Library Philosophy and Practice (e-journal)   Libraries at University of Nebraska-Lincoln

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ABSTRACT

The purpose of this study was to examine the "Adoption of mobile reference services as predictors of digital library service delivery. To achieve this, one objective and one hypothesis was formulated to guide the study. Literature was reviewed based on the variables under study. The survey research design was adopted for the study. All 253 library professionals and paraprofessionals in federal universities south-south, Nigeria formed the population of the study. The instrument used for data collection was the questionnaire. 205 questionnaires were correctly filled and returned, giving a return rate of 81%. Data was coded using statistical package for social sciences (SPSS) software and analyzed using frequencies, percentages and simple linear regression analysis. The findings revealed that mobile reference services significantly predicts digital library service delivery. Based on the findings of the study, it was recommended among others that libraries should ensure that reference services are extended beyond library closing hours using mobile reference services such as emails, SMS and phone calls. It was also recommended that Information communication technology (ICT) infrastructure should be put in place in the University libraries. This will enhance the provision of digital library services through smart phones and other mobile devices.

Keywords: Mobile Reference Services, Digital Library Services, Library Professionals, Nigeria

Introduction

Libraries of the 21st century have become computerized and digitized. This has led to the provision of library services in a more digital way. Digital library service is the provision of a wide array of services to assist library users with accessing library collections and services through information communication technology without boundaries of time and location. A reference service is a personal assistance given to a library user by a trained librarian to find information in the library. In most cases reference process involves interviewing the user to enable the reference librarian articulate the problem, prepare a search strategy and translate the reference queries into the language of the system. (Ntui & Edam-Agbor, 2018). Present day reference services in libraries are becoming increasingly virtual as more and more researchers are working remotely. Technologies such as instant messaging, e-mail, and now SMS text messaging which are mobile reference services makes it easy for libraries to maintain relevance as information hubs by offering convenient services to busy users. Ask-a-librarian services are offering mobile patrons the ability to text in their research questions from afar. Texting has become a popular form of communication, especially among the younger generation. SMS reference can allow libraries the opportunity to reach out to users via a familiar accessible service.

Among the many services which are capable of changing the library landscape, mobile reference is one of the most notable services where the impact of mobile interface can be readily felt. The healthy interactive trend along with the mobile telephone facilities has started adorning the library services. With more and more users wanting reference information on the move, most of the libraries provide reference services through mobile interface. (Sanjay & John Paul 2011). Griffey (2010) Predicts that reference services will increasingly move to the mobile interface

where most transactions will be completely virtual. Asynchronous tools such as e-mail, subject gateways, electronic libraries and interactive tools like chat rooms, virtual reference desk, short message service(SMS) and ask-a-librarian have replaced the conventional means of in-person reference enquiries. Mobile reference applications are easy to create and easy to be tagged by any library that wants to provide its service for users on the go using the smartphone. Because of these new developments, mobile applications surely will bring major changes in library services (Anbu & Kataria,2016). Academic libraries are deploying this service to offer reference services such as issuing notices about new book acquisitions and subscribed e-resources, informing users about available reserved books, providing overdue notice, announcing change in library opening hours, and scheduling for library training (Malathy & Kantha, 2013). Presently most of the reference books like encyclopedias, dictionaries, directories and hand books are published in electronic form. Eke and Ekwelem(2014) posit that the incorporation of information and communications technology (ICT) into the reference services has affected its functioning at various levels. Lotts and Graves, (2011) asserted that "reference services are becoming more mobile as technology allows librarians to expand service points and outreach opportunities".

Libraries are today offering digital reference services to their users through mobile technologies by the use of Short Message Service (SMS), live chat, and email (De, Wee 2013). Paterson and Low (2011) opined that these services seek to provide services to patrons from any location. They allow library patrons to send texts to a librarian with the use of their mobile phones and the librarian can also send texts to patrons by way of alerting them of the availability of new arrivals, reserved books and any other library news. Short Message Service (SMS) has become a powerful tool in the era of mobile devices (Safko,2012). Through the text messaging library professionals can alert the users for new book notice, informing availability of reserved

documents for collection, appraising about which/when books are overdue, library circulars, e-journals subscribed, change in timing and information about important events. Such alert notifications can be generated automatically using integrated library management system/software (Khumber & Pawar, 2014).

Statement of Problem

The reference section of the library is a very important section. Many of today's library users, especially those born in the age of technological advancement are not very patient with the traditional methods of library service delivery. This means that they expect to be able to access the required information at the desired time and at their choice location. Where this is not available, they tend to fall back to other sources of information outside library resources. This has led to user apathy among libray users as a result of the inability of users to access library reference services anywhere and at any time.

Literature Review

Liu and Briggs, (2015) carried out a research titled; A Library in the Palm of Your Hand: Mobile Services in Top 100 University Libraries. The purpose of the study was to examine the current state of mobile services among academic libraries of the country's top 100 universities, and the best practices for librarians implementing mobile services at the university level. The study employed two approaches, website visits and survey investigation, to determine the state of mobile services at the top 100 universities' libraries. The website visits explored what mobile services are being offered and how they are being offered at these university libraries. The survey sent via email inquired how they are providing mobile services in their libraries and what their results have been regarding challenges, successes, and best practices. The survey data was

analyzed by tabulation with a codebook in the established categorization through Microsoft Excel and compared to the data obtained via website exploration to form a more comprehensive picture of mobile services at these universities. The findings revealed that 81.25% of survey respondents offer text/SMS messaging, 100% offer chat/Instant messaging, and 21.88% offer reference services via a social media account. Chat/IM is obviously the most popular method of providing virtual/mobile reference services; all survey respondents offer this service. Text/SMS is also very popular, indicating that the majority of libraries see value in providing both despite their similar functions. The study recommended that if the library will provide mobile reference services there must be a plan which will include allotting the appropriate amount of staffing, time, and funding, communicating among departments and stakeholders to coordinate mobile efforts, marketing services, and regularly seeking patron feedback. However, there is no one approach to offering mobile services, and each library must do what works best for its patrons. Saxena and Yadah (2013) also affirmed that many libraries now provide reference services with the application of ICT using mobile devices to further appreciate services with instant answers to queries. Ask-a-Librarian allows the user to click on ask-a-librarian link to send a formatted enquiry to the reference librarian. The reference librarian either provides an answer, links to resources or links to a subject expert.

Acheampong and Agyemang,(2021) also carried out a study titled; Enhancing academic library services provision in the distance learning environment with mobile technologies.The purpose of the study was to explore the potentials of using mobile technologies to enhance academic library services delivery in the distance learning environment in Ghana. The objectives were to assess the students' awareness and appreciation for mobile technology-based library services; and to assess the librarians' competencies in switching to delivering mobile technology-

based services. Using a descriptive survey, two questionnaires were developed, one for students and the other for the library staff. The questions in the students' questionnaire involved six items on a five-point likert scale ranging from ''Strongly Agree'' to ''Strongly Disagree'' applied to weigh the degree of agreement with each item to assess the students' awareness and appreciation for the use of mobile technology based library. Questionnaires were administered online to collect data from 382 students and 118 library staff within two public universities in Ghana. A total of 453 responses were used for the final analysis. A descriptive analysis method was used to analyze the data. The results indicated that the students were aware and had positive appreciation for the value of mobile technology-based library. The findings also revealed that mobile technology based library reference service provides virtual reference system for librarians to give quick feedback on the library users' reference enquiries with mobile technology applications and devices. Research also showed that academic libraries can utilize mobile alert electronic mails and short instant messaging services to notify users of the new library collections, and send alerts on the due dates of personal loan records.

Purpose of the study

The general purpose of this study is to examine mobile reference services as predictors of digital library service delivery.

Statement of Hypothesis

Mobile reference services do not significantly predict digital library service delivery.

Methodology

This study was carried out in south- south, Nigeria, specifically federal universities in south-south Nigeria. A total of 253 library professionals and paraprofessionals which makes up the entire population were used for this study. The survey research design was adopted for the study hence 253 questionnaires were administered. A total of 205 questionnaires were properly filled and returned. Table 1 below shows the total population in each of the Universities;

TABLE 1

Population distribution by University

S/N	Institution	Academic librarians	Library Officers	Total
1.	University of Calabar	12	75	87
2.	University of Uyo	26	30	56
3.	Federal University, Otuoke	13	12	25
4.	University of Port Harcourt	13	19	32
5.	University of Benin	12	15	27
6.	Federal University of Petroleum Resources	7	19	26
	Total	83	170	253

RESULTS AND DISCUSSION

(Table 2)
Demographic Variables

S/N	Variable	Label	Frequency	Percentage
1.	Gender	Male	108	40.42
		Female	97	59.58
		Total	205	100
2	Variable	Label	Frequency	Percentage
	Highest Qualification	Ph.D	12	5.9
		Masters	69	33.7
		B.sc/BLS	124	60.5
		Total	205	100
3.	Variables	Label	Frequency	Percentage
	Years of Experience	1-9 years	102	49.8
		10-16 years	50	24.4
		17years and above	53	25.9
		Total	205	100

Table 2 shows the frequency of gender of the respondents. Males constituted 108(40.42%) of the total respondents while the Females constituted 97(59.58%) of the total respondents. The table also shows the distribution of years of experience among respondents. 1-9 years of experience had a total of 102(49.8) respondents, 10-16years had a total of 50 (24.4%) while 17years and above had a total of 53(25.9%). The table also shows the highest educational qualification of the respondents. Bachelor of Science/Bachelor of Library Science had a total of 124(60.5%) respondents, master of science/Masters in Library Science had a total of 69 (33.7%), Doctor of Philosophy had a total of 12(5.9).

Table 3
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.594[a]	.353	.350	6.81182

a. Predictors: (Constant), mobile reference services

Table 4

Simple regression analysis of the predictive effect of mobile reference services on digital library Service delivery

Source of variation	Sum of Squares	Df	Mean Square	F	Sig.
Regression	5148.205	1	5148.205	101.951	.000[b]
Residual	9419.375	204	46.401		
Total	14567.580	205			

R=.594; R^2 = .353; Adj R^2 = .350; Std Error = 6.81182

The hypothesis states that; Mobile Reference Services is not a significant predictor of digital library service delivery. The independent variable is mobile reference services while the dependent variable is digital library Service delivery, both measured continuously. To test this hypothesis, simple linear regression was used and the result as presented in Table 4 showed that R=.594 which implies that there is a positive relationship between mobile reference services and digital library Service delivery. That is, the higher the adoption of mobile reference services, the better the digital service delivery. More so, the Adj R^2 =.353 which implies that the variation in digital library Service delivery could be explained using 35.3% contribution of mobile reference services. The Analysis of Variance (ANOVA) table showed that (F=110.951, p=.000). Since p(.000) is less than p(.05), this implies that mobile reference services significantly predicts digital library Service delivery. Hence, the null hypothesis is rejected, and the alternate hypothesis upheld.

The result indicates that mobile reference services significantly predicts digital library service delivery. This means that librarians and library officers would be willing to offer reference services through emails, chats (Ask a librarian), Short message service (SMS) and phone calls. Librarians also agreed that mobile reference services is a major attraction to their library and most librarians have the ICT skills to offer mobile reference services hence users do not need to physically go to the library to have their reference queries answered. Mobile reference services is about the oldest form of mobile technology in existence in libraries today. It helps to increase accessibility of library resources thereby reducing the communication gap between patrons and librarians. Mobile reference services requires very minimal ICT skills because it makes use of phone calls, chats, SMS and emails which are very easy to use.

The findings of the study were in line with (Bomhold, 2014) who carried out a study on mobile services in academic libraries. It was revealed that 76.9 percent of the libraries use the Ask-a-librarian reference service for their library staff to answer users' queries. Kumbhar and Pawar (2014) asserts that since libraries are currently creating digital contents accessible on computers, such digital collections could be made available on mobile platforms. According to them Short Message Services (SMS) or text facilities have often been relied upon by academic libraries to publicise their products and services such as new arrivals, due dates and renewals among others. The consideration to make library services available on mobile platforms has gained recognition both in literature and in practice by virtue of the benefits it brings. The mobile initiative comes along with its interactive capabilities, easy access to information, time saving, personalised services, user participation as well as limitless access.

Similarly, the findings aligns with that of Acheampong and Agyemang (2021) who conducted a study on enhancing academic library services provision in the distance learning

environment with mobile technologies. It was revealed that mobile technology based library reference service provides virtual reference system for librarians to give quick feedback on the library users' reference enquiries with mobile technology applications and devices. Research shows that academic libraries can utilize mobile alert electronic mails and short instant messaging services to notify users of the new library collections, and send alerts on the due dates of personal loan records. . Also, a majority of the library staff had very good skills in using mobile devices to create social media content and web 2.0 services as indicated by the results; 42.3% been proficient and 38.1% been very proficient. The library staff also showed a high proficiency level with internet information retrieval skills.

Conclusion

The findings revealed that mobile reference services significantly predicts digital library service delivery. The findings appraised the use of mobile reference services via emails, SMS, ask-a librarian, phone calls and other platforms which provide reference services virtually using mobile technologies via smartphones. Mobile technology based library reference service provides virtual reference system for librarians to give quick feedback on the library users' reference enquiries with mobile technology applications and devices.

Recommendations

1. Libraries should ensure that reference services are extended beyond library closing hours using mobile reference services such as emails, SMS and phone calls. This will encourage library patrons to remotely send their reference queries because they know that it will be given immediate attention.

2. ICT infrastructures should be put in place to properly enhance the delivery of digital library services through mobile reference services.

3. The library management should ensure that library professionals are trained to carry out reference services through mobile technologies. This is will also enhance digital library service delivery.

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