USE OF SMARTPHONES TO ACCESS DIGITAL INFORMATION RESOURCES AND SERVICES BY POSTGRADUATE STUDENTS IN KASHIM IBRAHIM LIBRARY ABU, ZARIA.

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Abstract

This study was carried out on the use of smartphones to access digital information resources and services in Kashim Ibrahim Library, Ahmadu Bello University Zaria, Kaduna State, Nigeria. Three research questions were raised to guide the study. The research questions sought to find out the type of smartphones used by postgraduate students to access digital information resources and services in Kashim Ibrahim Library of Ahmadu Bello University, Zaria, the type of digital information resources and services accessed and reasons of using smartphones to access digital information resources and services in Kashim Ibrahim Library by postgraduate students of Ahmadu Bello University, Zaria. The study adopted a quantitative research method and survey design. A total number of (8,615) PG students who registered for the 2018/2019 academic session were used as the population of the study, out of which (370) PG students were used as the sample size of the study. Also, cluster sampling technique was used for the study. Questionnaire was used as instrument for data collection from the respondents of the study. Frequency table and percentage as well as mean and standard deviation were used to analyze the data collected. Findings of the study revealed that; Android phone was the major type of smartphones used by the Postgraduate students of ABU Zaria to access digital information resources and services in Kashim Ibrahim Library; Online reference resources, theses/dissertations as well as online reference services were the major digital information resources and services highly accessed in Kashim Ibrahim Library by Postgraduate students of ABU Zaria. While ease of use, being more appealing, more reliable and more convenient were the major reasons for using smartphones to access digital information resources and services. The study concluded that, there is a serious growth in ownership and use of smartphone devices among University students in general and Postgraduate Students in particular. These cannot be disconnected from the fact that, smartphones have come to stay in the life of people, this is because many people today find it difficult to live without their smartphones. Interestingly many University libraries today have their resources and services in digital format which make it possible for their users to access them from anywhere and at any time using smartphones.

Key words: Smartphones, Digital Information Resources, Digital Information Services

Introduction

The increasing proliferation and capabilities of smartphone devices are positioning them as the technology of choice, replacing Personal Computers (PCs), for many users, library customers inclusive. Hence, the use of smartphones devices

must be seen as inevitable information services tools for university libraries. The term mobile technology refers to hand-held devices. These devices primarily include smartphones, laptop computers, portable hard drives, portable music players and so on. Mobile technology is exactly as the name indicates a technology that is portable. It refers to any device that one can carry along to perform wide variety of tasks and functions, i.e. phone calls, web browsing, instant messaging, video gaming, and much more (Sharma and Sahoo, 2014).   Sexena and Yadav (2013) defined smartphone devices as mobile phones with advanced computing ability, combining the functions of a Personal Digital Assistant (PDA), a multimedia player, offering mobile Internet connectivity, built-in global positioning system (GPS) and camera, and also the ability to run a wide variety of third party applications.

In today's information-based world, access to information resources and services is essential more than ever before. The revolution of mobile technology, specifically smartphone, is playing very important role in redefining how information is being accessed. It is changing the primary purpose of mobile devices from making or receiving calls to accessing the latest information on any subject matter any time anywhere even on the go. Mattson (2012) remarked that, new technologies often necessitate a change in old practices. Libraries and librarians need to adapt to the changing technologies ranging from increases in telephone use to Internet use. As the Internet developed, libraries have technically abandoned the traditional card catalogues in favour of an Online Public Access Catalogue, commonly referred to as an OPAC. Apparently, there is a steady rise in the availability and use of mobile phone technology in general and Smartphone technology in particular in the university communities.

Nalluri and Gaddam (2016) observed that, mobile technology has now come up with "Libraries in hand" trend, this is an Information and Communication Technology (ICT) advancement where by Librarians are on the move to determine how these mobile devices e.g. Smartphones are affecting information access, ensure that they are communicating with Customers and provide them with information resources and services in the most appropriate and effective way anytime anywhere.

The deployment of mobile technology in libraries has changed the way people access and utilizes information. Library customers want easy and instant access to relevant information resources and services (Sharma and Sahoo, 2014). This tendency has forced Librarians to think out of the box by deploying mobile technology to meet the information needs of their customers. It has been also observed that, mobile technology enables libraries to offer location-based services/content through Global Positioning System (GPS) capabilities. At the same time, libraries can guide their customers to the location of specific document or service through maps and navigational tools. Other advantages are limitless Access: whereby online resources that are accessible on through desktop computers also become accessible through customer's smartphones. Also, mobile technology devices help in providing services orally to visually impaired or physically handicapped library customers (Sexena and Yadav, 2013).

Smartphones have been one of the success stories of the 21st century. In a relatively short period of time, they penetrated significantly into our society, capturing an entire age spectrum of users, particularly university students. Consequently, this makes this research timely.

Statement of the Problem

University libraries in the 21st century provide information resources and services in both print and electronic format in order to meet the ever-growing and changing information needs of their customers. Provision of Information resources and services at limitless time and location are accessed through the use of mobile devices, especially smartphones. Saxena and Yadav (2013), posited that, mobile technology has made communication and information access very convenient and timely to users from the comfort of their own homes and offices, and from wherever they are while on the move with their smartphone units. Also, Sharma and Sahoo (2014) asserted that, due to the advancement of ICT, new technologies are emerging day by day to fulfill the demand of library users. Smartphones are astonishing means to outreach library customers and enable them to access library resources and services from anywhere and anytime even when they are on the move. Thus, University libraries can reach their customers where ever and whenever the need arises by using smartphone technology.

Despite the unprecedented growth in the ownership and exploitation of smartphones among PG Students and their added advantage over the conventional way (being in the library physically) of accessing information resources and services, it was however observed by the researcher that, in Ahmadu Bello University library patronage to digital information resources and services is low or relatively poor. That may be due to poor or non-use of smartphone devices for access to those digital information resources available in the library. Hence, this study explored the use of smartphone device to access digital information in Kashim Ibrahim Library ABU, Zaria.

Research Questions

1. What type of Smartphone devices are used by the Postgraduate Students of Ahmadu Bello University, Zaria to access digital information resources and services in Kashim Ibrahim Library?
2. What type of digital information resources and services in Kasim Ibrahim Library are accessed by the Postgraduate Students of Ahmadu Bello University, Zaria, using smartphone devices?
3. Why do the Postgraduate Students of Ahmadu Bello University, Zaria, use smartphone devices to access digital information resources and services in Kashim Ibrahim Library?

Literature Review

Relevant literature were reviewed based on the research questions of the study

It's no longer a news today to mention that, different types of smartphone devices exist as indicated in many literature and some of them were reviewed for this study. Lunden (2011) and Beal (2015) established that, there are several types of Operating system (OS) for mobile devices but first three (3) of the following are major, common and well known;

i. Android phone: this is one of the most popular type of smartphones by Google and runs on android OS. Android was founded by a company, named android Inc. in Palo Alto of California, U.S in 2003 whose founder was Andy Rubin.
ii. IPhone: is a type of smartphone device made by Apple that combines a computer, iPod, digital camera and cellular phone into one device with a touch screen interface and runs on the iOS operating system.

iii. Windows phone: Windows Phone is a type of smartphone made by Microsoft and it looks a lot like the new Windows 8 interface. Windows Phone is a proprietary smartphone operating system developed by Microsoft.

Others include but not limited to;

iv. BlackBerry phone: this is another type of smartphone device developed by Research in Motion (RIM) and runs on the BlackBerry OS. BlackBerry OS 1.0 debuted in January 1999 as part of BlackBerry's pager/email devices.

v. Symbian phones: is a type of smartphone device developed by Nokia and runs on the Symbian OS. It was originally the EPOC graphical operating system for PSION portable devices.

Types of Digital Information Resources and Services with Smartphone Accessibility

There are many types of information resources and services which can be accessed using smartphone devices, the following are some of them; Nuepane (2012) established that, the libraries can provide the following types services to the customers through their smartphones and other mobile devices; News and events, mobile Online Publics Access Catalog, mobile Library Instruction, mobile Library Databases, Short Message Service Notifications, SMS reference, A webcam to check congestion on library. On the similar note, Sexena and Yadav (2013); Kumbar and Pawar (2014); (Sigh and Sigh, 2015); Roy and Kumar (2017) as well as (Narasimhan and Leblois, 2012) as cited by (Madhusudhan and Dar, 2017) highlighted the following types of library resources and services which are accessible through smartphone devices:

i. E-Books and Databases resources: These are library resources which are accessible to library customers through smartphones which allows for remarkable functionality and formats the e-books as you desire and provide a great reading experience for the users.

ii. Text/SMS Service: This is a service which enables the library customers to get instant and easy access to the library services via text massaging on their smartphones from anywhere at any time.

iii. Digital Reference Service: This is another library service which can be provided to the library customers through their smartphones anytime, anywhere and on the go. It enables the library customers to interact with the reference librarian and get their queries answered.

iv. Library Virtual/Audio Tours: This is a library service in which the library customers who were not opportune to attend an on the site workshop, can still access it on their smartphones in order to be able get the best out of the library resources and services.

v. OPAC services on Smartphones: This is another type of library service in which a library makes it online public access catalog (OPAC) accessible to customers through their smartphone device.

vi. Quick Response (QR) Codes service: This is another library service through smartphones and other mobile devices. QR code is the trademark term for Quick Response Code and it's also known as two dimensional barcodes. The QR code is a two-dimensional code and can contain hundred times more data or information than simple barcode.

    vii.   Library Services for customers with Visual/Hearing Impairments: Another important type of library service through smartphone is the library service for customers with visual/hearing impairments can be helped to access information from the libraries through smartphones screen readers.

Reasons for Using Smartphone devices to Access Digital Information Resources and Services

There are many benefits which can equally be seen as the reasons for using smartphone device to access digital information resources and services in libraries as reported in many literatures. For example in their separate views, Sexena and Yadav, (2013); Kumbhar and Pawar, (2015); Roy and Kumar, (2017) highlighted the following as some of the reasons:

    i.   User friendly aid: Customers familiarity with their own devices and technology helps them in accessing information quickly and does not require orientation and or training.

    ii.   Personalized Service: Personalized service helps customers to interact with library staff through their smartphones to seek specific information or reference away from library.

    iii.   Ability to Access Information: Information access from anywhere at any time will be of great help for customers who cannot visit library in person and provides them with the required information services or a constant link to required information resources.

    iv.   Time Saving: using smartphone for information resources and services library customers need not record information about resources while browsing and searching library resources or wait at library circulation/transaction counter to renew/reserve books and hence the time of the **c**ustomer is saved.

    v.   Location Awareness: Mobile communication technology enables libraries to offer location-based services/resources through global positioning system (GPS) capabilities.

    vi.   Limitless Access: All online resources and services accessible on the customer desktop computer also become accessible through smartphone and other mobile devices.

    vii.   Access to Print-disabled Customers: Mobiles communications technology help greatly in providing library services orally to visually disabled and physically handicapped customers.

These were also supported by the report and findings of Nalluri and Gaddam (2016) as well as Sharma and Madhusudhan (2017).

Methodology

Quantitative research method as well as descriptive survey design was adopted for this study. Nworgu (2015) stated that, survey design is a study approach in which a group of people or item is studied by collecting and analyzing data from few individuals or items considered to be "true" representative of the entire group. Hence, it is considered as suitable for this particular study.

The population of this study comprises all the Postgraduate Students of Ahmadu Bello University, Zaria who were registered for 2018/2019 academic session with a total number of (8615) as at 11th July, 2019. Whereas (370) sample was use as the sample size of the study using sample size table developed by Gill, Johnson and Clarck (2010). Cluster sampling technique was used for this study. This is because of it suitability in obtaining information from various unit of the population. Questionnaire

was used as an instrument for data collection. Also, descriptive statistics (frequency table and percentages) was used to analyze the data collected from the research questions.

Result and Discussions

A total of (367) copies of questionnaire were distributed to the respondents, out of which 312 (85%) copies were completed returned and found useful for the discussion. This comprised of 186 (50.6%) Master/M.Phil students, 96 (26.1%) PGD students and 30 (8.1%) PhD students of ABU, Zaria.

Any item with 50% and above response rate or 3.00 mean score and above is regarded significant, while any item with less than 50% response rate or less than 3.00 mean score is regarded as insignificant. However, for easy presentation, interpretation and discussion the researcher collapsed the five points Likert Scale adopted for this study into three thus, reading Agreed, Disagreed and Undecided.

Table 1: Types of Smartphone Devices Used by the PG Students to Access Digital Information Resources and services

	Types of Smartphone devices	Frequency	Percentages
a	Android phone	273	88.34
b	IPhone	21	6.79
c	Windows phone	3	0.97
d	BlackBerry phone	12	3.88
	Total	309	99.98

Table 1 has shown that, the android phones was the major type of smartphone devices used by PG Students to access digital information resources and services in KIL/ABU, Zaria with 273 (88.34%) response score.

This finding is a clear indication that, smartphone devices are used to access digital information resources and services in university libraries. Perhaps this is as a result of their convenience of use for access to information resources and services irrespective of time or location or condition, because with a smartphone device, users can have access to information resources and services of the library from his comfort zone. This is in line with the findings of Samanta & Mahata (2017), on Users' Perception and Intention towards Accessing Library through Smartphones: an analytical study based on library users of National Institute of Technology, Durgapur which revealed that, the major percent of the respondents (82.9%) studied use android phones to access library services.

Table 2: Types of Digital Information Resources in KIL Accessed by the PG Students Using Smartphone Devices

	Digital Information Resources	Frequency	Percentage
a	Theses/Dissertation	189	60.57
b	Online reference resources	222	71.15
c	Seminar papers	147	47.11
d	Conference papers	135	43.26
e	ABU Subscribed databases	93	29.80
f	Open access databases	111	35.57
g	News letters	111	35.57
h	Government/United nations Document	111	35.57

In the above table 2 online reference resources and theses/dissertations were the major types of digital information resources that are accessed in KIL/ABU, Zaria by PG Students using smartphone devices with 222 (71.15%) and 189 (60.57%) response score respectively.

Based on the findings, it could be concluded that, digital information resources are accessed in KIL/ABU, Zaria by PG students using smartphone devices. This may not be disconnected with the fact that, using smartphone devices to access digital information resources of the libraries enable users to navigate through the resource's content, easy download and save for future use. This is also not far from the findings of Akpokodje and Lawal (2015) in the study on the changing nature of Academic libraries services delivery: taking the library with you, which revealed that, using mobile Technology for access to electronic books is a major area of interest for the students with (51%) response score.

Table 3: Types of Digital Information Services in KIL Accessed by the PG Students Using Smartphone Devices

	Digital Information Services	Frequency	Percentage
a	Text a Librarian	48	15.38
b	Online public access catalogue (OPAC)	144	46.15
c	Online reference service	165	52.88
d	Library virtual/audio tour	54	17.30
e	Requesting for an information resource	132	42.30
f	Booking an information resource	66	21.15
g	Reserving an information resource	48	15.38
h	Renew an information resource borrowing	48	15.38
i	Checking for new arrivals	108	34.61
j	Document delivery service	96	30.76
k	Current awareness service	66	21.15
l	Others	3	0.96

The above table 3 indicated that, online reference service was the major type of digital information service that is accessed in KIL/ABU, Zaria by the PG Students using smartphone devices with 165 (52.88%) response score. This implies that, digital information services in the University libraries are accessed by PG Students using smartphone devices. This may not be disconnected with the fact that, using

smartphone devices to access digital information services of the libraries enable users to easily request for a library services with limited time and effort.

This is in line with the findings of Okpala, Igbokwe and Ekwellem (2018) in the study on the Evaluation of online reference services; reflections from Nigerian Academic Libraries which revealed that, most of the respondents agreed that Email services ranked first in the overall application of digital reference service in Nigerian academic libraries with a mean score of 2.7.

Table 4: Reasons for Using Smartphone Device to Access Digital Information Resources and Services

S/N	Reasons	A	DA	U	TOTAL	MEAN	SD
1	It is easier	204	27	108	339	2.96	0.04
2	It saves time	264	42	18	324	3.57	0.04
3	It is more convenient	189	141	9	339	3.09	0.02
4	It is more reliable	183	117	15	315	3.11	0.03
5	It is less stressful	153	156	12	321	2.92	0.01
6	It is more appealing	204	81	18	303	3.29	0.01
7	It is a recent development	72	138	111	321	2.10	0.02
8	It can be used to access DIRS anytime and anywhere	219	36	135	390	2.78	0.04
9	It is more effective and efficient	141	78	108	327	2.53	0.03

Key: A= Agreed. DA= Disagreed. U= Undecided. SD= Standard deviation

The above table revealed that, ease of use, being more appealing, more reliable and more convenience were the major reasons of PG Students for using smartphone devices to access digital information resources and services in KIL/ABU, Zaria with a mean score of (3.57, 3.29, 3.11 and 3.09) respectively. This implies that, library users used their smartphone devices to access digital information resources and services in the university libraries because they believe it is easier, more appealing, more reliable and more convenient.

This is in line with the findings of Ebiye (2015) in a study the on impact of smartphone/tablets on the information seeking behavior of medical students and staff of Niger Delta University, which revealed the major reasons for using smartphone/Tablets by medical students and staff of Niger Delta University were easy and fast internet access, high speed browsing, saves time and money going to cybercafe/college library, easy access to medical teaching and e-learning materials/e-textbooks.

Summary of Findings

1. The type of smartphone devices used by the Postgraduate students of ABU Zaria to access digital information resources and services in Kashim Ibrahim Library are: Android phones. Followed by IPhone, Windows phone and then BlackBerry.

2. The type of digital information resources and services accessed in Kashim Ibrahim Library by the Postgraduate students of ABU Zaria using smartphone

devices are: online reference resources, theses/dissertations and online reference services.

3. The reasons for using smartphone devices to access digital information resources and services in Kashim Ibrahim Library by Postgraduate students of ABU Zaria are: ease of use, its more appealing, more reliable and more convenient.

Conclusions

It could be concluded that, there is a serious growth in ownership and use of smartphone devices among University students in general and Postgraduate Students in particular. These cannot be disconnected from the fact that, these devices (smartphones) have come to stay in the life of people, this is because many people today find it difficult to live without their smartphone devices. Interestingly many University libraries today have their resources and services in digital format which make it possible for their users to access them from anywhere and at any time using smartphone devices.

Recommendations

1. The management of KIL/ABU, Zaria need to make all their resources and services mobile technology compliant, i.e. to be compatible with smartphone devices. This will enable the PG Students to have a more effecient and effective access at anytime and anywhere even on the move.
2. The management of KIL/ABU, Zaria need to encourage the PG Students to use their smartphone devices and access other types of digital information resources and services provided such as subscribed and open access databases, conference and seminar papers, OPAC, text a librarian, current awareness services, booking an information resource among others.
3. The management of KIL/ABU, Zaria need to convince the PG Students to see more reasons why they should use smartphone devices to access digital information resources and services by making enlightenment on the efficiency and effectiveness of using smartphone devices to access digital information resources and services.

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