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Application of Mobile Technology in Information Service Delivery in Bayero University Library, Kano

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ABSTRACT

Current trends in libraries especially in the academic library require remote and boundary less access to library services and services. Mobile Technology has been recognized as the simple, single most embraced technology in the world. Applying this technological innovation will bring a lot of relief to users in Bayero University, Kano library and the University community in general. The study investigates the preparedness of Bayero University, Kano library to apply mobile technology for information services delivery. The population consisted of 11 staff from the library's automation unit, with only two of them being sampled. The research instrument used was an interview. The study shows that the staff agree with the impact and relevancy of the application of the service in the library. The study also revealed challenge with the application of the service such as Lack of committed of staff, lack of technical knowhow, poor of internet connection, lack of training. The study also recommends that the staff and Student at Bayero University, Kano Library should be educated about the benefits of using mobile-based library services for relevant information, Continuous training should be given to library staff in the application of mobile based- library services and Management should also develop strategy for the marketing of the mobile-based library services.

Introduction

The communication processes have been drastically altered as a result of technological advancements. The implementation and relevance of Information and Communication Technologies (ICTs) have not only changed how people access information, but they have also given way to different channels of communication in accordance to Ajayi and Ekudayo (2009) cited by Egunjobi (2013) stated that information and communication technology (ICT) is a revolution in each and every aspect of human endeavor. The use and application of new technological tools has helped to connect the modern world. Mobile technology made information and communication access to users from the pleasure of own homes and offices and from anywhere they are moving with mobile phones or PDAs (personal digital assistants) very faster and more convenient . Mobile technology, like smartphones, laptops and tablets, are increasingly regarded as a tool to mediate teaching learning, particularly at higher level. As it is asserted "Most devices can retain information in the same manner as desktop computers now," (Khaddage & Latteman, 2013, p. 119)

Libraries as social institutions, connecting people with people and people with information, As most library users owning a mobile phone, and increasing numbers of these being smart phones, it is time for libraries to take advantage of mobile technology. Mobile Technology will help both novice and experienced librarians to stay relevant in an increasingly mobile society. They need to be aware of technological changes, peer forward, and prepare for the future of library mobile interaction. Librarians must be commensurate with this trend and integrate themselves into the mobile realm if they wish to deliver enhanced user services. Mobile devices and services offer tremendous flexibility for those who want to take advantage of library services. With a simple 4G or 5G connection, a user lying on a beach can access e-books and multimedia content from a local library. Mobile technology has now come up with "Libraries in hand" trend. Mobile devices are able to access information from the remote source within very short time. Nowadays numerous college and university libraries have digital collection and it is accessed through computer (Kumbhar & Pawar, 2015). According to Fasae and Adegbilero-Iwari (2015), few people consider the potential effects that the adoption of sophisticated devices may have on their user community, specifically on the use of digital information resources.

Therefore, the application of mobile technology to deliver information services in the library will reshape users into a more interconnected society in a short period of time. This research focuses on the use of mobile technology in library services and the challenges that come with it. Because most students and faculty members now own a cell phone and a laptop computer, libraries have the opportunity to develop new services and provide instant access to information contents.to produce new services and provide instant access of information contents.

Statement of the Problem

The popularity of mobile technologies, combined with the benefits they provide, is encouraging many academic libraries to adopt them. Academic libraries all over the world are incorporating technology into their operations because the removal of the physical location barrier greatly improves clientele satisfaction (Tess, 2013). Many libraries are experimenting with new ways to provide mobile interfaces and applications in order to become more effective in terms of service delivery to clientele. Because of the increasing availability of mobile devices, some of these services have been converted into smartphone-adaptable features. According to Lippincott (2010), these technologies will be beneficial only when a strong emphasis is placed on content and services.

Despite the importance of mobile technology in information service delivery, Academic libraries are starved of some of the needed funds, inadequate knowledge on how to deliver the service, and lack of feedback response from the clientele or the management whereas librarian 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 and also. Hence, the need for this study is to ascertain the application of mobile technologies in academic library for information service delivery.

Research Objective

1. To identify the extent of mobile technology application in Bayero University, Library

2. To find out the information service delivered through mobile technology in the library understudy

3. To find out the benefit of mobile technology for information service delivery in the library understudy

4. To identify the challenges associated with application of mobile technology in the library under study

5. To identify the solution to the challenges associated with application of mobile technology in the library understudy

Methodology

To achieve the research objectives, qualitative research methodology was found to be relevant for the study and upon which the study was conducted. The research involves emerging questions and procedures, data typically collected in the participant's environment, data analysis inductively building from particulars to general themes, and the researcher making general interpretations of data meaning. The instrument used to collect data was an interview guide. The researcher asks a series of predetermined questions in a specific order during a structured interview. There are two types of populations: general or universal populations and subject or actual or target populations. For the purposes of this study, only one type of population will be used, namely the subject or actual or target population, because the research will not be based on the entire library but rather on the automated section of the library because they are allowed to use the services. According to preliminary study (2020) conducted they are eleven staff in the automation unit in Bayero University, Library. The Purposive Sampling Technique was used because the technique in which the researcher uses his or her own discretion in selecting members of the population to participate in the study.

Concept and Significance of Mobile Technology

Mobile technology refers to devices that are portable and provide instant access to information (Coates, et al 2009). "iPods, MP3 players, Personal Digital Assistants, USB Drive, E-Book Reader, Smart Phone, Ultra-Mobile PC, and Laptop / Tablet PC" are examples of the technology (Adeeb & Hussain, 2009, p.48). Smartphones and Personal Digital Assistants (PDAs) are mobile devices that enable real-time communication (Chang, Tseng, & Yan, 2012). Mobile technology is distinguished by its portability, flexibility, ease of use, and unique ability to integrate with other

technological systems (Alder & Fotheringh, 2012). People use mobile devices for a wide range of activities, earning them the moniker "ubiquitous" (Kuzu, 2011). According to Dahlstrom, Walker, and Dziuban (2013), the rapid increase in mobile technology penetration demonstrates that mobile technology plays a critical role in improving the quality of services for academic purposes.

In addition to its small size and convenience, the technology allows for a variety of tasks such as note taking, phone calls, email, music, video / audio recording, picture taking, and GPS navigation (Akkerman & Filius, 2011). When compared to traditional computers, mobile technology necessitates less structure, resulting in simpler implementation (Carillo et al, 2011). Mobile technology has created different ways for information services to be easily disseminated in a pleasant way; it has become an indispensable part of human life for communication.

Application of Mobile Technology

Wireless and mobile technology become an integral part of everyday life and change the way users connect and interact with the world. Mobile phones can be used for a wide range of purposes. Mobile devices played an important role in libraries. The library must have an innovative mobile application in which users can access library resources without being physically present. Mobile technologies have provided users with timely access to communication and information. The use of this technology has produced a new way to access and handle library information which Includes Bluetooth, Global System for Mobile Communication (GSM), General Packet Radio Service (GPRSA), and third generation (3G) communication technology for facilitating access to information and providing services via mobile devices (Vandi & Djebbari, 2010). Mobile telephones are no longer a luxury, but are not simply a requirement to communicate by voice or text, but also to access the internet. The exponential rate and ways these tools are exploited in particular in the advanced education sector have moved beyond the communication technology (Goggins, 2010).

Mobile learning in areas outside formal training has also increased rapidly with advances and applications in mobile technology, and can play a significant additional role within formal education by expanding flexible and immediate access to rich digital resources. The role may be to reduce student costs in some way. For example, since not all the students in the higher education level may be living on the university campus, the cost of saving some money on transportation, probably due to staying farther away from the university may be worthwhile. This may also be due

to the fact that lessons that needed to be taught in the university classroom or lecture hall, could now be done with the mobile devices that the students own by means of mobile technology. In such instances it can be assumed that students have been offered new learning opportunities that have been provided by the mobile technology.

Malathy & Kantha (2013) identified some of advantages of the application of mobile technology in Libraries; such as ability to access information, location awareness, user participation, user-friendly aid, time saving, personalized service, , limitless access, and access to print-disabled users.

In conclusion, Common man's passion for mobile phones has given libraries wide opportunity to create mobile libraries and information services that can reduce the risk of exclusion. Libraries must switch from 'physical places' to virtual places where their users can access and exchange information from all over the world at any time to accept digital natives.

Prerequisites for Application of Mobile- Based Library Service

It is unlikely that mobile technologies will be able to provide the required service on their own but must be integrated with digital technologies. The following prerequisites were identified by Malathy& Kantha (2013):

I.   I. To know the practical situation such as the type of services to be provided on mobile devices and the type of device to be used, it is necessary for a carefully planned requirement study.

II.   II. After a survey conducted, the library must obtain the necessary hardware and software.

III.   III. For the use of mobile devices and accessories, the library must provide a physical and virtual environment.

IV.   IV. Library users with mobile telephones from various network operators must be able to use the services.

V.   V. Optimization of the OPAC library, website, and mobile device databases and introduction of new services as far as possible are necessary.

VI.   In mobile services, security and authentication is a concern in particular as web contents are available 24x7 in order to prevent data damage or loss.

Similar with the view of Saxena (2013) also give four prerequisites for application of mobile technology which are as follows:

I.   Digitized information base
II. Information products designed for an e-platform.
III. Electronic information service delivery
IV. Design of electronic access systems.

Mobile Technology for Information Service Delivery

The academic libraries have changed their services and homekeeping operations in the age of information communication technology in order to provide access to their collection. Libraries are really interested in information dissemination channels, including mobile, telephone, mobile, and internet. Academic libraries have faced challenges in meeting their user requirement, because they are a demanding and dynamic target market (researchers, lecturers and students). With the Internet and the World Wide Web (www), university teachers, researchers and students have the opportunity to find what they need without going to their library. Academic libraries need to market its products in the same way as most of the service institutions.

According to Choy (2010) posits that most universities and other higher education institutions, these devices are an important part of student activities, Libraries, particularly academic libraries, develop strategies for the design of mobile technology-based services so as to meet their employers' ever-changing demands of information (Lippincott, 2010; Vila, Galvez & Campos, 2010). The following are some of service delivered through mobile technology and they are embarked by some academic libraries.

I.   **Mobile interfaces and online public catalogue:** Libraries are developing and providing access to their customers with mobile versions of its OPAC to deliver timely and unimpeded services and resources to their employers, in their quest to provide tailor-made services. These included collections and e-journals and the opening of the library (Murray, 2010; Vila, Galvez & Campos, 2010). Mobile OPAC (MOPAC) guarantees the quick and quick retrieval of a product, according to Vila, Galvez & Campos (2010:327). Paterson and Low (2011) confirmed that 60% of interviewed students felt that the catalog should be searched everywhere, every time.

II. **Mobile collections and databases:** Lippincott (2010) states that database publishers can access e-books and e-journals via their mobile devices with innovative strategies for mobile versions of their databases for their clients.. These databases are said to make it easy for mobile devices to interface (Murray, 2010; Bucznski, 2008). These publications include social science research networks and online music services which provide both video and audio recording access (McKiernan, 2010). Ebscohost provides a mobile interface for Ebsco products that is regarded as highly useful for mobile library platforms under (Hadro, 2009). Murray (2010) says that e-book readers allow access to such databases regardless of their location.

III. **Mobile instructions and mobile tours of the library:** Every year, new students who undertake their academic journey are introduced to the academic library's education services. The services libraries offer through mobile devices, such as library orientation and information literacy. Kroski (2008) noted that Youtube can be one of the best examples for library tours, another tool for mobile teaching is the use of podcasting. Murray (2010) & Choy (2010) have stated that both distance students and those from abroad benefit from the podcast content. Awareness services such as "Call Guide" and "Self Service" library instruction services also add value to services available already (Murray, 2010)

IV. **Short message system reference:** SMS reference in academic library services is widely known among mobile technology. Paterson & Low (2011) said this service is intended to provide users with services from anywhere. It permits a librarian to send a text via their mobile telephones to a librarian. The librarian can also provide information to employers to warn them that new arrivals, reserved books and other library news are available (Pearce, Collard & Whatley, 2010).

V. **My library:** My library is a personal library space where users can find information and resources of their choosing. Users can read alerts, check records, renew resources, request items, track interlibrary loans and document delivery requests, set up email notices of new books and journal articles, set up preferences for catalogue searching, etc.

In conclusion, libraries should cease the opportunity of the service been provided by mobile technology so as to information service delivery can be done with ease and to promote communication in term of the availability of the technology

Benefit of Mobile Technology for Information Service Delivery

The advantages of mobile technology in libraries are untold, particularly as they influence libraries and their users. It does so in many ways, and it does not least make routine communications. Users can contact library resources round the clock. Like the other disciplines, library technology is applied because of its enormous advantages. These advantages include the provision of fast and easy information access; the ability of users to auto-educate via Internet and multimedia resources; providing access to unrestricted and timely information from various sources; enhancing bibliography and services efficiency; facilitating cooperation and networking of libraries; round-the-clock provision and remote user data access. Mobile technology enables fast and easy access to library information. The use of mobile telephones and its services has made it easy for library users to provide the desired information. Fatoki (2015) submitted that the mobile technology has made it possible for researchers or students to provide documents required in a timely manner. Mobile phones and their services are vital tools to make the management of customers' reference queries easier and quicker. Adedigba (2010) also indicated that the use of mobile telepaths for displaying enquiries can be used for the purpose of facilitating easy and quick access to library database records by means of mobile technology in library processes and services.

Mobile technology can satisfy communication needs of all types of libraries, according to Tinio (2012), with cost and effectiveness, and a large number of users are able to receive text messages. He went further to list the advantages of SMS in libraries, including: fast, easy access to library services; ability to remind the users of outdated books; prospects of renewal of books without being physically in the Library; enables users to make titles reservations; allows for the answer of reference requests (virtual referencing); Academic libraries can also benefit greatly from using mobile technology to supply their employers with efficient library services when used..

In conclusion, mobile technology create more advantage and strengthen the relationship between the users and the librarian because access and use of library services are delivered to him within a blink of an eye.

Challenges Associated with Application of Mobile Technology

In education of the 21st century, mobile technologies are reasonably encouraged, the ultimate objective being to influence learning processes and results (Cradler et al, 2012). By recognizing

mobile technology, learning seems to be occupying a new space that enables individuals to use electronic resources and tools according to their circumstances and lifestyles in adaptable ways (Kukulska-Hulme & Pettit, 2009). Mobile technology, like smartphones, laptops and tablets, offers a huge amount of access to information and new ways to learn.

The speed and storage capacity of most mobile devices currently is limited. Another problem concerns the format design. Not all desktop content on mobile platforms can be replicated. A great deal should be reorganized to allow a document to be fit to access mobile appliances by texts, pictures, graphics, tables and other feature. In addition, the bid to separate library service content from the mobile device format also creates problems. Ideally, a mobile library should work on various mobile devices and be independent. Libraries were also aware of the fact that the differences between hosting services on a normal website and a smartphone interface often fail to distinguish between the desired effects (Travis & Tay, 2011). But what is compatible or convenient in one library in a mobile environment may not necessarily be the case in another library because users' information demands differ.

A study by Chisenga (2015) in Sub-Saharan Africa on library users, ICTs and libraries shows that the majority of libraries do not have the money to buy library systems, those that succeed in acquiring commercial library systems or have automated functions or functions do not have the necessary funds to upgrade and maintain such library systems. When libraries fail, or cannot pay either maintenance or software license fees, they give away the possibility to access technical support and the necessary updates from their vendors. Most libraries stop signing up for or drop off the software system altogether and instead shop for a cheaper software system. These cheaper software systems are Open Source systems with a greater base of users to share expertise. Content definition for Mobile Library Kumbhar & Pawar (2015) highlighted some challenge in the mobile industry. The format design, Models of display, PDF documents processing, The absence of standard, Display models, multimedia file types management

In conclusion, Mobile phones are still viewed by the majority of people as devices for making phone calls and text messages, so they often don't associate them with other activities, such as information seeking. It is necessity for academic library to provide adequate solution to tackle the problem and to be able to maintain the current flows of information service delivery.

Analysis

Background Information of the Respondents

This depicts the general information of the participants such as the gender of the interviewer, the status/rank, educational qualification, and years of experience. The background information of the participant is depicted in a table below.

Section A: Personal Data

S/N	CODE	STATUS/RANK
1	P1	Head of automation
2	P2	Librarian II

The table above shows the status/ rank of the respondent which indicate P1 is the head of the automation unit while P2 is the assistant who take in charge in the absent of the head

Educational Qualifications

S/N	CODE	EDUCATIONAL QUALIFICATION
1	P1	Masters in Library information science (MLS).
2	P2	Maters in library and information science (MLS).

The table shows the qualification of the respondents, P1 have Maters in Library and information Science and P2 also have Masters in Library and information Science

Years of Working Experience

S/N	CODE	YEARS OF WORKING EXPERIENCE

1	P1	5(5) years.
2	P2	6 (6) years.

The table shows years of working experiences of the respondents, P1 have 5 years of working experience while P2 have 6 years of working experiences

Application of Mobile Technology for information service delivery

Q1. Please sir, what do you think about the application of mobile technology-based library service?

P1: *Essentially I personally believe that the traditional library way of doing things is given way gradually to some innovative services that could be given to librarians to clientele and I think mobile technology could play a major role in helping us to serve our clients better. So I agree that it's a service that we must all embrace*

P2: *The services are very much relevant especially in the 21st century where everybody have mobile phone*

Q2 Kindly sir, how will the application of mobile technology-based library services help in service delivery?

P1: *Patrons will be able to access relevant and credible information rather than resorting to other sources for their information needs, patrons will be well informed about library resources and services. Again such services will ease congestion in the library and help patrons to access library information wherever they may be.*

P2: *It will certainty make library services much easier, faster and cheaper for both libraries and their users*

Information service delivered through mobile technology

Q3. Are any of the library's services accessible through mobile technology?

P1: *Currently E- resources and OPAC are what is available however it has not been fully exploited due to the fact that the library has not done enough publicity on it, this can account to the fact that necessary infrastructure for such initiative is not available or in place*

P2: *So far, it is partially implemented but there proposals for its full implementation*

Q4. If such services are available what are they?

P1: *Library website, social media platforms and short messaging service.*

P2: *Current awareness service, selective dissemination of information, short messaging service, social media platforms etc.*

Benefit of mobile technology for information service delivery

Q5. How beneficial have such services been to the library in serving clients?

P1: *Of course students become current as to what is going on campus and in the library, they are abreast with relevant information the library will send also information is timely accessed. It make leaning less burdensome.*

P2: *Of course it brings about efficiency, effectiveness to quick service delivery*

Q6. If it is not available are there any plans in the nearest future for such services?

P1: *The library has a plan provide a robust IT infrastructure that will absorb all these initiatives in the near future, the system we are building currently will ensure that all the library materials will be available in it.*

P2: *Partially available*

Challenges associated with application of mobile technology

Q7. What are the challenges associated with the application of mobile technology in your library?

    a. Lack of committed of staff
    b. Lack of technical knowhow
    c. Poor of internet connection
    d. Lack of training

It should however be noted P1 & P2 respectively have unanimously agreed on the same challenges with application of mobile technology in their library. The participant added other challenges associated with the user's aspect such as

    a. High tariff charge

b. Data subscription issues

Solution to the challenges associated with application of mobile technology

Q8. What are the possible solution to the challenges associated with application of mobile technology?

a. Commitment of staff
b. Adequate technical knowhow
c. Good internet connection
d. Training and retraining of library staff on the service

It should however be noted P1 & P2 respectively have unanimously agreed on the same above proffer measure to the challenges with application of mobile technology in their library. The participant added other possible solution associated with the user's aspect such as

a. Government intervention on the tariff Issues
b. Awareness and enlightenment of users on the users

Conclusion

The phenomenon of mobile technology has a potential to contribute to the way information is accessed. Ownership of these device is very popular among students since they express considerable interest in accessing library resources. Bell (2012), in trying to suggest the future, indicates that libraries should be working to shape their vision of a preferred future for themselves. Many academic libraries are taking advantage of what these technologies present, and Bayero University, Kano Library will have no option other than to embrace this novelty so as to better provide enhanced information needs and services to its stakeholders.

Recommendation

Based on the findings from the interviews, the following recommendations for the application of mobile-based library services at the Bayero University, Kano Library are suggested:

I. The staff and Student at Bayero University, Kano Library should be educated about the benefits of using mobile-based library services for relevant information.

II. Continuous training should be given to library staff in the application of mobile based-library services.

III. The Management of Bayero University, Kano Library should budget or allocate significant amount of money for the application of mobile based-library services.

IV. The library management should also develop a mobile-based website that meets the specific needs of the users.

V. Management should also develop strategy for the marketing of the mobile-based library services.

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