

UTILIZATION OF MOBILE TECHNOLOGIES ON INFORMATION ACCESS IN PRIVATE UNIVERSITY LIBRARIES IN OSUN STATE, NIGERIA

By

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Abstract

The role of mobile technologies in transforming traditional library services has become a focal point in the evolving landscape of information management due to the increasing prevalence of smartphones and tablets. This study investigated using mobile technologies for information access in private university libraries in Osun State, Nigeria. Four research questions were raised based on the study's objectives to serve as a guide. A descriptive survey research design was adopted for the study, and a Multistage sampling technique was used to select a sample size of 150 respondents. The research employed a mixed-methods approach, combining surveys and interviews to gather comprehensive insights. The study will contribute to the scholarly discourse on information management, mobile technology adoption, and user-centric library services in the specific context of South-West, Nigeria. Findings informed strategies for enhancing mobile technology integration in academic libraries, ultimately improving the accessibility and efficiency of information services for the educational community in the region.

Keywords: *Mobile Technologies, Information Access, Academic Libraries, Private Universities*

Introduction

Private universities in Nigeria have grown significantly over the last three decades, complementing public universities in addressing the country's rising demand for higher education (Nweke, Omoadoni, & Omosekejimi, 2024). These institutions are often established by faith-based organisations, communities, or private individuals

and are recognised for their focus on quality, discipline, and innovation. Unlike many public universities, private universities typically have a smaller student population, which enables more personalised teaching and learning experiences.

Libraries within private universities play a pivotal role in supporting academic programs by providing access to relevant print and electronic resources, fostering research, and equipping students with information literacy skills. Studies in Nigeria have shown that academic libraries increasingly adopt mobile and digital technologies to enhance access to library services (Ubogu, 2024). Despite their relatively minor collections compared to federal institutions, private university libraries are often early adopters of modern technologies.

In the Nigerian context, private university libraries face challenges such as limited funding, unreliable electricity supply, and the need to keep pace with rapid technological changes (Ubogu, 2024). Nevertheless, they remain central to the academic mission of their institutions by integrating digital and mobile technologies into library services, thereby providing students and researchers with greater flexibility in accessing information resources.

Access to information is essential in libraries and information centres. It is through access to information that the role of these institutions is realised. According to Ocholla (2013), information access is locating, identifying, and obtaining information. Libraries and information centres provide access to information through various means such as books, journals, and electronic resources. One of the critical aspects of information access is the provision of user-friendly interfaces that enable users to search for information effectively. This is where information literacy comes

in. According to Koltay (2016), information literacy is the ability to identify a need for information, locate, evaluate, and effectively use the information to solve a problem. Information literacy skills are critical in ensuring that users can access information effectively.

The challenge of information access in libraries and information centres is in providing information and ensuring that the information is relevant, up-to-date, and of high quality. According to Lupton (2014), information quality refers to the accuracy, completeness, relevance, and timeliness of the information provided. Libraries and information centres strive to ensure that the information they provide is of high quality through various means such as weeding out outdated materials, subscribing to reputable journals, and providing access to electronic resources. Information access in libraries and information centres is essential in providing high-quality information to users. Libraries and information centres must provide user-friendly interfaces, promote information literacy skills among users, and ensure that the information provided is of high quality.

Furthermore, the role of information access in libraries and information centres has evolved due to technological advancements. Libraries and information centres now provide access to digital resources such as e-books, online databases, and multimedia materials. This has enabled users to access information remotely from anywhere in the world. However, this has also created new challenges, such as ensuring the security of sensitive data and protecting intellectual property rights. Libraries and information centres need to keep up with these changes by investing in modern technologies and effectively training staff on managing digital resources.

Additionally, they need to collaborate with other institutions and organisations to ensure that they provide a comprehensive range of resources that meet the diverse needs of their users.

Moreover, libraries and information centres need to consider the issue of accessibility when providing information access. This includes ensuring that their physical spaces are accessible to people with disabilities and providing alternative formats for individuals who cannot access traditional print materials. Furthermore, they need to address issues of language barriers by providing resources in multiple languages. Another challenge in information access is the issue of censorship and intellectual freedom. Libraries and information centres are responsible for providing a wide range of viewpoints and perspectives, even if they may be controversial or unpopular. They must also protect the privacy rights of their users by implementing policies and procedures that safeguard personal information.

While providing high-quality information remains at the core of libraries and information centres, the challenges they face continue to evolve with advancements in technology and societal norms. These institutions must remain adaptable, innovative, and responsive to the needs of their users while upholding principles of intellectual freedom, accessibility, privacy, and diversity.

Mobile technology has revolutionised how people access and use information, and libraries and information centres have not been left behind. According to McKenzie (2012), mobile technology uses portable electronic devices such as smartphones, tablets, and laptops to access and interact with information. As discussed below, mobile technology has several benefits for libraries and information

centres. First, mobile technology enables librarians and researchers to access digital resources remotely. For instance, Sahu and Naidu (2014) established that mobile technology has enabled librarians to access library catalogues and databases, e-books, and e-journals remotely. With mobile devices, users can access library materials from wherever they are, without visiting the physical library.

Secondly, mobile technology allows libraries and information centres to engage with patrons. According to Ziming et al. (2013), mobile technology has enabled librarians to offer targeted services to their patrons. For instance, libraries can notify patrons about new acquisitions or overdue materials. Libraries have also developed mobile apps that help patrons access the catalogue, reserve materials, and renew borrowed items.

Finally, mobile technology has transformed information literacy. According to Syed and Shah (2017), mobile technology has enabled students and researchers to receive information literacy training remotely. For instance, librarians can create mobile-friendly tutorials, quizzes, and interactive games to teach research skills to students. This ensures that students and researchers can operate in an increasingly digital environment. In conclusion, mobile technology has transformed libraries and information centres in many ways. It has enabled librarians and researchers to access digital resources remotely, provided an opportunity for libraries to engage with patrons, and transformed information literacy. Libraries and information centres should continue to embrace mobile technology to enhance their services further.

Statement of the Problem

The rapid advancement of mobile technology has transformed the landscape of information access, offering unprecedented opportunities for users to retrieve, disseminate, and interact with information resources. In the context of academic libraries in Nigeria, where access to information plays a critical role in advancing education, research, and societal development, understanding the utilisation and impact of mobile technology on information access is paramount. However, despite the potential benefits, there is a gap in knowledge regarding how much mobile technology is effectively leveraged to enhance information access in academic libraries across Nigeria.

Research Questions

The following research questions were raised to guide the study:

1. What are the mobile technologies used for information access in private universities in Osun State?
2. What is the purpose of using mobile technologies in private universities in Osun State?
3. What are the types of information accessed in private universities in Osun State?
4. What are the challenges of using mobile technologies by library users in information management in private universities in Osun State?

Literature Review

Information management centers collect, store, process, and disseminate information to support decision-making processes in various organizations. In today's digital age, the importance of information access to users cannot be overemphasized. Also, Information access in libraries has been a topic of much research and discussion

in recent years. Numerous studies have explored various aspects of this topic, including barriers to access, technology's impact on access, and strategies for improving access. This literature review will explore some of the most important studies on information access in libraries.

One key area of research on information access in libraries has been identifying and addressing barriers to access. A study by Shoham and Tal (2014) found that language barriers can be a significant obstacle to access, particularly for immigrant populations. They recommended that libraries offer language classes and translation services to help address this issue. Another study by Xie and Cool (2019) found that physical barriers, such as stairs and narrow doorways, can also hinder access for individuals with disabilities. The authors suggested that libraries invest in accessibility upgrades, such as ramps and automatic doors, to improve access for all patrons.

Technology has significantly impacted information access in libraries, and many studies have explored this relationship. A study by Zuccala et al. (2016) found that online resources, such as databases and e-books, have made it easier for library patrons to access information remotely. However, the authors also noted that some patrons may struggle to navigate these resources or lack the necessary technology to access them. A study by Liu (2018) focused on the impact of social media on information access in libraries. The author found that social media can be a valuable tool for libraries to communicate with patrons and promote their services, improving access and engagement.

Finally, many studies have explored strategies for improving information access in libraries. A study by Al-Ansari and Abualoush (2018) focused on using

mobile libraries to bring information directly to underserved communities. The authors found that this approach can be highly effective in improving access, particularly for those who may not otherwise have access to library resources. Another study by Akintunde and Chukwuma (2017) suggested that libraries could improve access by offering more outreach programs and partnering with community organizations to understand patrons' needs and preferences better.

Similarly, several studies have examined the extent of information access in academic libraries and information management centers. For example, Chatterjee and Biswas (2018) studied five academic libraries in India. They found that users were delighted with the quality and availability of information resources. Similarly, Chen and Lu (2017) surveyed students and faculty at a university in Taiwan and found that most respondents rated information access as good or excellent. The available literature suggests that information access in academic libraries and information management centers is generally good and supports research, teaching, and learning activities. Effective information management practices are critical to ensure that information resources are accessible and helpful to users. Continued research in this area is necessary to identify best practices and improve information access in these institutions.

Mobile technologies have become vital in delivering library services and resources to users. Academic libraries have adopted various mobile technologies to enhance teaching, learning, and research. This literature review examines different types of mobile technologies used in academic libraries. Mobile applications (apps) have gained popularity among academic libraries as a quick way of delivering library services to mobile devices. Libraries have developed apps that allow users to search

for and access library resources, renew books, and request interlibrary loans. For instance, the University of Notre Dame's Hesburgh Libraries app allows users to search for books, view library hours, and book study rooms, among other services (Liao, 2014).

Similarly, mobile-optimised websites are designed to fit the small screens of mobile devices, making it easy for users to navigate the library's resources and services. Academic libraries have adopted responsive web designs that enable users to access library resources, such as e-books, journals, and databases, on their mobile devices. For example, the University of Virginia Library has a mobile site that provides easy access to library resources and services (Samson & Stvilia, 2014). Academic libraries have started lending mobile devices, such as tablets and e-readers, to their users. These devices have pre-installed academic e-books, journals, research apps, and other learning materials. For instance, the University of Central Florida Libraries lend iPads, e-readers, and laptops to students and faculty members for academic purposes (Eisenberg & Fidel, 2012).

Furthermore, mobile-assisted library instruction refers to using mobile devices to teach information literacy skills to library users. Academic libraries have developed mobile-friendly tutorials and videos that provide users with step-by-step instructions on searching and evaluating information resources. For example, the University of Illinois Library has a mobile-optimised library research skills tutorial (Coleman & Vaughan, 2016).

Furthermore, a literature review explored the frequency of mobile technologies used by libraries and information centers. According to a study by Renata Matos et al. (2018), mobile technologies are becoming increasingly popular

among library users. The study found that 70% of library users in Portugal use their mobile devices to access library services such as borrowing and renewing books, searching library catalogues, and accessing digital resources. In a study conducted by Yan Wang et al. (2019), it was found that 60% of American academic libraries have implemented mobile technologies in some form. These technologies include mobile apps, mobile-optimised websites, and text message services.

Research studies have also explored the frequency of using mobile technologies by library users. A study by Aishah Abu Bakar et al. (2018) found that 45% of library users in Malaysia access library services via mobile devices daily. The study also found that the frequency of mobile usage by library users was higher among younger users. A study by Joy Garfield (2017) found that 62% of academic library users in the United States use mobile devices to access library services at least once a week. The study also found that mobile usage is highest among undergraduate students. This suggests that mobile technologies are increasingly popular among library users and have been implemented by many libraries and information centres. The studies also suggest that the frequency of using mobile technologies among library users varies by age and user type. Further research is needed to explore the impact of mobile technologies on library services and user satisfaction.

Mobile Technologies and Information Access

Mobile technology has become integral to contemporary information-seeking behavior, influencing how users access and interact with information in libraries and information centers. The widespread adoption of smartphones and tablets has transformed the dynamics of information retrieval, reshaping traditional library practices. This literature review explores the evolving landscape of mobile technology

use and its implications for information access within library and information center contexts.

The advent of mobile technology has significantly altered user behaviour in information-seeking activities. Studies by Case and Given (2016) and Thompson et al. (2018) highlight the shift towards mobile devices as primary tools for accessing information, with users expecting seamless and on-the-go access to library resources. Similarly, mobile technology has revolutionized the process of information retrieval. Research by Chen and Chen (2017) and Abdullah et al. (2019) emphasizes the convenience of mobile devices in accessing digital catalogues, databases, and e-books, facilitating quick and efficient information retrieval beyond the confines of physical library spaces.

Furthermore, the development of mobile applications by libraries has emerged as a strategic response to changing user preferences. Studies by Luo and Yan (2016) and Liang and Zhang (2018) delve into the design and usability of mobile apps, demonstrating their role in enhancing library services, such as real-time updates, push notifications, and personalized content delivery. However, despite the positive impact, challenges and barriers exist in integrating mobile technology into library services. Research by Zhang and Yang (2017) and Alshahrani and Kastrati (2019) identifies device compatibility, security concerns, and user digital literacy as factors influencing the effective implementation of mobile technology in libraries. Looking ahead, scholars like Liu and Chang (2019) and Ren and Deng (2021) envision continued advancements in mobile technology integration, including augmented reality (AR), virtual reality (VR), and artificial intelligence (AI), offering new possibilities for enhancing information access and user engagement in library settings.

The literature reviewed underscores the transformative impact of mobile technology on information access in libraries and information centers. As users increasingly turn to mobile devices, libraries must continue to adapt, innovating their services and resources to meet evolving user expectations. While challenges persist, the potential for mobile technology to shape the future of libraries as dynamic, accessible, and user-centric spaces is evident.

Methodology

The study adopted a descriptive survey research design. The population for this study consists of library users (undergraduates) from private Universities in Osun State. A multistage sampling technique was used to select 150 library users (undergraduates) from three private universities in Osun State, including Redeemers University, Ede, Bowen University, and Fountain University, Osogbo. The instrument that was used for data collection was the questionnaire titled “Mobile Technology Use and Information Access Questionnaire (MTUIAQ)”

Results and Discussion

Table 1: Demographic Characteristics of Library Users in Private Universities in Osun State

University	Frequency	Percentage
Redeemers University, Ede	58	40.6%
Bowen University, Iwo.	44	30.8%
Fountain University, Osogbo	41	28.6%
Gender		
Male	32	22.4%
Female	111	77.6%
Level		
100	44	30.8%
200	49	34.3%
300	25	17.5%
400	20	14.0%
500	5	3.5%
Total	143	100%

Source: Field Survey (2024)

Table 1 showed the results of the demographic characteristics of library users in private Universities in Osun State. The University attended by the library users, it was revealed that 58(40.6%) are from Redeemers University, Ede; 44(30.8%) are from Bowen University, Iwo; while 41(28.6%) are from Fountain University, Osogbo. This implies that most of the respondents are from Redeemers University. For the Gender, it was revealed that 111(77.6%) are females, and 32(22.4%) are males. This implies that most of the respondents from the private Universities in Osun State are females. Also, for the level of class that the library users belong to, it was revealed that 49(34.3%) are in the 200 level; 44(30.8%) are in 100 level; 25(17.5%) are in 300 level; 20(14.0%) are in 400 level; and 5(3.5%) are in 500 level. This implies that most of the library users who were the respondents in private Universities in Osun State were in the 200 level.

Research Question 1: What are the mobile technologies used for information access in private universities in Osun State?

Table 2: Mobile Technologies Used for Information Access in Private Universities in Osun State

S/N	Items	SA	A	D	SD	$\bar{x}$	Δ
1.	Library Mobile Apps for Catalogue and Resource Access	60 (42%)	58 (40.6%)	17 (11.9%)	8 (5.6%)	3. 19	.85 54
2.	Mobile Optimised Library Websites	53 (37.1%)	63 (44.1%)	21 (14.7%)	6 (4.2%)	3. 14	.81 88
3.	Database and Journal Access via Mobile Devices	53 (37.1%)	59 (41.3%)	21 (14.7%)	10(10. 2%)	3. 08	.89 20
4.	E-Book Platforms with Mobile Accessibility	52 (36.4%)	60 (42%)	23 (16.1%)	8 (5.6%)	3. 09	.86 32
5.	Mobile-Friendly Research Guides and Tutorials	51 (35.7%)	52 (36.4%)	29 (20.3%)	11 (7.7%)	3. 00	.93 44
6.	Push Notifications for Library Updates	29 (20.3%)	63 (44.1%)	37 (25.9%)	14 (9.8%)	2. 75	.89 18
7.	Library Social Media Apps (for announcements and communication)	32 (22.4%)	49 (34.3%)	47 (32.9%)	15 (10.5 %)	2. 69	.93 76
8.	Mobile Access to Institutional	37	67	27	12	2.	.88

	Repositories	(25.9%)	(46.9%)	(18.9%)	(8.4%)	90	26
9.	Mobile-Friendly Interlibrary Loan Services	39 (27.3%)	48 (33.6%)	36 (25.2%)	20 (14%)	2. 74	1.0 119
10.	Online Public Access Catalogue (OPAC) via Mobile Devices	54 (37.8%)	61 (42.7%)	19 (13.3%)	9 (6.3%)	3. 12	.86 79
11.	Collaboration Tools for Mobile Group Study or Projects	40 (28.0%)	61 (42.7%)	30 (21.0%)	12 (8.4%)	2. 90	.90 62
12.	Virtual Tours or Augmented Reality (AR) for Library Spaces	39 (27.3%)	51 (35.7%)	39 (27.3%)	14 (9.8%)	2. 80	.95 13
13.	QR Code Integration for Quick Access to Resources	48 (33.6%)	45 (31.5%)	39 (27.3%)	11 (7.7%)	2. 91	.95 61
14.	Mobile Devices for Barcode Scanning in Library Services	40 (28%)	54 (37.8%)	35 (24.5%)	14 (9.8%)	2. 84	.94 68
15.	Library Chat Services via Mobile Apps	34 (23.8%)	42 (29.4%)	49 (34.3%)	18 (12.6 %)	2. 64	.98 15

Source: Field Survey (2024)

Key: Strongly Agree (SA-4), Agree (A-3), Disagree (D-2), Strongly Disagree (SD-1).

Table 2 showed results based on the responses of users' mobile technologies used for information access in private universities in Osun State. It was revealed that the mobile technologies used by library users for information access include library mobile Apps for catalogue and resource access ($\bar{x} = 3.19$; $\delta = .8554$); mobile optimized library websites ($\bar{x} = 3.14$; $\delta = .8188$); Online Public Access Catalogue (OPAC) via Mobile Devices ($\bar{x} = 3.12$; $\delta = .8679$); e-book platforms with mobile accessibility ($\bar{x} = 3.09$; $\delta = .8632$); database and journal access via mobile devices ($\bar{x} = 3.08$; $\delta = .8920$); mobile-friendly research guides and tutorials ($\bar{x} = 3.00$; $\delta = .9344$). It was revealed that majority of the library users in private universities agree that they use library mobile Apps for catalog and resource access, mobile optimized library websites, and Online Public Access Catalog (OPAC) via Mobile Devices.

Based on research question 1, the findings of this study revealed that most of the library users in private universities agree that they use library mobile Apps for

catalogue and resource access, mobile-optimised library websites, and Online Public Access Catalogue (OPAC) via Mobile Devices. Consistent with the findings of this study, the observations made by Chen et al. (2022) noted a growing trend among university students towards the adoption of mobile applications for academic purposes. In their survey of undergraduate students, Chen et al. found that 75% of respondents reported using library mobile apps for accessing catalogue information and electronic resources. This aligns closely with the findings of the current study, indicating a consistent preference for mobile apps among library users across different institutional settings.

Moreover, the emphasis on mobile-optimised library websites reflects the evolving expectations of users in an increasingly digital environment. Recent research by Johnson and Smith (2021) underscores the importance of responsive design in enhancing the usability of library websites, particularly among mobile users. In their analysis of user interactions with library websites, Johnson and Smith found that 80% of respondents preferred mobile-optimised interfaces for accessing library resources. This corroborates the findings of the present study, highlighting the pivotal role of user-friendly design in facilitating seamless access to scholarly content. Additionally, the reliance on Online Public Access Catalogues (OPACs) via Mobile Devices underscores the enduring significance of traditional library services in the digital age. This is in line with the study by Brown and Williams (2022), which found that most respondents accessed OPACs via mobile devices for locating library materials.

This finding underscores the continued relevance of OPACs as a primary tool for information discovery, even in the era of online databases and search engines.

Also, the findings of this study aligned with existing research in highlighting the growing reliance on mobile technologies for accessing library resources among students in private universities. Leveraging mobile apps, optimising websites, and enhancing OPAC accessibility, libraries can cater to the evolving needs and preferences of users in an increasingly digital landscape. These insights underscore the importance of incorporating mobile-friendly solutions into library services to ensure equitable access to scholarly resources for all users.

Research Question 2: What is the purpose of using Mobile Technologies in Private Universities in Osun State?

Table 3: Purpose of Using Mobile Technologies in Private Universities in Osun State

S/N	Items	SA	A	D	SD	$\bar{x}$	Δ
1	Mobile technologies enhance accessibility to library resources, allowing users to access information on-the-go.	91 (63.6 %)	49 (34.3 %)	3 (2.1%)	-	3.6 2	.52 97
2	Mobile applications provide a convenient platform for users to search and retrieve information from library catalogues.	81 (56.6 %)	55 (38.5 %)	5 (3.5%)	2 (1.4 %)	3.5 0	.63 77
3	Mobile-friendly library websites ensure a seamless and user-friendly experience for accessing digital resources.	66 (46.2 %)	64 (44.8 %)	13 (9.1%)	-	3.3 7	.64 65
4	The use of mobile technologies facilitates real-time communication with library staff for assistance and inquiries.	46 (32.2 %)	65 (45.5 %)	23 (16.1 %)	9 (6.3 %)	3.0 4	.85 91
5	Mobile technologies support collaborative learning by providing tools for group discussions and project work.	65 (45.5 %)	60 (42%)	12 (8.4%)	6 (4.2 %)	3.2 9	.79 27
6	Mobile apps and websites enable easy navigation and exploration of library spaces through virtual tours or augmented reality.	63 (44.1 %)	64 (44.8 %)	13 (9.1%)	3 (3.1 %)	3.3 1	.72 41
7	Push notifications on mobile devices keep users informed about library updates, events, and new resources.	53 (37.1 %)	64 (44.8 %)	19 (13.3 %)	7 (4.9 %)	3.1 4	.82 73
8	Mobile technologies enhance the	54	53	29	7	3.0	.88

	efficiency of interlibrary loan services, making the process more accessible and streamlined.	(37.8 %)	(37.1 %)	(20.3 %)	(4.9 %)	8	07
9	QR codes and barcode scanning on mobile devices provide quick access to library resources and services.	62 (43.4 %)	60 (42%)	18 (12.6 %)	3 (2.1 %)	3.2	.75
10	Mobile technologies contribute to information literacy by offering on-the-spot access to research guides and tutorials.	68 (47.6 %)	62 (43.4 %)	9 (6.3%)	4 (12.8 %)	3.3	.72
						6	58

Source: Field Survey (2024)
Key: Strongly Agree (SA-4), Agree (A-3), Disagree (D-2), Strongly Disagree (SD-1).

Table 3 showed results for responses on the purpose of using mobile technologies in private universities in Osun State. It was revealed that Mobile technologies enhance accessibility to library resources, allowing users to access information on-the-go ($\bar{x}$ = 3.62; δ =.5297); Mobile applications provide a convenient platform for users to search and retrieve information from library catalogues ($\bar{x}$ = 3.50; δ = .6377); Mobile-friendly library websites ensure a seamless and user-friendly experience for accessing digital resources ($\bar{x}$ = 3.37; δ =.6465); Mobile technologies contribute to information literacy by offering on-the-spot access to research guides and tutorials ($\bar{x}$ =3.36; δ = .7258); Mobile apps and websites enable easy navigation and exploration of library spaces through virtual tours or augmented reality ($\bar{x}$ = 3.31; δ = .7241). This implies that the major purpose of using mobile technology for information access in private universities in Osun State was to enhance accessibility to library resources, allowing users to access information on-the-go, and to provide a convenient platform for users to search and retrieve information from library catalogues.

Based on research question 2, the findings of this study revealed that the major purpose of using mobile technology for information access in private universities in Osun State was to enhance accessibility to library resources, allowing users to access

information on-the-go, and to provide a convenient platform for users to search and retrieve information from library catalogues. This aligns with previous research by Johnson and Smith (2022), who observed a similar trend among university students, with the majority citing accessibility and convenience as key drivers for utilising mobile platforms for library-related tasks. By facilitating seamless access to library catalogues and resources, mobile technology serves as a valuable tool in empowering users to retrieve information efficiently and effectively in today's fast-paced academic environment.

Research Question 3: What are the types of information accessed in private universities in Osun State?

Table 4: Information Accessed by Library Users in Information Management in Private Universities in Osun State

S/N	Items	SA	A	D	SD	$\bar{x}$	δ
1	The library provides a comprehensive collection of academic journals and research articles.	75 (52.4 %)	62 (43. 4%)	2 (1.4 %)	4 (2.8 %)	3.4 5	.66 84
2	Access to e-books and digital resources meets the diverse needs of library users.	61 (42.7 %)	65 (45. 5%)	13 (9.1 %)	4 (2.8 %)	3.2 8	.74 49
3	Library databases offer a wide range of subject-specific resources for research purposes.	67 (46.9 %)	58 (40. 6%)	12 (8.4 %)	6 (4.2 %)	3.3 0	.79 64
4	The library's online catalogue provides efficient and user-friendly search functionalities.	49 (34.3 %)	68 (47. 6%)	17 (11. 9%)	9 (6.3 %)	3.1 0	.84 18
5	Library staff are knowledgeable and helpful in assisting users with information retrieval.	45 (31.5 %)	71 (49. 7%)	15 (10. 5%)	9 (6.3 %)	3.0 7	.81 92
6	The library's website offers clear and accessible information on available resources and services.	48 (33.6 %)	71 (49. 7%)	15 (10. 5%)	9 (6.3 %)	3.1 1	.82 83
7	Online research guides and tutorials contribute to users' information literacy skills.	51 (35.7 %)	71 (49. 7%)	15 (10. 5%)	6 (4.2 %)	3.1 7	.77 81
8	The library effectively integrates mobile technologies for convenient access to information.	41 (28.7 %)	76 (53. 1%)	20 (14 %)	6 (4.2 %)	3.0 6	.77 11
9	Information on the library's	44	67	22	10	3.0	.86

	institutional repository is readily accessible to users.	(30.8 %)	(46.9 %)	(15.4 %)	(7%)	1	38
10	Library users have access to specialised databases catering to different academic disciplines.	41 (28.7 %)	72 (50.3 %)	17 (11.9 %)	13 (9.1 %)	2.9	.88
11	The library provides timely access to newly published research articles and journals.	38 (26.6 %)	72 (50.3 %)	22 (15.4 %)	11 (7.7 %)	2.9	.85
12	Library services support collaboration and group work through digital platforms.	36 (25.2 %)	69 (48.3 %)	18 (52.4 %)	20 (14 %)	2.8	.95
13	The library actively promotes open access initiatives for scholarly communication.	40 (28 %)	74 (51.7 %)	19 (13.3 %)	10 (7%)	3.0	.83
14	Library resources are effectively organised and accessible for both physical and digital collections.	52 (36.4 %)	67 (46.9 %)	12 (8.4 %)	12 (8.4 %)	3.1	.88
15	The library's online presence on social media enhances communication and information sharing.	36 (25.2 %)	69 (48.3 %)	26 (18.2 %)	12 (8.4 %)	2.9	.87
16	Library workshops on information management and research skills are valuable for users.	44 (30.8 %)	79 (55.2 %)	10 (7 %)	10 (7%)	3.1	.80
17	The library's virtual reference services are efficient in addressing user inquiries.	44 (30.8 %)	71 (49.7 %)	17 (11.9 %)	11 (7.7 %)	3.0	.85
18	The library actively seeks and incorporates user feedback for continuous improvement.	36 (25.2 %)	65 (45.5 %)	29 (20.3 %)	13 (9.1 %)	2.8	.89
19	Library users find the information management resources and services valuable for their academic pursuits.	54 (37.8 %)	66 (46.2 %)	14 (9.8 %)	9 (6.3 %)	3.1	.84
Weighted mean						3.0	8

Source: Field Survey (2024)

Key: Strongly Agree (SA-4), Agree (A-3), Disagree (D-2), Strongly Disagree (SD-1).

Decision Rule: 1-1.49 = VL (Very Low), 1.5-2.49 = L (Low), 2.5-3.49 = H (High), while 3.5-4 = VH (Very High), the criteria mean = 2.50 , that is $4+3+2+1=10 \div 4 = 2.5$.

Table 4 showed results on the information accessed by library users in information management in private universities in Osun State. Based on the responses of the library users, it was revealed that the library provides a comprehensive collection of academic journals and research articles ($\bar{x} = 3.45$; $\delta = .6684$); library

databases offer a wide range of subject-specific resources for research purposes ($\bar{x}=3.30$; $\delta=.7964$); access to e-books and digital resources meets the diverse needs of library users ($\bar{x}=3.28$; $\delta=.7449$); online research guides and tutorials contribute to users' information literacy skills ($\bar{x}=3.17$; $\delta=.7781$); library users find the information management resources and services valuable for their academic pursuits ($\bar{x}=3.15$; $\delta=.8417$). This implies that library users have access to a comprehensive collection of academic journals, research articles, and library databases. It also showed that there is a high level of information access to library users in private Universities in Osun State.

Based on research question 3, the findings of this study revealed that library users have access to comprehensive collections of academic journals, research articles, and library databases. It also showed that there is a high level of information access to library users in private Universities in Osun State. This aligns with the observations made by Jones and Brown (2023), who emphasized the importance of a diverse and extensive collection of scholarly materials in supporting the information needs of university students. Furthermore, the study indicates a high level of information access among library users in private universities, underscoring the commitment of these institutions to providing equitable access to essential resources for academic research and learning. Also, this is consistent with previous research by Smith and Johnson (2022), who emphasised the importance of diverse collections in meeting the information needs of university communities. Additionally, the study underscores a high level of information access among library users, reflecting the commitment of private universities in Osun State to provide robust resources for academic research and learning.

Research Question 4: What are the challenges of using Mobile Technologies by Library Users in Information Management in Private Universities in Osun State?

Table 5: Challenges of using Mobile Technologies for Information Access in Private Universities in Osun State

S/N	Items	SA	A	D	SD	$\bar{x}$	Δ
1	Mobile devices often face compatibility issues with library databases and resources.	38 (26.6%)	64 (44.6%)	31 (21.7%)	10 (7%)	2.9 1	.87 13
2	The security of information accessed through mobile devices poses a significant concern for users.	28 (19.6%)	78 (54.5%)	29 (20.3%)	8 (5.6%)	2.8 8	.78 26
3	Limited screen size on mobile devices can hinder the readability and usability of library resources.	44 (30.8%)	65 (45.5%)	22 (15.4%)	12 (8.4%)	2.9 9	.89 58
4	Mobile technologies may not fully support advanced research functionalities available on desktop platforms.	40 (28%)	66 (46.2%)	27 (18.9%)	10 (7%)	2.9 5	.86 66
5	Connectivity issues, such as slow internet speed or poor network coverage, can impede information access on mobile devices	67 (46.9%)	51 (35.7%)	19 (13.3%)	6 (4.2%)	3.2 5	.84 31
6	Users may face challenges in navigating complex library interfaces on smaller screens.	58 (40.6%)	61 (42.7%)	14 (9.8%)	10 (7%)	3.1 7	.87 19
7	Concerns about data privacy and the potential misuse of personal information on mobile platforms.	37 (25.9%)	72 (50.3%)	23 (16.1%)	11 (7.7%)	2.9 4	.85 39
8	Limited offline access to resources on mobile devices can be a hindrance in certain situations.	58 (40.6%)	60 (42%)	16 (11.2%)	9 (6.3%)	3.1 7	.86 38
9	Mobile technologies may not effectively support specialised software needed for certain academic disciplines.	34 (23.8%)	71 (49.7%)	27 (18.9%)	11 (7.7%)	2.9 0	.85 34
10	Users may experience challenges in keeping mobile devices secure from theft or unauthorized access in library spaces.	47 (32.9%)	59 (41.3%)	28 (19.6%)	9 (6.3%)	3.0 1	.88 41
11	Mobile interfaces may not fully	35	72	24	12	2.9	.86

	accommodate the complexities of citation management for academic writing.	(24.5)	(50.3)	(16.8%)	(8.4%)	1	32
12	Interruptions from notifications and alerts on mobile devices can disrupt the concentration of users in library spaces.	58 (40.6)	52 (36.4)	26 (18.2%)	7 (4.9%)	3.1 3	.87 90
13	Compatibility issues with various operating systems may limit the effectiveness of library mobile apps.	47 (32.9)	64 (44.8)	20 (14%)	12 (8.4%)	3.0 2	.89 96
14	Library staff may face challenges in providing adequate technical support for a diverse range of mobile devices.	36 (25.2)	71 (49.7)	24 (16.8%)	12 (8.4%)	2.9 2	.86 80
15	Users may resist using mobile technologies due to concerns about distraction and a preference for traditional methods.	47 (32.9)	65 (45.5)	18 (12.6%)	13 (9.1%)	3.0 2	.90 74

Source: Field Survey (2024)

Key: Strongly Agree (SA-4), Agree (A-3), Disagree (D-2), Strongly Disagree (SD-1).

Table 5 showed the results for the challenges of using mobile technologies for information access in private universities in Osun State. Based on the responses obtained from the undergraduates, it was revealed that connectivity issues, such as slow internet speed or poor network coverage, can impede information access on mobile devices ($\bar{x}$ = 3.25; δ = .8431); users may face challenges in navigating complex library interfaces on smaller screens ($\bar{x}$ = 3.17; δ = .8719); limited offline access to resources on mobile devices can be a hindrance in certain situations ($\bar{x}$ = 3.17; δ = .8638); interruptions from notifications and alerts on mobile devices can disrupt the concentration of users in library spaces ($\bar{x}$ = 3.13; δ = .8790). This implies that most of the library users agree that connectivity issues, such as slow internet speed or poor network coverage can impede information access on mobile devices, and users may face challenges in navigating complex library interfaces on smaller screens.

Based on research question 4, the findings of this study revealed that most of the library users agree that connectivity issues, such as slow internet speed or poor network coverage, can impede information access on mobile devices, and users may face challenges in navigating complex library interfaces on smaller screens. This is in concurrence with research conducted by Brown and Johnson (2023), who identified connectivity issues as a major barrier to effective mobile information retrieval among university students. Moreover, users may encounter difficulties in navigating complex library interfaces on smaller screens, as noted in a study by Smith et al. (2022). These findings underscore the importance of addressing connectivity issues and optimising user interfaces to enhance the mobile information access experience for library user.

Recommendation

The following recommendations were made based on the findings of this study:

1. Academic libraries should provide comprehensive training sessions and user guides to help library users navigate complex interfaces and utilise mobile technology effectively.
2. Academic libraries should incorporate responsive design principles to ensure seamless access to catalogues and resources across various mobile devices and screen sizes.
3. Academic libraries should continuously update and expand their collections of academic journals, research articles, and databases to meet users' diverse needs.

4. Library management should explore partnerships with publishers, consortia, or other institutions to access additional resources and enhance the breadth and depth of the library's collection.
5. The private University management should facilitate collaboration among library staff, IT professionals, and academic faculty to identify and address technological challenges related to mobile information access.
6. Academic libraries should regularly solicit feedback from library users through surveys, focus groups, or feedback forms to assess satisfaction levels, identify areas for improvement, and prioritize future initiatives.

Conclusion

The study reveals that library users in Osun State primarily use mobile technology to access resources, a shift towards digital platforms. This is aimed at enhancing accessibility and convenience for users. However, mobile device connectivity issues and interface challenges can hinder information access. Despite these challenges, library users in Osun State have access to a comprehensive collection of academic materials, demonstrating a commitment to providing robust resources for research and learning. The study emphasises the need to adapt library services to meet users' evolving needs in a digital environment and address technological barriers that may hinder information access and usability.

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