
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. Assess 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;

H₁: 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 (Irenea, 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, Nyemezue, 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 Oname (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 (%)
Copies Retrieved	189	94.5	94.5	94.5
Valid 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 on Information 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

HO₁: 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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