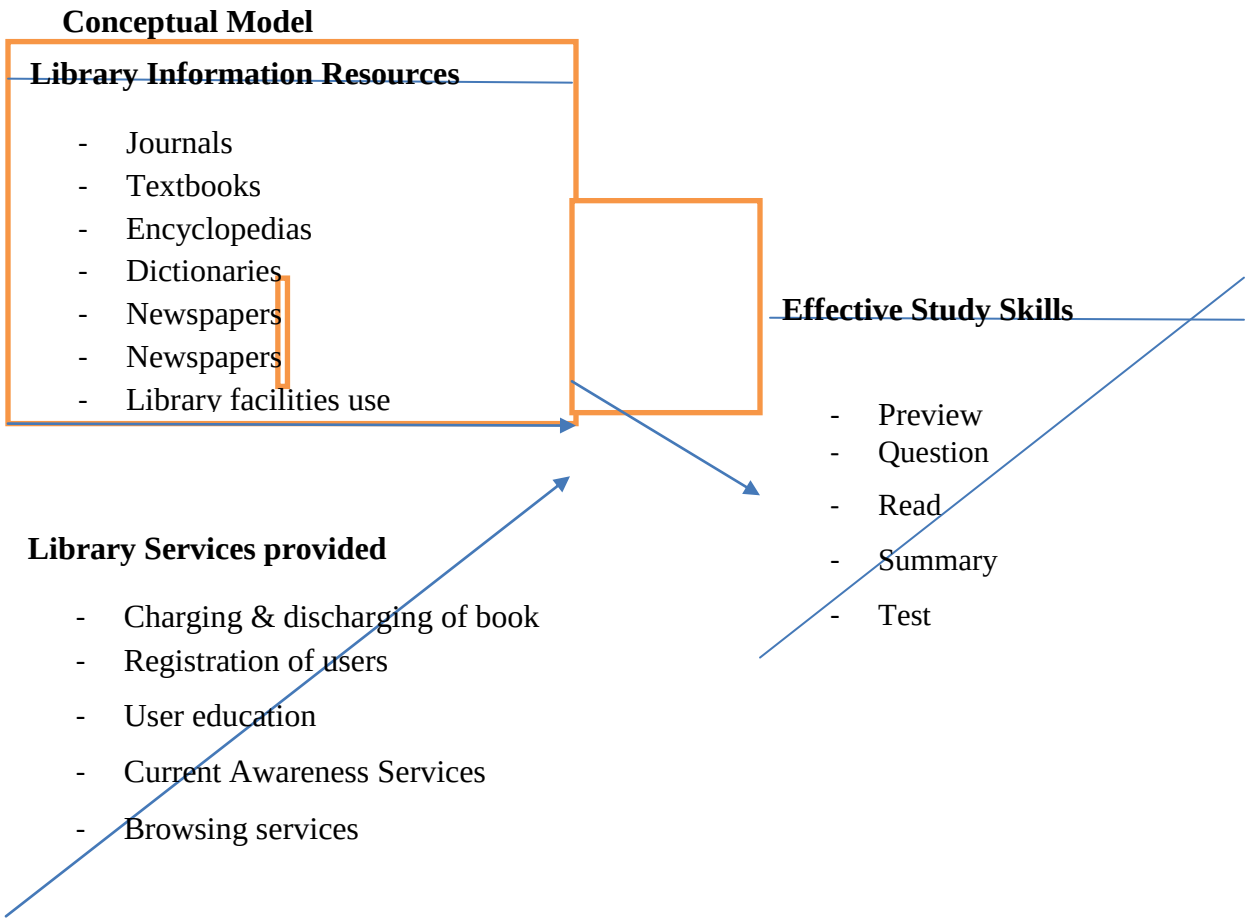

Figure 1: A Self-developed Conceptual Model of the study

The model, as shown in Figure 1 above, proposes linkages and interactions between the independent and the dependent variables of the study which are the use of library resources and library services provided as the independent variables, and effective study skills of polytechnic students as the dependent variable. The use of library resources cannot be in isolation from library services provided/available in determining the effective study skills of polytechnic students because they work hand in hand. The model shows a relationship between the use of library resources (independent variable) and library services provided/available (independent

variable) since both independent variables are connected, they both determine the effective study skills of polytechnic students (dependent variable).

Research Methodology

The survey research design was used for this study. The stratified random sampling technique was adopted primarily because it is a suitable and efficient way of studying large population. The total population of the students in (National Diploma) in the school was 2,950. A total of three hundred (300) students were selected for this research, with twenty-five (25) from each of the twelve (12) departments in the school as shown below.

Table 1 Study Population

Department	**Population**	**Sample**
Agricultural Technology	369	25
Computer Engineering	222	25
Computer Science	185	25
Electrical Electronic Engineering	202	25
Fisheries Technology	186	25
Statistics	192	25
Business Administration	170	25
Science Laboratory Technology	198	25
Accountancy	395	25
Architectural Technology	197	25
Cooperative Economics	350	25
Civil Engineering	284	25
Total	**2950**	**300**

Source: Academic Unit 2023

Table 2 Socio Demographic of Respondents

Variables		**Respondents**	**Percentage**
Gender	Male	189	63
	Female	111	37
Total		**300**	**100**
Marital status	Single	298	99.3
	Married	2	0.7
Total		**300**	**100**

Age	16-20years	180	60
	21-25years	120	40
Total		**300**	**100**
Religion	Christianity	171	57.0
	Islam	117	39.0
	African Traditional Religion	12	4.0
Total		**300**	**100**

Table 1 shows that 189(63%) of the respondents were male while 111(37%) of the respondents were female. The table also shows that 298(99.3%) of the respondents were single while 2(0.7%) of the respondents were married. On the age distribution of respondents, it was revealed that 180(60%) of the respondents were between the ages of 16-20years while 120(40%) of the respondents were between the ages of 21-25years. On the religion practiced, 171(57%) practiced Christianity while 117(39%) practiced Islam and 12(4%) practiced African Traditional religion.

Research Question 1: What forms of services are rendered to students in the polytechnic library?

Table 3 Services rendered to Students in the Polytechnic Library

Library services	Yes	No
Charging and discharging of books	300(100%)	-
Registration of users	300(100%)	-
Answering of users queries	242(80.7%)	58(19.3%)
Selective dissemination of information	218(72.7%)	82(27.3%)
Compilation of reading list	242(80.7%)	58(19.3%)
User education	300(100%)	-
Online searching	300(100%)	-
Current awareness services	300(100%)	-
Browsing services	300(100%)	-
Binding and photocopying	218(72.7%)	82(27.3%)
Serial services	300(100%)	-
Indexing and abstracting	300(100%)	-

On the form of services rendered to students in the Polytechnic library, it shows that 300(100%) of the respondents confirmed that their main library renders the services of charging and discharging of books, registration of users, user education, online searching of information, current awareness services, browsing services, serial services and the service of indexing and abstracting respectively. While 82(27.3%) of the respondents revealed that their polytechnic library does not render the services of selective dissemination of information and binding and photocopying services respectively.

Research Question 2: **What is the extent to which polytechnic students make use of library resources and services?**

Table 4: Extent to which Polytechnic students make use of Library Resources and Services

Library resources	Very High extent	High extent	Not at all
Electronic book	224(74.7%)	74(24.7%)	2(0.7%)
Textbook	224(74.7%)	74(24.7%)	2(0.7%)
Journals	48(16%)	250(83.3%)	2(0.7%)
CD-ROM	105(35%)	156(52%)	39(13%)
On-line Public Access Catalogue (OPAC)	105(35%)	193(64.3%)	2(0.7%)
Internet facilities	224(74.7%)	74(24.7%)	2(0.7%)
on-line database	224(74.7%)	74(24.7%)	2(0.7%)
News paper	200(66.7%)	98(32.7%)	2(0.7%)
Help desk	48(16%)	155(51.7%)	97(32.3%)
Dictionaries	109(36.3%)	132(44%)	59(19.7%)
Loaning materials	48(16%)	155(51.7%)	97(32.3%)
Thesis/dissertation	106(35.3%)	192(64%)	2(0.7%)
Digital collections	163(54.3%)	135(45%)	2(0.7%)
Lamination	139(46.3%)	122(40.7%)	39(13%)
Binding	163(54.3%)	135(45%)	2(0.7%)
Projector	48(16%)	155(51.7%)	97(32.3%)
Photocopy	200(66.7%)	98(32.7%)	2(0.7%)
Encyclopedia	139(46.3%)	122(40.7%)	39(13%)

The table 4 above shows that 224(74.7%) of the respondents made use of electronic books, textbooks, internet facilities and online databases respectively to a very high extent. While 97(32.3%) of the respondents do not make use of the help desk, loaning materials and projector respectively at the polytechnic library.

Research Question 3: **What is the adequacy of available library resources in addressing the academic needs of the students?**

Table 5: Adequacy of Available Library Resources in addressing the academic need of the Students

Library resources	Very adequate	Averagely adequate	Not adequate
Electronic book	242(80.7%)	58(19.3%)	-
Textbook	242(80.7%)	58(19.3%)	-
Journals	200(66.7%)	100(33.3%)	-
CD-ROM	163(54.3%)	137(45.7%)	-
On-line Public Access Catalogue (OPAC)	163(54.3%)	137(45.7%)	-
Internet facilities	242(80.7%)	58(19.3%)	-
on-line database	200(66.7%)	100(33.3%)	-
News paper	163(54.3%)	137(45.7%)	-
Help desk	106(35.3%)	194(64.7%)	-
Dictionaries	200(66.7%)	100(33.3%)	-
Loaning materials	187(62.3%)	113(37.7%)	-
Thesis/dissertation	163(54.3%)	137(45.7%)	-
Digital collections	130(43.3%)	170(56.7%)	-
Lamination	106(35.3%)	194(64.7%)	-
Binding	200(66.7%)	100(33.3%)	-
Projector	130(43.3%)	133(44.3%)	37(12.3%)
Photocopy	224(74.7%)	76(25.3%)	-
Encyclopedia	106(35.3%)	63(21%)	131(43.7%)

On the adequacy of available resources in addressing the academic needs of students, the table shows that 242(80.7%) of the respondents agreed that library resources such as electronic books, textbooks and internet facilities respectively are adequately available in the library. While 131(43.7%) and 37(12.3%) of the respondents revealed that library resources such as; encyclopedias and projectors are not adequate in the library.

Research Question 4: **What are the ways by which the use of the library has improved the study skills of polytechnic students?**

Table 6: Ways by which the use of the Library has improve the study skills of Students

Study skills	Very effective	Moderately effective	Not effective	I don't know
Memorization	263(87.7%)	37(12.3%)	-	-
Communication skills (reading and listening)	224(74.7%)	76(25.3%)	-	-
PQRST (preview, question, read, summary and test)	237(79%)	63(21%)	-	-
Condensing keywords	200(66.7%)	100(33.3%)	-	-
Visual imagery	178(59.3%)	85(28.3%)	37(12.3%)	-
Method based on acronyms and mnemonics	84(28%)	179(59.7%)	37(12.3%)	-
The method based on exam strategies	84(28%)	118(39.3%)	61(20.3%)	37(12.3%)

On the ways by which the use of the library has improved the study skills of the students, the table shows that the use of the library has been very effective in improving their memorization skills 263(87.7%), PQRST (preview, question, read, summary and test) skills 237(79%) and communication skills (reading and listening) 224(74.7%). While 61(20.3%) and 37(12.3%) of the respondents affirmed that the use of the library has not been effective in improving their method based on exam strategies and their method based on acronyms and mnemonics respectively.

Table 7: Effect of use of the Library has improved the study skills of Polytechnic Students

Items	Frequency	Percentage
I have better access to materials that I may not have been able to afford on my own	37	12.3
I get my reading materials at no cost	58	19.3
It makes me more focused on what is important to be read	57	19
I find myself concentrating better while studying in the library than anywhere else	24	8
No response	124	41.3
Total	**300**	**100**

Table 7 shows the effect of the use of the library has improved the study skills of polytechnic students. The findings showed that 58(19.3%) of the respondents confirmed that the use of the library has helped improve their study skills by allowing them to get reading materials at no cost, 57(19%) of the respondents also revealed that the use of the library has helped improve their study skills by making them more focus on what is important to read, while 37(12.3%) of the respondent revealed that they have better access to materials that they cannot afford on their own and 24(8%) of the respondents reveal that they concentrate better while studying in the library than anywhere else.

Research Question 5: **What are the benefits of the use of library resources by polytechnic students?**

Table 8 Benefits of the use of Library resources by Polytechnic Students

Benefits	SA	A	D	SD
Good student retention rate	237(79%)	63(21%)	-	-
Good academic achievement	200(66.7%)	98(32.7%)	2(0.7%)	-
Access to a wide range of information	144(48%)	156(52%)	-	-
Acquisition of effective study skills	200(66.7%)	98(32.7%)	-	2(0.7%)
Aesthetic enjoyment	119(39.7%)	100(33.3%)	81(27%)	-
Improves one's knowledge of other people's culture	61(20.3%)	156(52%)	83(27.7%)	-

On the benefits derived from the use of library resources by the students, Table 8 shows that 237(79%) and 200(66.7%) of the respondents strongly agreed that the use of the library has improved their retention rate and their academic performance respectively. While 83(27.7%) and 81(27%) of the respondents disagreed that the use of the library has improved their knowledge about other people's culture and their aesthetic enjoyment respectively.

Research Question 6: **What are the challenges faced by polytechnic students when using library resources?**

Table 9: Challenges faced by Polytechnic students when using Library Resources

Challenges	**SA**	**A**	**D**	**SD**
Out dated materials	144(48%)	58(19.3%)	98(32.7%)	-
Lack of relevant books	120(40%)	82(27.3%)	98(32.7%)	-
Constant break down of internet facilities	144(48%)	156(52%)	-	-
Obsolete library equipment	120(40%)	24(8%)	156(52%)	-
Inadequate knowledge of how to use the library catalogue	120(40%)	-	180(60%)	-
Related subjects are not properly linked	120(40%)	58(19.3%)	122(40.7%)	-
Unwilling attitude of library staff to put students through when having challenges	237(79%)	63(21%)	-	-
shelving problem as the users cannot find the books on the shelves	119(39.7%)	100(33.3%)	81(27%)	-

On the challenges faced by polytechnic students in using library resources, Table 9 shows that the challenges faced by the students include outdated materials 202(67.3%), constant breakdown of internet facilities 300(100%), and lack of relevant books 202(67.3%). 180(60%) and 156(52%) of the respondents disagreed that they face the challenges of inadequate knowledge on how to use the library catalogue and obsolete library equipment respectively.

Test of Hypotheses

This section presents the results of the set of hypotheses that were generated and tested in the study.

Hypothesis 1

There is no significant relationship between the use of library information resources and effective study skills of undergraduates.

Table 10 Relationship between the Use of library information resources and effective study skills of polytechnic students

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	151.254	6	25.209	234.238	.000[a]
	Residual	31.533	293	.108		
	Total	182.787	299			

Using regression analysis to test the hypothesis which states that there is no significant relationship between the use of library information resources and effective study skills of polytechnic students; Table 10 shows that it is obvious that there was a relationship between the variables of interest. In this relationship, p was 0.000 which is < 0.05. We can infer from the result that there is a positive relationship between the use of library information resources and the effective study skills of polytechnic students. Therefore, the hypothesis is rejected and the null hypothesis which states that there is no significant relationship between the use of library information resources and effective study skills of polytechnic students is accepted.

Discussion of Findings

The use of information technology for the management and handling of information and data has grown significantly which helps how polytechnic students search, discover and learn various information resources in the libraries (Omogbemi & Akintola, 2009). On the form of services rendered to polytechnic students in the library, findings show that most of the respondents revealed that the library renders the services of charging and discharging of books, registration of users, user education, online searching of information, current awareness services, browsing services, serial services and the service of indexing and abstracting. This is in agreement with similar studies carried out by Onuoha (2013) who argues that academic libraries provide information services such as current awareness service (CAS), photocopying, referencing, statistical data analysis, E-mail, selective dissemination of information (SDI) and on-line database searching.

Furthermore, the study found out that most of the respondents revealed that they make use of library resources such as electronic books, textbooks, internet facilities and online databases on a very high extent while few of the respondents revealed that they do not make use of the help desk, loaning materials and projector at the library. The findings corroborate Okere and Onuoha (2008) who submit that students at Delta State University, Abraka, Nigeria make use of book materials such as journals, newspapers, textbooks magazines, dictionaries, projects, encyclopedias and government publications to improve their study skills. This is supported by Thanuskodi (2012) who carried out a study on the utilisation of archival information by students at the University of Nairobi, Kenya and reports that students make use of maps and atlases, gazettes, theses and dissertations, newspapers, statistical abstracts, video films, political records, journals and conference papers, books for their academic activity.

In the same vein, findings also revealed that library resources such as electronic books, textbooks and Internet facilities are very adequately available in their library. This is in line with the findings of Ani and Ahiauzu (2008) who investigated the extent of availability of relevant information infrastructure, human capacity building and ICT skills acquisition programmes available in Nigerian academic libraries and revealed that electronic books, journals, textbooks, newspapers, magazines, dictionaries and encyclopedia are adequately available. Moreover, on the ways by which the use of the library has improved the study skills of the polytechnic students, findings revealed that the use of the library has helped improve their study skills by allowing them to get reading materials at no cost, by making use of the library has helped improve their study skills by making them more focus on what is important to read and that they have better access to materials that they cannot afford on their own. Also, the study reveals that the use of the library has improved their retention rate and their academic performance.

On the challenges faced by polytechnic students in using the library resources, findings revealed that most of the respondents encountered outdated materials and constant breakdown of Internet facilities. This is in line with the study of Abosede and Ibikunle (2011) who carried out a study on "E-Resources and Services in Engineering College Libraries". Results of the study revealed that the collection and service infrastructure of the libraries in sampled regions were not up to the mark and libraries were struggling to build digital collections. Dissemination of digital information was attributed to a lack of ICT infrastructure; IT-trained manpower and paucity of finances.

Conclusion

The polytechnic library is regarded as a repository of knowledge and an information gateway where various information materials are stored. They are set up to assist in the execution of their statutory duties. These libraries are the centre of both learning and research activities in the academic environment. To fulfil its mission of supporting the educational objectives of its parent bodies, which include teaching, research, cultural development and the development of students' study skills, the library has to develop and maintain standard books, journals, multimedia, electronic resources and information and communication technologies and services. One of the objectives of polytechnic libraries in Nigeria is to develop and maintain collections in all formats; print and electronic and to make these information resources available and accessible to all including students. It is pertinent, therefore, that academic

libraries should facilitate uninterrupted Internet access to scholarly electronic publications to meet students' needs, the provision and efficient use of library information resources are central to any meaningful research, teaching, learning and the development of study skills of students in Nigeria polytechnics. The use of information resources in whatever format; however, will in a great way influence the study skills of students because they are provided with information resources that are needed, and valuable and which are made available to them in the format they require.

Recommendations

Based on the findings of this study, the following recommendations were made;

1. All relevant stakeholders like the school authorities, student union, faculties, departments, libraries, etc should assist in creating awareness of the use and benefits of the library.
2. Library user should also be educated on the use of online resources and databases for their research work.
3. Libraries should introduce information literacy programmes as this will enable users to know when information is needed, where to go get such information, through the use of several online and electronic resources available, how to adequately synthesize the information to the needs and measure the success or otherwise of the information.
4. The information needs of the user must be used as the major consideration in the selection of material for the library. This will make whatever is bought useful to solve the needs of users.
5. The library put in place user services that will aid in the development of their study skills, these services include time management, how to develop reading and study skills, reference services and so on.

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Adoption of Innovative Technologies as Correlate of Information Service Delivery in University Libraries in Kwara State, Nigeria

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Abstract
This study aims to explore the use of innovative technologies as a correlate of information service delivery in university libraries in Kwara State. The study adopted a descriptive survey research design. Seven (7) university libraries in Kwara State were selected. The population for the study was fifty-two (52) librarians in the seven (7) selected universities in Kwara State. The total enumeration technique was used. The questionnaire was used for the data collection. Four (4) research questions were answered. The collected data was analysed and the results showed that, innovative technologies are adopted to increase awareness of existing technologies, keep pace with the changing information landscape, and meet the expectations of users; supporting knowledge management fostering innovation, and contributing to the development of library staff. Cloud computing and RFID were two innovative technologies that have been deployed in libraries. Challenges affecting the adoption of innovative technologies for information service delivery in university libraries were: a lack of adequate support, technical expertise and integration issues with existing library systems

Keywords: Adoption, Innovative Technologies, Information Service Delivery, University Libraries.

Introduction

In the digital age, university libraries are increasingly reliant on innovative technologies to enhance information service delivery and meet evolving user needs (Akeriwa et al., 2015). To stay relevant, academic libraries must actively address challenges in the adoption and delivering innovative resources and services (Ikenwe & Udem, 2022). The adoption of technologies like Artificial Intelligence (AI), the Internet of Things (IoTs), cloud computing, Big Data, and chatbot technology significantly impacts information service delivery, contributing to academic success in the library(Omeluzor et al., 2021). Social media-based library services, a key application of innovative technologies, are globally used for user engagement, providing timely information access, and fostering communication (Omeluzor et al., 2021). Mobile technologies are also used for implementing social media-based services in libraries (Akeriwa et al., 2015). AI, a transformative technology, has the potential to revolutionise information service delivery in university libraries by enhancing information retrieval, decision-making, and user experiences (Okunlaya et al., 2022). Despite its potential, AI adoption in university libraries remains relatively low, necessitating strategic planning to fully leverage its benefits. Similarly, the Internet of Things (IoTs) holds promise for transforming service delivery in university libraries through smart systems, real-time resource monitoring, and personalised user experiences.

However, challenges like platform compatibility, data security, and user expectations must be addressed for effective IoT integration into library services (Eiriemiokhale & James, 2023).

The adoption of innovative technologies in university libraries faces challenges such as insufficient ICT infrastructure (lack of IT facilities, poor funding, and unreliable power supply), low ICT skills among staff, resistance to change, high technology acquisition and maintenance costs, and a lack of training and support. Academic libraries strive to deliver high-quality services aligned with the evolving information landscape (Fresnido & Marmol, 2014). To overcome this challenge, university libraries increasingly embrace innovative approaches and technologies for enhanced service delivery (Igbinovia & Okuonghae, 2021).

The quality of library services delivered significantly influences the satisfaction and overall effectiveness of the users (Mohindra & Kumar, 2015). Recognizing the impact of user satisfaction, academic libraries focus on key service delivery dimensions, including the library environment, collection, staff, and services (Sriram & Rajev, 2014). Additionally, the discoverability of services, especially qualitative research support, is crucial in academic libraries as they expand research services. However, there is a research gap in addressing the discoverability of qualitative research services on academic library websites. This emphasizes the need for strategic planning to ensure the visibility and accessibility of services, including qualitative research support (Cain, Cooper, Demott, & Montgomery, 2019).

Adoption of these technologies to enhance interlibrary loan and document delivery services is vital for resource sharing among academic libraries, exemplified by consortia like CALIS in China, enhancing service delivery and meeting information needs (Yao & Zeng, 2012). The Internet of Things (IoTs) holds the potential to innovate service delivery in academic libraries, offering smart systems and real-time resource monitoring. Despite its promise, IoTs face challenges like delivery speed, platform compatibility, user expectations, and data security (Igbinovia & Okuonghae, 2021). Service delivery in university libraries is multifaceted, demanding continuous improvement. Quality library services, discoverability, interlibrary loan, accessibility for users, and emerging technologies like IoT are crucial. (Ojobor, 2021). Leveraging innovative technologies and addressing challenges can optimize university libraries' service delivery, contributing to academic success.

Statement of the Problem

The digital transformation era has prompted university libraries to embrace innovative technologies, such as RFID, and social media, to enhance information service delivery. While these technologies offer opportunities for more efficient services and improved user experiences, some challenges hinder their adoption. These include but are not limited to insufficient ICT infrastructure, poor funding, unreliable power supply, and low ICT skills among library staff pose several challenges. Resistance to change and the high costs of technology acquisition and maintenance further impede successful integration (Okunlaya et al., 2022). To fully leverage the potential benefits of innovative technologies, strategic plans and frameworks prioritising technology integration into service delivery models are crucial (Okunlaya et al., 2022). Overcoming challenges necessitates a comprehensive understanding of the associated benefits

and limitations. Collaboration with stakeholders, including IT professionals, library associations, and university management, is essential to secure resources and support for technology adoption (Yeh & Walter, 2016). The need for university libraries to adapt to the digital era and cater to evolving user needs has highlighted the significance of innovative technologies. Despite the recognised benefits, challenges in infrastructure, funding, skills, and resistance to change must be addressed through strategic planning and collaborative efforts to maximize the positive impact of these technologies on information service delivery.

Objectives of the Study

The main objective of the study was to examine the use of innovative technologies in the transformation of library and information service delivery to users. The specific objectives were to:

i. determine the adoption of innovative technologies for information service delivery in university libraries in Kwara State;
ii. describe the types of innovative technologies in university libraries in Kwara State;
iii. examine the purpose of adopting innovative technologies in university libraries in Kwara State; and
iv. investigate the challenges affecting the adoption of innovative technologies in university libraries in Kwara State.

Literature Review

Godin (2018) broadly defines innovation as new ideas challenging the status quo, spanning fields like science, technology, management, and education. However, contemporary discourse often narrows innovation to technological innovation (Timmermans & Blok, 2018). In geotechnical engineering, innovative design optimizes construction processes and enhances sustainability, contributing to cost efficiency (Schomberg & Blok, 2018). A study on China's manufacturing industry found environmental regulation affects technological innovation differently across stages, providing policy recommendations (Yuan et al., 2016). The role of intellectual capital in driving technological innovation and firm performance emphasizes the positive impacts of human and structural capital and the negative impacts of relational capital (Xu et al., 2019).

The positive connotation of innovation evolved in the 19th century within a context celebrating progress and utility (Godin, 2015). Initially, innovation did not exclusively relate to technology and the market but gradually evolved into our contemporary techno-economic understanding of innovation. In computer science and bibliometrics, visualized analysis identifies research hotspots and trends in the innovation chain, emphasizing issues like communication technology, blockchain, nanotechnology, and sustainable development (Gao et al., 2022). Information professionals' behaviours and competency growth impact the delivery of goods and services (Omekwu, 2016).

Social media platforms like Facebook and Twitter enhance knowledge creation and exchange in information service delivery. Libraries leverage social media to share knowledge, facing challenges like financial support and proper platform use (Awurdi, 2019). Quality online shopping logistics services significantly affect customer satisfaction (Choi et al., 2019). E-service delivery, involving interactive information flow, is vital for convenience and efficiency (Abdul & Zohurul, 2015). Health management information systems (HMIS) impact healthcare service delivery, providing reliable information for

decision-making (Kilimo et al., 2022). Data plays a crucial role in sectors like urban water service delivery, enabling organizations to identify areas for improvement and make informed decisions (Steyn, 2022). The adoption of innovative technologies in university libraries reflects a broader shift towards knowledge facilitation in librarianship (Lankes, 2019). Innovative technologies currently being adopted and used in university libraries include AI, robotics, big data, blockchain, cloud computing, IoTs, virtual reality (VR), augmented reality (AR), and chatbots. These technologies revolutionise information services, enhancing user experiences, improving access to resources, and streamlining library operations. Some of the innovative technologies are discussed in the following section.

Artificial Intelligence (AI)

AI is a transformative technology with potential applications in university libraries, drawing attention to its capacity to enhance information services and streamline operations (Cox et al., 2019). Research by Cox, Pinfield, and Rutter (2019) explores AI's impact on library functions, including search, resource discovery, scholarly publishing, and learning. Despite its potential benefits, challenges such as decision intelligibility, data quality, and job concerns are acknowledged. Pooja and Sheth (2023) stress the significance of data science in AI's context, particularly its relationship with big data and informed decision-making, emphasizing the need for clear definitions in data science principles.

Robotics

Robotics in university libraries is gaining attention for its potential to enhance services and user experiences. Lin et al. (2014) developed a service robot for a children's library, employing a design-based approach to motivate and guide patrons, particularly children, in resource discovery. Mobile robots assist students in navigating library spaces. Oladokun et al. (2023) explore the implications of robotic technologies for Nigerian university libraries, highlighting the use of robots for real-time browsing of printed items through a web interface, showcasing potential automation and efficiency in library processes.

Chatbots as a subset of Robotic offer efficient and personalized support in university libraries, providing immediate assistance and reducing waiting times for users (Liu et al., 2019). They handle routine queries, free up library staff for more complex needs, and offer personalized recommendations based on user behaviour. While chatbots enhance user experiences, challenges like accurate knowledge bases and natural language processing limitations need attention. University libraries increasingly adopt innovative technologies to enhance services and meet evolving user needs. This literature review explores the purposes of these technologies, drawing on various studies. They facilitate efficient academic communication, supporting knowledge management and fostering innovation within university libraries (Goddard, 2020). Innovative technologies transform library spaces into collaborative environments, exemplified by makerspaces that encourage interdisciplinary collaboration (Masenya, 2023). Meeting the changing information landscape and user expectations is another purpose, allowing libraries to respond to disruptive innovations and remain relevant (Yeh & Walter, 2017). Furthermore, these technologies contribute to developing new roles and skills for library staff, such as "embedded"

librarian roles involving active engagement with users in research and teaching activities (Tait et al., 2016).

Big data technology

Big data integration in university libraries is a compelling area with transformative potential for enhancing services delivery and decision-making (Ahmad, JianMing, & Rafi, 2019). Embedded librarianship opportunities allow leveraging big data for purposes like data management planning, collection, curation, and archiving, aiding libraries in understanding evolving user needs, reshaping services, and enhancing operational procedures.

Blockchain technology

Blockchain technology integration in university libraries is gaining attention for its potential to enhance security, privacy, and operational efficiency. Initially developed for Bitcoin, blockchain offers decentralized attributes, addressing challenges in security, privacy, and data integrity in library operations (Yli-Huumo et al., 2016). Recognised benefits include decentralization, persistence, anonymity, and audibility. Blockchain's potential benefits make it intriguing for university libraries, improving communication among library communities, enhancing user data privacy, and serving as a tool for secure and transparent transactions in electronic materials. Integration with biometrics can enhance library-access recognition, management efficiency, and security.

Cloud computing

Cloud computing is a transformative technology with the potential to revolutionise various industries, including university libraries, by enhancing storage capabilities, collaboration, and operational efficiency. Recognized benefits include scalable and reliable data management, crucial for addressing challenges in the information explosion (Dattatray, 2019). Shehu, Kassim, and Husin (2023) reviewed empirical studies on cloud computing adoption in Anglophone West African university libraries, revealing varying acceptance levels and emphasizing the need for further exploration of adoption factors in different regions. Challenges in cloud computing adoption include data security, confidentiality, and reliance on service providers. Islam et al. (2023) identified data security, confidentiality, and reliance as barriers, underscoring the importance of training library personnel for effective cloud computing resource utilization.

Internet of Things (IoTs) technology

The integration of Internet of Things (IoT) technology in university libraries is gaining attention for its potential to enhance efficiency, and services, and create smart library environments. IoT involves interconnected devices collecting and exchanging data. Combining blockchain with IoT can improve performance by providing security, transparency, reliability, and traceability (Sadawi et al., 2021). The integration of Artificial Intelligence (AI) with IoT aims to increase resilience and support automation in cyber-physical systems. Additionally, there is an increased focus on models, infrastructures, and frameworks of IoT in academic and technical papers.

Exploring integrations with related systems like the Industrial Internet of Things and Industry 4.0 enhances IoT capabilities (Radanliev et al., 2021).

Virtual Reality (VR)

Virtual reality (VR) holds promise for enhancing learning and engagement in university libraries by providing immersive environments for students. It fosters interactive learning experiences, promoting information literacy skills and improving critical thinking. VR enables collaboration, resource sharing, and discussions, creating an interactive learning environment (Katz et al., 2020). In university libraries, VR is utilized for virtual tours, exhibitions, and accessing multimedia content. It supports collaborative learning in virtual spaces or classrooms. However, challenges such as cost and accessibility need consideration, as VR implementations can be expensive and may require attention to ensure inclusivity for all students, including those with disabilities (Li et al., 2019).

The dearth of comprehensive studies on the use of innovative technologies in university libraries is a significant challenge. Despite the increasing interest in technologies, little has been done on scientific research and evidence-based practices which hampers their informed adoption (Wójcik, 2016). This scarcity of research makes decision-making challenging for libraries seeking to utilize these technologies. The swift pace of technological advancements is another obstacle, demanding continuous adaptation and the implementation of these technology's customer value strategies for improved experiences (Weinstein & Mcfarlane, 2017).

Methodology

In this study, a descriptive survey research design was employed to gather opinions and views from individuals. The research design encompasses the overall plan and structure guiding data collection and analysis. It specifies the methods and procedure to achieve research objectives and address questions, including decisions on the research approach (quantitative, qualitative, or mixed method) and methods. The population of the study refers to the entire group of individuals or objects under investigation. In this case, professional librarians from various universities in Kwara State were the focus. The universities included Al-Hikmah University, Kwara State University, Landmark University, Ojaja University, Summit University, Thomas Adewumi University, and the University of Ilorin. The study employed a total enumeration sampling technique, for all 52 librarians from the University libraries used for the study. The study employed a survey research technique. A questionnaire served as the research instrument, comprising different sections aimed at gathering demographic data. (Section A), featured items on the use of innovative technologies for information service delivery. (Section B), featured items that identify types of innovative technologies adopted. (Section C), contained items on the purpose of using these technologies. (Section D), contained item that explores the challenges faced. Each section adopted a four-point Likert scale (SA = 1 to SD = 4) response format. The questionnaire was personally administered by the researcher, facilitating responses through the placement of ticks in the appropriate columns. The researcher developed the questionnaire, and three experts from the Department of Library and Information Science validated it for relevance,

content, and clarity. The instrument was refined based on their critical input. The data collection involved personally delivering the questionnaire, titled "Innovative Technologies and Information Service Delivery in University Libraries," to choose libraries with the support of an introduction letter. Completed questionnaires were promptly retrieved to prevent loss and ensure data accuracy. Participants were assured that collected data would be used solely for research purposes. Statistical Product and Service Solution (SPSS) version 26 was employed for descriptive data analysis with a questionnaire as an instrument, utilising tables, simple percentages, and frequency counts in descriptive analysis.

Result

Table 1: Distribution of the respondents based on institution

S/N	Name of University	Frequency	Percentage %
1.	Al-Hikmah University.	7	15.9
2.	Kwara State University.	10	22.7
3.	Landmark University.	4	9.1
4.	Ojaja University.	1	2.3
5.	Summit University.	2	4.5
6.	T homas Adewumi University.	1	2.3
7.	University of Ilorin.	19	43.2
	Total	**44**	**100**

Table 1 showed that 7(15.9%) of the respondents were from Al-Hikmah University, 10(22.7%) of the respondents were from Kwara State University, 4(9.1%) of the respondents were from Landmark University, 1(2.3%) of the respondents were from Ojaja University, 2 (4.5%) of the respondents were from Summit University, 1(2.3%) of the respondents were from Thomas Adewumi University, and 19 (43.2%) of the respondents were from University of Ilorin. This implies that the majority of the respondents were from the University of Ilorin.

Table 2: Distribution of the respondents based on Demographic profile

1tems	Components	Frequency	Percentage
Gender	Male.	24	54.5
	Female.	20	45.5
	Total	**44**	**100**
Age	25-34 years.	11	25.0
	35-44 years.	16	36.4
	45-54 years.	15	34.1
	55-64 years.	2	4.5
	Total	**44**	**100**
Qualification	Diploma	-	-
	BSc	12	27.3
	M.Sc	25	56.8
	PhD	7	15.9
	Total	**44**	**100**
Experience	1-5 years.	14	31.8
	6-10 years.	18	40.9
	11-20 years.	5	11.4
	20 years and above.	7	15.9
	Total	**44**	**100**

Table 2: shows the analysis of the demographic variables of the respondents starting from gender: The majority, 24(54.5%) of the respondents were male while 20(45.5%) of the respondents were female. The majority, 16(36.4%) of the respondents were within the age range of 35-44 years, followed by, 15(34.1%) of the respondents within the age of 45-54 years, and 2(4.5%) of the respondents were within the age range of 55-64. The majority, 25(56.8%) of the respondents were M.Sc. holders, followed by 12(27.3%) of the respondents who were B.Sc. holders and 7(15.9%) of the respondents who were PhD holders. The majority, 18(40.9) of the respondents were within 6-10 years of experience, followed by 14(31.8%) of the respondents were within 1-5 years of experience, and 7 (15.9%) of the respondents were within 20 and above years of experience.

Table 3: Distribution of the respondents based on their familiarity with innovative technologies

S/N	Familiarity	Frequency	Percentage (%)
1	Very familiar.	16	36.4
2	Familiar.	26	59.1
3	Somewhat familiar.	2	4.5
4	Not familiar.	-	-
	Total	**44**	**100**

Table 3 showed that 16(36.4%) of the respondents were familiar with innovative technologies, 26(59.1%) of the respondents were familiar with innovative technologies and 2(4.5%) of the respondents were somewhat familiar with innovative technologies. This implies that the majority of the respondents were familiar with innovative technologies.

Table 4: **Distribution of the respondents based on training to use innovative technologies**

S/N	Training	Frequency	Percentage (%)
1	Yes.	40	90.9
2	No.	4	9.1
	Total	**44**	**100**

Table 4 shows that 40(90.9%) of the respondents have received training on innovative technologies and 4(9.1%) of the respondents have not received any training on the use of innovative technologies. This implies that the majority of the respondents have received training on innovative technologies.

Table 5: **Distribution of the respondents based on their perception of the impact of innovative technologies**

S/N	Perceived Impact	Frequency	Percentage (%)
1	Positively.	42	95.5
2	Negatively.	2	4.5
3	No impact.	-	-
	Total	**44**	**100**

Table 5 showed that 42(95.5%) of the respondents positively perceived the impact of innovative technologies and 2(4.5%) of the respondents negatively perceived the impact of innovative technologies. This implies that the majority of the respondents positively perceived the impact of innovative technologies on information service delivery.

Research question 1: Use of innovative technologies for information service delivery in university libraries in Kwara State, Nigeria

Table 6: Frequency and percentage scores of adoption of innovative technologies for information service delivery in university libraries in Kwara State, Nigeria

S/N	Use of innovative technologies	SA	A	D	SD
1	Innovative technologies are being adopted for the use of e-books.	20(45.5%)	22(50.0%)	2(4.5%)	-
2	Innovative technologies are adopted to increase awareness of existing technologies and their application in library routines.	19(43.2%)	24(54.5%)	1(2.3%)	-
3	Innovative technologies are adopted to enhance access to scholarly materials and improve service delivery.	13(29.5%)	25(56.8%)	5(11.4%)	-
4	Innovative technologies are adopted to facilitate knowledge creation in university library communities.	17(38.6%)	23(52.3%)	4(9.1%)	-

As shown in Table 6, the adoption of innovative technologies for information service delivery in university libraries: 22(45.5%) of the respondents agreed that innovative technologies are being used for the adoption of e-books; 24(54.5%) of the respondents agreed that innovative technologies are adopted to increase awareness of existing technologies and their application in library routines; 25(56.8%) of the respondents agreed that innovative technologies are adopted to enhance access to scholarly materials and improve service delivery. This implies that the majority of the respondents agreed that innovative technologies are used to enhance access to scholarly materials and improve service delivery.

Research question 2: Types of innovative technologies in university libraries in Kwara State, Nigeria

Table 7: Frequency and percentage scores of the types of innovative technologies in university libraries in Kwara State, Nigeria

S/N	Types of Innovative Technologies	SA	A	D	SD
1	RFID is being used in library services to enhance service delivery.	16(36.4%)	20(45.5%)	7 (15.9%)	1(2.3%)
4	Cloud computing is an innovative tool adopted for library service.	17(38.6%)	18(40.9%)	6(13.6%)	3(6.8%)

As shown in Table 7, the types of innovative technologies for information service delivery in university libraries were: 20(45.5%) of the respondents agreed RFID is being adopted in library services to enhance service delivery; 21(47.7%) of the respondents agreed that virtual reality is adopted for learning and engagement in university libraries; but 29(65.9%) of the respondents

disagreed that Internet of Things (IoTs) is adopted for quality services delivery in university libraries while 18(40.9%) of the respondents strongly agreed that Cloud computing is an innovative tool adopted for library service. This implies that the majority of the respondents agreed that RFID, Virtual reality and Cloud computing were adopted for quality service delivery in university libraries.

Research question 3: Purpose of adopting innovative technologies in university libraries in Kwara State, Nigeria

Table 8: Frequency and percentage scores of the purpose of Adopting innovative technologies in university libraries in Kwara State, Nigeria

S/N	Purpose	SA	A	D	SD
1	To facilitate communication and information exchange among researchers and scholars.	29(65.9%)	15(34.1%)	-	-
2	Supporting knowledge management and fostering innovation.	31(70.5%)	13(29.5%)	-	-
3	Transform the library space into a collaborative and creative environment.	28(63.6%)	16(36.4%)	-	4(9.1%)
4	Keeping pace with the changing information landscape and meeting the expectations of users.	30(68.2%)	14(31.8%)	-	-
5	Contribute to the development of new roles and skills for library staff.	32(72.7%)	12(27.3%)	-	-

As shown in Table 8, the purpose of adopting innovative technologies for service delivery in university libraries was: 30(68.2%) of the respondents strongly agreed that keeping pace with the changing information landscape and meeting the expectations of users; 31(70.5%) of the respondents strongly agreed that supporting knowledge management and fostering innovation; 32(72.7%) of the respondents strongly agreed that contribute to the development of new roles and skills for library staff. This implies that the majority of the respondents strongly agreed that the purpose of using innovative technologies for service delivery is to contribute to the development of new roles and skills for library staff.

Research question 4: Challenges affecting the use of innovative technologies for information service delivery in university libraries in Kwara State, Nigeria

Table 9: Frequency and percentage scores of the challenges affecting the adoption of innovative technologies for information service delivery in university libraries in Kwara State, Nigeria

S/N	Challenges	SA	A	D	SD
1	Lack of financial resources allocated to innovation in university libraries.	24(54.5%)	20(45.5%)	-	-
2	Resistance to change and fear of failure within university libraries.	30(68.2%)	14(31.8%)	-	-
3	Lack of adequate support or technical expertise poses a challenge for university libraries.	13(29.5%)	31(70.5%)	-	-
4	Data security and privacy concerns.	14(31.8%)	30(68.2%)	-	-
5	Integration issues with the existing library system.	12(27.3%)	32(72.7%)	-	-

As shown in Table 9, the challenges affecting the adoption of innovative technologies for information service delivery in university libraries were: 30(68.2%) of the respondents strongly agreed that resistance to change and fear of failure within university libraries; 31(70.5%) of the respondents agreed that lack of adequate support or technical expertise poses a challenge for university libraries; 32(72.7%) of the respondents agreed that the Integration issues with existing library system. This implies that the majority of the respondents agreed that the challenges affecting the use of innovative technologies for information service delivery are Integration issues with existing library systems.

Discussion of the findings

The types of innovative technologies for information service delivery in university libraries are cloud computing and RFID The results tally with the findings of Cox, Pinfield, and Rutter (2019) and Ahmad, JianMing, and Rafi (2019) who identified cloud computing and other technologies to develop expertise in handling and analysing large amounts of data to provide value-added services to library users.

The findings revealed that the purpose of adopting innovative technologies for service delivery in university libraries is: to keep pace with the changing information landscape and meet the expectations of users; support knowledge management and foster innovation; to contribute to the development of new roles and skills for library staff. The results of this study tally with the findings of Yeh and Walter (2017) who emphasised the need for university libraries to respond to disruptive innovations and technological changes. By embracing service innovation and accelerating the adoption of new technologies, libraries can remain relevant and continue to serve the information needs of their users.

From the findings, challenges affecting the adoption of innovative technologies for information service delivery in university libraries are resistance to change and fear of failure within university libraries; lack of adequate support or technical expertise poses a challenge for

university libraries; and Integration issues with existing library systems. The results of this study tally with the findings of Bieraugel (2015) who highlighted the lack of financial resources allocated to innovation in university libraries as one of the major challenges. The absence of sufficient funding can impede the adoption of innovative technologies, as libraries may not have the necessary resources to invest in new technologies or to support the training and development of staff in using these technologies.

Conclusion

The findings of this study shed light on the crucial role that innovative technologies play in shaping information service delivery within university libraries in Kwara State, Nigeria. The study highlighted three primary applications of innovative technologies: the adoption of e-books, the promotion of awareness surrounding IoT technologies, and the utilisation of these advancements to improve accessibility to scholarly resources. These applications represent significant strides towards modernising and optimising information services within the academic landscape. The array of innovative technologies identified in university libraries encompassed cloud computing and RFID. These technologies are poised to revolutionise how information is accessed and disseminated within these institutions.

Recommendations

Based on the research findings, several key recommendations emerge to enhance the integration and utilisation of innovative technologies in university libraries:

5. Promote institutional support for the adoption of technology by advocating for greater financial and infrastructural investment, addressing concerns related to resistance to change and fear of failure. This support will empower libraries to confidently explore and implement new technologies.
6. Prioritise knowledge management and innovation by promoting the adoption of innovative technologies that facilitate knowledge management practices, with the ultimate goal of cultivating a culture of innovation within university libraries.

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