

Collaborative technologies for sustaining digital library services in Rivers State academic libraries

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ABSTRACT

The study investigated collaborative technologies for sustaining digital library services in Rivers State academic libraries. Three objectives, three research questions and three hypotheses guided the study. The study adopted a correlational research survey design. The population of the study was 66 librarians comprising all the state government owned academic libraries in Rivers State. Census sampling techniques was used to select all the respondents. Online questionnaire titled Collaborative Technologies for Sustaining Digital Library Services Questionnaire (CTSDLSQ) was used for data collection. A total of 55 responses were recorded and found valid for analysis. The data was analyzed using mean and standard deviation for the research questions and Pearson product moment correlation for the hypothesis. The study discovered that there is a significant relationship between collaborative technologies (Facebook, E-mail and video conferencing) and sustenance of digital library services in Rivers State academic libraries. The study recommended among others that librarians should put more efforts in leveraging Facebook for current awareness services.

Keywords: Collaborative technologies, Facebook, E-mail, Video conferencing, Digital library services

INTRODUCTION

Rapidly changing technologies are impacting on how, where, and when students and staff access university services. Consequently, academic libraries services were seen as under threat. This is because the library can be seen as less important as a physical entity as there are alternative sources of information for learners and researchers particularly given open access developments (Akinson, 2019). This is due to the dawn of the digital age and the constantly changing global outlook that makes interaction, communications and collaboration inevitable. Interestingly, libraries have adopted digital lifestyle and providing digital services. Students and researchers may not necessarily want to visit the library to leverage the library services. Digital services therefore, become the only option.

Digital library services are the services that could be rendered by libraries to its users with the use of computer devices, networks, software packages and digital information resources. Digital library services facilitate collaboration in in two ways: As learning objects integrated into open educational delivery platforms and

virtual learning environment platforms serving as qualified educational infrastructure in their own right (Owusu-Ansah et al., 2019). It is the delivery of documents, files or information in electronic form. Sonnenwald noted that most digital library projects have focused on replicating and extending the development and delivery of library collections. The problems associated with digitization and storage of materials, retrieval methods, and delivery of electronic documents have been addressed in various ways but most digital libraries have not addressed the issue of conversations and collaboration with users. Services such as current awareness services could be rendered with collaborative tool like Facebook. Current awareness services is notifying or alerting users of the new development, new services and/or acquisition of new information resources in the library. On the other hand, digital reference services can be rendered using email. Digital/virtual reference services are internet-based question-and-answer services that connect users with experts and subject expertise. Digital reference services use the Internet to connect people with people who can answer questions. Online library instruction could enable users get acquainted with library services and resources.

Current awareness services, digital reference services and online library instruction could be sustained and facilitated using collaborative technologies.

Collaborative technologies according to Igwela et al. are technologies that aid information sharing allow cooperation and keep professional ties. Collaborative technologies could be tools or software packages designed to enable people to interact and work in groups or hold real-time meetings remotely. They could be collocated, allowing users to perform task together in one place or non-collocated, allowing users to work together from different places. Collaborative technologies provide opportunities where people could collectively engage in research by sharing rich information resources, where people come to meet, find information resources, and discuss common interests. To achieve this, collaboration services that build on synchronous and asynchronous communication technology should be integrated with other digital library services. Collaborative technologies enable librarians to renders collaborate services and sustain digital reference services but it seems that most libraries are yet to utilise collaborative services to render digital library services. This could make users bypass the library as some other information service providers are rendering interactive services to give users instant feedback to their reference queries. Collaborative technologies include social media, cloud technologies, video conferencing, and email. This study however is limited to Facebook, email and video conferencing as the collaborative technologies that could enable librarians collaborate with users to support and sustain digital library services.

Statement of the Problem

Library services were limited within the library. Library services have however, had a transformation since the adoption of information and communication technologies which enable libraries to introduce digital services. Digital services enable libraries to reach out user from anywhere and at any time overcoming physical restriction. The digital services rendered libraries include the provision of electronic databases, institutional repositories, CD-ROM services, registration of user using computer. These services are usually in disseminating form where users may not give feedback. Interestingly, with the proliferation of collaborative technologies, libraries can now interact with user, give and get instant feedback. This could sustain and facilitate digital library services such as current awareness services, digital reference services and online library instruction. The collaborative technologies that could enable librarians render these services includes Facebook, email and video conferencing. Commendably, librarians utilize these tools but it seems they do not utilize the tools for digital library services. The study therefore sought to investigate collaborative technologies for sustaining digital library

services using Rivers State academic libraries as a case study.

Objectives of the Study

The main objective of the study was to determine the relationship between librarians' use of collaborative technologies for sustaining digital library services in Rivers State academic libraries. The specific objectives were to:

- Investigate the relationship between utilization of Facebook by librarians and sustenance of current awareness services in Rivers State academic libraries.
- Determine if utilization of email by librarians relate to the sustenance digital reference services in Rivers State academic libraries.
- Determine if utilization of video conferencing by librarians relate to the sustenance of online library instruction service in Rivers State academic libraries.

Research questions

- What is the relationship between Facebook use by librarians and sustenance of current awareness services in Rivers State academic libraries?
- What is the relationship between librarians' use of email and sustenance of digital reference services in Rivers State academic libraries?
- What is the relationship between librarians' use of video conferencing and sustenance of online library instruction services in Rivers State academic libraries?

Hypotheses

- **H₀₁:** There is no significant relationship between librarians' use of Facebook and sustenance of current awareness services in Rivers State academic libraries.
- **H₀₂:** There is no significant relationship between librarians use of email and sustenance of digital library services of information in Rivers State academic libraries.
- **H₀₃:** There is no significant relationship between librarians' use of video conferencing and sustenance of online library instruction in Rivers State academic libraries.

Review of Related Literature

Digital library services according to Roopa and Krishnamurthy is computer accessible form as an alternative, supplements, or complements to the conventional printed and microforms materials currently dominated library collection. They are services that are delivered digitally through computer networks. Digital library services are information access services in which patrons enquire answers from librarians through

electronic means such as email or online forms. Digital library service manages and creates electronic services, the library websites and library staff. Isah noted that active communication between library and users creates added value in providing digital library services, while new possibilities and the value of using collaborative technologies directly contribute to a better visibility of the library in the digital environment. Indirectly it results in a better promotion of the digital library services and increases both the number of users and their overall satisfaction with digital library services (Kumbar and Sumadevi, 2019).

Roop and Krishnamurthy broadly grouped digital library research in two groups. One that provides services with intervention of librarian like alerting service, digital reference services, SDI, CAS etc. and the other research which covers technical aspect of digital library services like metadata, harvesting system, ontology, improving search engines. Tom-George and Nsirim included electronic/digital information services, electronic transmission of documents; maintaining of on-line subscriptions and purchase; current awareness services, selective dissemination of information, access to databases and online instruction, digital reference services. This study is however, limited to current awareness services, digital reference service and online instruction and how they could be facilitated by collaborative technologies.

Current awareness service could be described as a library service that keeps users updated with the latest happenings in their subject areas of interest. It could be used synonymous with alerting services and notification services. To further buttress this point, Iyan and Otun noted that the latest documents made available in the library are displayed for user's information or if any users have a need, he could place an order for such and would be informed when such material arrives the library through social media platforms such as Facebook. It could also be sent through email, memos, telephone calls etc. CAS reviews publications immediately on arrival in the library, selecting information pertinent to users' needs hence; a special form of CAS is called selective dissemination of information.

Digital reference service is also an integral part of digital library services. The term digital reference service is the use of computer-based technology to provide answer to users' query. Oluwabiyi described digital/virtual reference as a new type of service based on the same question and answer type of assistance provided in traditional in-person reference. It involves the collaboration between library user and librarian, in a computer-based medium. These services can utilize various media, including e-mail, web forms, chat, video, web customer call center software. Librarians can through e-mail for example provide support for users who find online tools and resources unfamiliar, difficult to learn, or insufficient to answer their information needs. Digital reference

services also entail the provision of valuable user feedback to collection builders so that they may better tailor their resources.

Online library instruction is also a digital library service. Library instruction is acquainting users with enough knowledge on the use of library so as to enable them use the library resources effectively. Ogbonna and Nsirim confirmed that libraries have adopted different methods of instructing users on the use of library resources including librarians guided library tour, use of library course, library guide and one-on-one guidance. However, with the wide reception of technologies methods in library services delivery, academic libraries are beginning to exploit instructional technologies in library instruction such as web or video conferencing which can be used to show the various areas of the library and enable librarians instruct the potential users on the use of the library.

Collaborative technologies have become necessary in sustaining digital library services. Munkvold (n.d) describe collaborative technology as computer mediated technology that allows for interaction and cooperation among people. This encompasses teleconferencing, distributed work, computer-mediated communication, groupware, computer-supported cooperative work, collaborative computing, group decision support, group support system, electronic meeting system, virtual teams, digital collaboration, and e-collaboration. Specifically collaborative technologies include e-mail, video conferencing, video walls, Listservs, discussion boards, chat rooms, knowledge repositories, workflow management systems. This study however, used three collaborative technologies that could facilitate current awareness services, digital reference services and online instruction which are Facebook, email and video conferencing.

E-mail according to Chavan and Aute refers to the transmission of a message electronically through electronical signals. It is a non-simultaneous interpersonal electronic communication and one of the technologies which has become a very popular media in most of the developed nations for public and private message handling. Libraries and information centers have come to realize the effectiveness of this media and have started using it for their routines. E-mail technology uses the store and forward model. In this model, the users send and receive information own computer terminal. Email can be used to send direct messages to users and delivery documents to them such as selective dissemination of information. Ugboma and Edewor in their study on the use of e-mail in providing library and information services in higher institution libraries in Delta State Nigeria revealed that e-mail is occasionally used in providing library and information services in higher institutions.

Facebook is a social media platform that allows one to use electronic devices and the internet to connect, chat and update users on current happenings. These are interactive allowing visitors to leave comments, message each other *via* widgets on the blogs and it is the interactivity that distinguishes them from other static websites. It has affected the social life and activity of people in various ways. It is just like social phenomena that not just connect people together but generate and contributes the web contents itself. Libraries are now utilizing Facebook to render current awareness services to notify users about current library events and activities such as library week activities, literacy programs, new arrivals of information resources in the library, etc. Igwela and Nsirim posited that using Facebook can be an effective way for academic libraries to connect with their user community and that by posting updates on Facebook, libraries can inform their users about the library's programmes and services. Furthermore, they can invite students to attend training sessions, post practical information about the library's opening times, link to new and existing print and online resources and update the university community about new developments. Followers can also engage with the library by commenting on posts and sharing them with their friends. In support of the use of Facebook in digital library services delivery, Oriegu et al., noted that librarians can utilize social media such as Facebook to communicate with users, provide digital reference services, provide current awareness services in order to facilitate and sustain digital library services.

Video conferencing is the technology that allows transmission and reception of audio and video data over a network for communication between users at different remote locations in real-time. Kagan opined that video conferencing is a technology that allows users in different locations to hold face-to-face meetings without having to move to a single location together. Video conferencing can be among groups of people from different remote locations or between two persons point-to-point. Video conferencing also regarded as Web Cam Services is applicable in-service deliveries as a remedy for communication problems in inherent text based services. This digital form includes visual elements where user and librarian can both interact just similar to face-to-face interview. Video conferencing allows for improved communication abilities, enhance opportunities and productive collaboration. Some popular video conferencing tools are zoom, skype, google hangouts, google meet and google classroom. Video conferencing can be used to take students on field trips used to be restricted to where would be difficult to reach geographically. It can also be used to carry out orientation programmes in the library. Umaru and Omame investigated the application of social media and video conferencing in smart libraries can enable libraries deliver it services effectively. The study discovered that video conferencing helps the library user to have direct

access to the library and librarian without physically visiting the four walls of the library. As a result of video conference in the 21st century, libraries can key into them to exploit its potentials in effective service deliveries by creating video conferencing applications like zoom, skype, google hangouts etc. for a video chat with potential library patrons. This is because according to Watts, in a screencast video, a librarian demonstrates actions and inputs on a web page or a software program, usually with voice narration that describes the actions as they are being performed. Video instruction provide a visual demonstration of an actual task or skill or a visualization of a concept.

MATERIALS AND METHODS

The study adopted a correlational research survey design. The population of the study was 66 librarians comprising all the state government owned academic libraries in Rivers State. They are Captain Elechi Amadi Polytechnic Library, Port Harcourt (9), Dame Patience Goodluck Jonathan Automated Library, Ignatius Ajuru University of Education, Port Harcourt (11), Donald Ekong Library, University of Port Harcourt (16), Federal College of Education (Technical) Library, Omoku (9), Federal Polytechnic of Oil and Gas Library, Bonny (4) Ken Saro-Wiwa Polytechnic Library, Bori (6) and Rivers State University Library, Port Harcourt (11). Census sampling techniques was used to select all the respondents. Online Questionnaire titled Collaborative Technologies for Sustaining Digital Library Services Questionnaire (CTSDLSQ) was used for data collection. A total of 55 responses were recorded and found valid for analysis. The data was analyzed using mean and standard deviation for the research questions and Pearson Product Moment Correlation for the hypothesis. The decision to accept and reject was based on the criterion mean of 2.5 which implies that any item with the mean score of 2.5 and above was accepted and rejected if otherwise. The acceptance and or rejection of the hypotheses were based on the p-value and significant level of 0.05. This implies that if the p-value is less than the significant level of 0.05, the null hypotheses would be rejected, but would be accepted if otherwise.

RESULTS AND DISCUSSION

Research question one: What is the relationship between Facebook use by librarians and sustenance of current awareness services in Rivers State academic libraries?

The result from Table 1 shows that librarians used Facebook to update users about library events (3.3), alert users of new arrivals of library materials (3.1), Notify users of new development in the library (2.5). On the other hand, the respondents disagreed that they informed users about subscribed databases (2.3) and that they posted images of books and journals newly acquired (2.2). However, the weighted mean of 2.7

indicates that the respondents were using Facebook for current awareness services.

Table 1: Summary of mean and standard deviation on the relationship between Facebook and sustaining current awareness services in Rivers State academic libraries.

I use Facebook to	\bar{x}	Decision
Update users about library events	3.3	Agreed
Alert users of new arrivals of library materials	3.1	Agreed
Notify users of new development in the library	2.5	Agreed
Inform users about subscribed databases	2.3	Disagree
Post images of books and journals newly acquired	2.2	Disagree
Weighted mean	2.7	Agree

Research question two: What is the relationship between librarians' use of email and sustenance of digital library services in Rivers State academic libraries?

The result from Table 2 indicates that most of the respondents were not using email to render selective dissemination of information (2.3), refer users to where they could access resources not available in their library

(2.1), deliver current awareness services (2.0), instruct users on how to access electronic databases (1.5) and provide ready reference services (1.2). The weighted mean of 1.8 indicates that librarians in academic libraries in Rivers State were not using email to render digital reference services.

Table 2: Summary of mean and standard deviation on the relationship between librarians' use of e-mail and sustenance of digital library services in Rivers State academic libraries.

S. no	I use e-mail to	\bar{x}	Decision
1	Refer users to where they could access resources not available in their library	2.1	Disagree
2	Render selective dissemination of information	2.3	Disagree
3	Deliver current awareness services	2	Disagree
4	Provide ready reference services	1.2	Disagree
5	Instruct users on how to access electronic databases	1.5	Disagree
	Weighted mean	1.8	Disagree

Research question three: How does librarians' use of video conferencing relate to the sustenance of online instruction services in Rivers State academic libraries?

The result from Table 3 indicates that librarians in academic libraries in Rivers state were not using video

conferencing tools to describe the various units of library (2.2), showcase the resources of the library (1.5), instruct user on the overview use of the library (1.4), demonstrate the services of the library (1.3) and instruct users on the use of library databases (1.2). The weighted mean of 1.5

indicates that video conferencing was not used in the sustenance of online instruction services in academic libraries in Rivers State.

Table 3: Summary of mean and standard deviation on the relationship between librarians' use of video conferencing and sustenance of online instruction services in Rivers State academic libraries.

S. no	Use of video conferencing tool to	\bar{x}	Decision
1	Describe the various units of library	2.2	Disagreed
2	Demonstrate the services of the library	1.3	Disagreed
3	Showcase the resources of the library	1.5	Disagreed
4	Instruct users on the use of library databases	1.2	Disagreed
5	Instruct user on the overview use of the library	1.4	Disagreed
	Weighted mean	1.5	Disagreed

Hypothesis one: There is no significant relationship between librarians' use of Facebook and sustenance of current awareness services in Rivers State academic libraries.

The result from Table 4 shows that the pair of librarians' use of Facebook and sustenance of current services in Rivers State academic libraries has a correlation coefficient of $r=0.564$ which indicates a positive and moderate relationship and is statistically significant at 0.05 alpha level ($r=0.564$, Sig. $0.002 < 0.05$) thus, the hypothesis which earlier stated that there is no significant

relationship between librarians' use of Facebook and sustenance of current awareness services in Rivers State academic libraries was rejected. It can therefore, be stated that there is a significant relationship between librarians' use of Facebook and sustenance of current awareness services in Rivers State academic libraries.

Table 4: Summary of Pearson product moment correlation between librarians' use of Facebook and sustenance of current awareness services in Rivers State academic libraries.

S. no	Variables	Facebook	Sustenance of current awareness services
1	Facebook		
	Pearson correlation	1	0.564
	Sig. (2-tailed)		0.002
	N	55	55
2	Sustenance of current awareness services		
	Pearson correlation	0.564	1
	Sig. (2-tailed)	0.002	
	N	55	55

Note: *Correlation is significant at the 0.05 level (2-tailed).

Hypothesis two: There is no significant relationship between librarians use of e-mail and sustenance of

digital library services of information in Rivers State academic libraries.

The result from Table 5 shows that the pair of librarians' use of e-mail and sustenance of digital reference services in Rivers State academic libraries has a correlation coefficient of $r=0.210$ which indicates a positive and weak relationship and is statistically significant at 0.05 alpha level ($r=0.210$, Sig. $0.004 < 0.05$) thus, the hypothesis which earlier stated that there is no significant relationship between librarians' use of e-mail

and sustenance of digital reference services in Rivers State academic libraries was rejected. It can therefore, be stated that there is a significant relationship between librarians' use of e-mail and sustenance of digital reference services in Rivers State academic libraries.

Table 5: Summary of Pearson product moment correlation between librarians' use of e-mail and sustenance of digital reference services in Rivers State academic libraries.

S. no	Variables		E-mail	Sustenance of digital reference services
1	E-mail	Pearson correlation	1	0.21
		Sig. (2-tailed)		0.004
		N	55	55
2	Sustenance of digital reference services	Pearson correlation	0.210	1
		Sig. (2-tailed)	0.004	
		N	55	55

Note: *Correlation is significant at the 0.05 level (2-tailed).

The result from Table 6 shows that the pair of librarians' use of video conferencing and sustenance of online library instruction services in Rivers State academic libraries has a correlation coefficient of $r=0.177$ which indicates a positive and weak relationship and is statistically significant at 0.05 alpha level ($r=0.177$, Sig. $0.004 < 0.05$) thus, the hypothesis which earlier stated that there is no significant relationship between librarians' use

of video conferencing and sustenance of online library instruction services in Rivers State academic libraries was rejected. It can therefore, be stated that there is a significant relationship between librarians' use of video conferencing and sustenance of online library instruction services in Rivers State academic libraries.

Table 6: Summary of Pearson product moment correlation between librarians' use of video conferencing and sustenance of online library instruction services in Rivers State academic libraries.

S. no	Variables		Video conferencing	Sustenance of online library services
1	Video conferencing	Pearson correlation	1	0.177
		Sig. (2-tailed)		0.004
		N	55	55
2	Sustenance of online library instruction services	Pearson correlation	0.177	1
		Sig. (2-tailed)	0.004	
		N	55	55

Note: *Correlation is significant at the 0.05 level (2-tailed).

Discussion of the Findings

Librarians use of Facebook and sustenance of current awareness services in Rivers State academic

libraries: The result from hypotheses one indicates that there is a moderate and significant relationship between librarians' use of Facebook and sustenance of current

awareness services in Rivers State academic libraries. This study is in line with the study of Oriegu et al., who observed that librarians can utilize social media such as Facebook to communicate with users, provide current awareness services in order to facilitate and sustain digital library services. This could be as a result of the wide adoption of Facebook and librarians comfort level in utilizing Facebook for interaction and ease of current awareness service delivery.

Librarians use of e-mail and sustenance of digital reference services in Rivers State academic libraries:

The result from hypotheses two indicates that there is a weak but significant relationship between librarians' use of e-mail and sustenance of digital reference services in academic libraries in Rivers State. This implies although there is a significant relationship but the relationship is weak. This could be due to poor adoption of email in digital reference services. The study confirms an earlier study by Ugboma and Edewor on the use of e-mail in providing library and information services in higher institution libraries in Delta State Nigeria and revealed that e-mail is occasionally used in providing library and information services in higher institutions.

Librarians use of video conferencing and sustenance of online library instruction in Rivers State academic libraries:

The result from hypotheses three indicates a weak but significant relationship between librarians' use of video conferencing and sustenance of online library instruction in Rivers State academic libraries. The study agrees with Saka and Adegboye on use of video conferencing and e-mailing system in computerized academic libraries in Nigeria and discovered that video conferencing was weakly used for communication between users and librarians. Umaru and Oname, however, noted that video conferencing helps the library user to have direct access to the library and librarian without physically visiting the four walls of the library.

CONCLUSION

Digital library services focused mainly in delivering in house services such as application of integrated library management systems in rendering library housekeeping activities, use of barcode technologies, use of artificial intelligence, including provision of electronic resources, internet services in the library, computers. Interestingly, with the widespread of collaborative technologies such as Facebook, e-mail and video conferencing, libraries could leverage on them to collaborate with users and render current awareness services, digital reference services and online library instruction services. The study revealed the use of Facebook for current awareness services but poor usage of e-mail for digital reference services and poor use of video conferencing for online library instruction in Rivers State academic libraries. Notwithstanding, the study discovered that there is a significant relationship between collaborative technologies (Facebook, e-mail and video conferencing)

and sustenance of digital library services in academic libraries in Rivers State.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations were made:

- Rivers State academic libraries should put more efforts in leveraging Facebook to collaborate with users and render enhance and facilitate current awareness services.
- Rivers State academic libraries should enforce the use of email for digital reference services
- Video conferencing should be integrated into user education programmes in Rivers State academic libraries as this will give the ones not physically present to be instructed online.

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