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**Use of Mobile Technology for the Provision of Reference Services in Nigeria
University Libraries**

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Abstract

This work is focus on the use of mobile technology for the provision of reference services in Nigeria universities libraries. The Nigerian populace has overwhelmingly embraced the use of mobile technologies as an integral part of their everyday lives. As at 2015, Nigeria ranks 7th in the world list of mobile phone users and 1st in Africa. On the world list of internet users, Nigeria is also 7th with 86,436,611 internet users. Also, in a 2015 profiling of countries that love smart phones by e-marketers, Nigeria was ranked 17th in the world. The need for this study was prompted after observing that most categories of people in the University communities rely much on Mobile technologies such as smart phones, cell phones, iPods, MP3 players and tablets as some of the mobile devices used in academic libraries, to locate, retrieve, evaluate and use information and the need for librarians in the university libraries in Nigeria to assist these Information users with the use of mobile technologies to professionally meet their Information needs. This therefore raises a question of what could be done to assist these information users in these university communities. The study reveals that electricity failure; too many mobile devices to learn; lack of knowledge; slow speed of the internet; inadequate funds, staff and training opportunities in using mobile devices for marketing library and information products and services have been identified as some of the constraints to mobile information services delivery. Because of the mentioned problems, necessary measures should be taken as recommended by the researcher in the concluding part of this research work.

Keywords: Mobile technology, Reference services and Universities.

Introduction

The survival of a university is dependent on teaching and research. The art of teaching and carrying out research, however, revolves around the creation and dissemination of knowledge. This places university libraries strategically at a pivot point for research and knowledge exchange as they underpin the very existence of their parent institutions and crucial to their academic quests (Moran & Leonard, 2009). Traditionally, university libraries were “place based” services with patrons having to physically visit the library for real-time access to librarians and collections. This posed an enormous challenge to the 21st-century users because they live in a highly interactive and networked world which already largely provides for their information needs with no limitation by time and geographical location. To meet these challenges, reference service becomes instrumental as it serves as the medium of interaction between the patrons and libraries. Chebe (2012) opined that reference service involves establishing contact between the patrons and collection through the connection of users with collections. However, the traditional methods of reference services delivery are lacking as they are not prompt and far-reaching. This makes it necessary to utilize other means of meeting users’ demands in a networked environment such as the use of mobile technologies.

Mobile technologies are potential learning and research infrastructure that can be used by libraries, library users and other researchers for information search and retrieval. According to Singh & Nikandia (2017) mobile technologies are new communication tools and these are transforming how people can search the information, receive the information and interact with the information on every day basis. These mobile phone tools offer convenient access to the world information, across borders of subject, discipline and organization. Castells, (2007) & United Nations Development Programme (2012), opined that mobile communication is claimed to be the only technology to ever be accepted by and become accessible to such vast numbers of people, both in developed and developing countries, in a very short time. In the global business scape, mobile technologies have changed the ways interaction is done. Libraries are not left out in the limitless possibilities offered by mobile technologies in connecting users to materials regardless of location and time, which has reshaped the manner reference services are rendered.

Also, through conversations on mobile technology, libraries can gain insights into what their patrons want and need and ultimately understand their users’ better. In accordance with this

view, Fasae and Adegbilero-Iwari (2015) upholds that few are thinking of the potential changes that the uptake of devices with sophisticated capabilities may have on their user community and more specifically on the use of digital information resources. In order to embrace these requirements successfully, it is paramount for librarians are to be skilled in the use of mobile technology in the twenty-first century (Vanwynsberghe et al. 2015). Despite the advantages associated with mobile technology use for reference services, Azubuike and Madu (2017) explain that because Nigerian academic libraries are starved of some of the needed funds, librarians can capitalize on exploitation of mobile devices for effective services delivery in Current Awareness Services (CAS); Selective Dissemination of Information; and knowledge sharing among others.

Mobile Technology Overview

The use of mobile devices is becoming ubiquitous, there are barriers to consider in the use of this technology in providing mobile library website to users (Fox, 2010). These barriers include subscription to data plans, availability and maintenance of open source software, content choice and presentation and user needs (Hahn, 2008). Mobile devices are task specific in use in comparison to website which are more free form and flexible for the user to navigate, browse and search (Shrestha, 2007). Conversely, this technology provides unique learning opportunities and has advantage of portability and mobility. Academic, public and special libraries could use mobile technology in service innovations, m-learning, instruction in mobile device, web lectures, reference services and catalogue searching (Hahn, 2008). Vendors are now developing portals for the mobile platform, specifically; Gale Cengage now offers a series of library resource applications called Access My Library through the Apple Appstore (Gale Apps, 2011; Martine, 2010). Smartphone are not the only mobile device used by libraries. Ebooks, readable on Smartphone and E-readers depending on format are becoming prevalent with indications that 66 percent of public libraries nationwide in the United States offer patrons free access to them (Emery, 2010). There are ongoing issues with this type of content provided to patrons on mobile devices as libraries negotiable contracts and DRM licenses with content vendors and publishers. Mobile devices can be used to link to the internet or mail clients through QR codes, which are becoming more visible in libraries and library catalogue (Walsh, 2010). Mobile devices have been used in conjunction with QR codes to access instruction and subject guides and location -

based information. Further issues in the area of mobile technology and libraries include the increasing popularity of tablets, especially the iPod, used by both patrons, and library personnel. Libraries need to consider such aspects as time, resource investment and cost benefit analysis in creating mobile applications of their library website (Emery, 2010).

Literature Review

The advent of Information Communication Technology (ICT) has become a leading pivot of development in information and knowledge application. Ajayi and Ekundayo (2009) cited by Egunjobi (2013) stated that ICT is a revolution in every aspect of human endeavor. According to Aina (2004), the evolution of ICT has brought about new changes and services in modern libraries. In order to meet up with changing trend, reference librarians are now positioned to play an active role toward the target groups of users and their changing information seeking behavior in this information age where every user information need can be accessed, processed, stored, organized and disseminated at a speed with little or no effort at the most reasonable cost. It is on this condition that proactive academic libraries are providing automated systems, digitized library resources and further still an interactive platform for the users to interact and contribute to knowledge. Reference service is one of the core aspects of academic libraries' responsibilities towards fulfilling their goal. Reference service provides a platform for interaction between the clientele and library personnel which determines the future patronage of the library.

With the application of mobile technologies, it has transformed the way libraries provide reference services to their users. Mardikan (2007) opines that libraries are expected to provide personalized assistance for their users irrespective of their location and time. The reference librarian either provides electronic reference services like interactive social networked technologies, email communication, video conferencing through which users can ask questions and receive feedback online. This has further opened up doors to the emerging of broader communication and much more user friendly platforms through the use of social media tools. Chebe (2012) explain that reference and information service is an aspect of library services in which contact between the reader and library materials is established through staff assistance, matching the user with the library materials which could be print or electronic resources. Interestingly, these services can be facilitated and made possible remotely by the use of mobile technology platforms by the academic library personnel.

Mobile technology is defined as handheld information technology devices or artifacts that encompass hardware (devices), software (interface and applications), and communication (network services) (Pamela, 2011). Use of mobile technology enables academic librarians to rethink and remodel their services to meet the current mobile technology revolution. The recognition by an increasing number of libraries, information providers, and organizations of the nearly ubiquitous adoption of hand-held devices by students, faculty, and the general public, has led an increasing number to develop a range of mobile-oriented information on services for these communities. Academic libraries need to offer innovative services in order to provide quality service to users and adult learners. For example, various enquiry channels such as telephone, email, and instant messages have been integrated into library services such as reference services to provide better support to learners.

With the immense popularity and adoption of mobile technology, it is now being used in many library services including reference services to provide an additional channel of service. For instance, the Southbank Institute of Technology in Australia adopted an SMS r e f e r e n c e service. Using Message Net, students can send SMS queries to the service section. The SMS is routed to a common email mailbox and service staff can reply to the user using the email to SMS facility (Vimal and Chitra 2008). Therefore, mobile technology should be effectively deployed by reference librarians; they are viable tools to enhance reference unit services; enhance open discussion about a discipline among users; support integration of different media, allow users to ask minor queries which otherwise would have made them to visit the library, promote library relationship with users and promote self-expression.

Mobile Technologies and Reference Services

ICT has promoted fast communication and interactions across boundaries. The need to meet life's basic challenges and responsibilities has informed the invention and the use of information technologies (Ademodi and Adepoju, 2009). Libraries are deeply interested in channels for the transmission of information, such as telephones and telephone lines, cellular networks, cable television, and the internet. Academic libraries are challenged in satisfying their customer's needs since their target market (researchers, lecturers, undergraduate, and postgraduate students) is demanding and dynamic. The Internet and World Wide Web (www) have made it possible for university teachers, researchers, and students to locate what they need without going to the

library. If librarians in this sector are to continue to make substantial contributions as information disseminators, they will have to understand and exploit ICT infrastructure and emerging technologies in delivering services to their clientele (Ikhemueh, 2005). According to Terplan (2000), “telephones and e-mail are important tools to facilitate prompt handling and response to the stream of patron questions from within and out of the library user community. Most university libraries have one phone line, which is mostly used for administrative purposes and located in the library administrator's office. Mobile phones could be deployed at the enquiring desks.” Short Message Services (SMS) or text facilities available on all mobile phones, could be used to create awareness amongst the academic library clientele about upcoming events and new arrivals. This could be flashed through a facility called “broadcast” where one text message is sent to all the library contacts listed in the address book on the mobile phone at once. Academic libraries need to keep abreast of the dynamically changing needs of their clienteles. One way of delivering user-centered services is library surveys. Surveys could be carried with text and multimedia messaging. Patrons could text a coded number to a particular phone line to indicate their preference. Specialized and personalized information services can be achieved using the wireless technologies made available to all.

Globally, digital technology is providing faster access to information and challenging the libraries to rethink and remodel their services by intelligently adopting and adapting to technological changes. The challenge for academic libraries will be to create compelling reference services and to make digital content available in a way that the user community will find not only acceptable, but tailored to their needs. Students of nowadays are commonly referred to as millennial students because they grow up with mobile devices which is influencing the way they seek and use information. Saxena and Yadav (2013), observe that in this changing scenario, mobile technology will be of great help to academic libraries towards strengthening their relationship and providing enhanced user oriented services to existing users as well as reach out to remote users who are considered unlikely to connect because of absence of a medium. Saxena and Yadav (2013), identify MMS and SMS notification services; library virtual/audio tours; Quick Response (QR) codes on mobiles; text reference service, mobile document supply; library guide; database browsing; e-resource with mobile interfaces; formal education, distance learning and e-learning as some of the library services that can be provided to patrons via mobile technology. Other mobile based library services include; OPAC on mobile phones; sending and

receiving e-mail messages; searching databases of scholarly information; due date reminder and renewal services; preview and reservation service of new titles; voice and video calls; online in-house library bulletins; helpdesk services/Ask-a-librarian; online textbooks, databases and useful resources links; Frequently Asked Questions (FAQ); providing links to internet resources; online current awareness services; online list of new arrivals; etc (Hiremath and Kenchakkanavar, 2015). In delivering these services, reference librarians should ensure the adoption of online information improvement dimension which emphasizes; user friendliness; concise and short instruction for going online to search for information; more promotion and publicity; clear instruction on routine library services; clear and more understandable interface among others. These would no doubt boost the extent to which values are derived from mobile information services for the purpose of advancing reference services in libraries.

Application of Mobile Technologies in Rendering Reference Services

Smart phones: The introduction of smart phones has made it possible to communicate and share information. With the smart phone, users can call or text the reference librarians and vice versa. If the raised query is directional, reference librarian can call the user in quest or text him but if it is long range, the use of internet may be employed. Reference service rendered here can be online or offline depending on type of received queries from the user

Cell phones: The use of cell phones has made reference service easy. Users can call reference librarian to raise their questions which is equally responded to by the reference librarian. There is no need of enquiry the users to visit the library before making known his questions or before answers to his queries Tablets Just like computer systems, tablet is a small and handy device with screen that reference librarians could use by using a special pen to answer queries from online readers. With this application, reference librarians can easily answer their clientele on the go.

E-books and e-book readers: E-books, or books in digital form, may be purchased or freely downloaded in formats that will enable individuals to read them on standard computers, or they may be configured in proprietary formats for particular devices. Libraries already offer e-book content that users can download and read on standard computers.

Wi-Fi: The use of Wi-Fi has made it so easy for users and reference librarians to interact and share ideas. It is a system for connecting electronic equipment such as computers and electronic organizers to the internet without wires. This method could be employed by adding all potential users of a library to a single system of interaction and information sharing. Bluetooth Enables users to connect to a wide range of computing and telecommunication devices without the need to buy, carry, or connect cables.

Dial-up services: It is also known as telephony. The telephone reference service is an integral part of library and reference services and is used to assist patrons with questions. It extends the reach of library reference services to its community laptop and notebook computer they are designed with application for efficient and effective computer performance. They are small enough to his queries Tablets Just like computer systems, tablet is a small and handy device with screen that reference librarians could use by using a special pen to answer queries from online readers. With this application, reference librarians can easily answer their clientele on the go.

Benefits of Mobile Technologies to Reference Services

The benefits of mobile technology are: user friendly; a personalized service; ability to access information; time saving; user participation; location awareness; limitless access

Challenges in the Use of Mobile Technology in Providing Reference Services

Cost: The high cost of computerizing library services is a major challenge. The cost of library automation, internet services using VSATs and other facilities needed for the take-off of library automation is enormous (Jegbefume, 2014). More so, provision of funds for library development has remained very poor over the years. It is evident that no institution can ever develop beyond the available financial resources.

Inadequate Power Supply: Mobile technologies equipment depends solely on power supply to perform effectively. Nigeria as one of the developing countries faces a lot of hardship emanating from epileptic generation and supply of electricity. This situation is greatly hampering the development of the internet as incessant power outages are experienced. According to

(Ajayi,Shorunke and Akinola (2013), power supply has become unreliable and the alternatives is expensive and out of reach of many academic libraries which are poorly funded.

Lack of knowledge: Users of libraries find it difficult to make use of mobile technologies due to low level mobile literacy among them. This problem is aggravated by the shortage of technology literate staff in library, lack of skilled human resources and funding to develop such skill in existing library. Without the relevant mobile skills, the library will be unable to guide the library patrons maximize available ICT facilities and explore the opportunities (Elisha, 2006)

Bandwidth problem: As mobile technologies evolve, high speed of network with sufficient bandwidth is required. Sometimes, low speed and connectivity cause frustration among the users and librarians of the internet.

Privacy: Because of the risk that patron usage information can be used and exploited by law enforcement official and those who commit identity theft. Mobile technology is changing the relationship between libraries and their users--by expanding services and posing new challenges to reader's privacy.

Other factors: Saxena and Yadav (2013) have identified content ownership and licensing; high cost; limited memory of mobile devices; digital right management and dearth of technological expertise among staff.

Conclusion

Mobile technology is highly relevant to reference services in academic libraries. Reference librarians in universities library should be very dynamic by embracing the trends of information and communication technology by possessing quality information technology and information literacy skills in rendering mobile reference services to the library users. Also the members of the universities governing councils in Nigeria, including university librarians and other stakeholders of universities should pay more attention in funding university libraries in Nigeria especially in the area of mobile information services delivery to enable these university libraries meet up to global standard of information services delivery.

Recommendation

For reference service to contribute meaningfully and significantly towards the actualization of the library using mobile technology, the following recommendations have been suggested:

- 1 . The government at all levels and other stakeholders should ensure adequate funding of libraries in the light of active investment rather than a passive obligation. Adequate funding will help libraries in the provision of necessary mobile technologies infrastructures and facilities
2. Stable electricity is indispensable to proper functionality of mobile technologies and efforts should be geared towards such. Generators and inverters can serve as back-up when power from the national grid fails
3. Computer skills of librarians as important factor in mobile technology use for reference service delivery should be developed through training, retraining and motivation
4. The curriculum of library schools in Nigeria should be mobile technologies compliant
5. Librarians in Nigeria should endeavour to project and market the image of the library profession to the general public and the government thereby securing a befitting place for itself in the comity of other notable professions in the country.

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