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The Information Technologist: An International Journal, of Information Communication Technology (lCT) is a referred Journal by Nigerians and foreign renowned Scholars who have distinguished themselves in the field of Information Communication Technology (lCT)

Essentially the journal concerns itself with the pervasive impact and the changes in the basic character of library and information operations and services occasioned by the use of technology.

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THE INFORMATION TECHNOLOGIST
AN INTERNATIONAL JOURNAL OF INFORMATION
AND COMMUNICATION TECHNOLOGY

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ADOPTION OF WEB 2.0 BY ACADEMIC LIBRARIES IN NIGERIA

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Abstract

This study is an attempt to ascertain the extent to which academic libraries in Nigeria have adopted web 2.0 for library services. The researchers surveyed these libraries by visiting their websites and social media pages to determine the level of adoption and implementation of web 2.0 tools. The libraries were classified into 3 groups and the adoption of web 2.0 was tested across the groups using Analysis of Variance. Other data gathered were analyzed and presented using tables. The analysis indicates that the adoption of the web 2.0 tools in information services is still at the budding stage. Only a few of the libraries have a proper structure for the coordination and integration of these tools in the delivery of information services. A significant proportion of those in this category are private university libraries. The implementation of web 2.0 tools on the websites of the federal and state universities is not as advanced like those of their counterparts in the private universities. Beyond the hype, it is important for academic libraries to implement the emerging technology to maximize its benefits for teaching, learning and research, and also to promote the relevance of libraries in the changing information terrain.

Key Words: Web 2.0, Academic, Libraries, Nigeria

Introduction

The advancement in technology experienced in the last two decades has resulted in a change in the information terrain. As a result, library users now prefer online information services instead of the conventional library services. A typical technology responsible for the change in users' behavior and library services is Web 2.0. The concept is a second-generation web-based technology which was first mentioned in 1999 by Darcy DiNucci and later popularized by Tim O'Reilly and Dale Dougherty at the O'Reilly Media Web 2.0 Conference in 2004 (Graham, 2005; Imran, 2011: O'Reilly, 2005).

Popular applications of web 2.0 technology include blogging, instant messaging (IM), Really Simple Syndication (RSS), social bookmarking, social networks (for example, Facebook, MySpace), virtual communities (for instance, second life) and wikis (Casey & Savastinuk, 2010). Web 2.0 tools allow users to create, describe, post, search, collaborate, and communicate online content in various forms, ranging from music and bookmark to photographs and document. They also allow users to create content via social networking tools using mobile phone.

The application of web 2.0 tools in the delivery of library services led to the emergence of the term Library 2.0. It was first coined by Michael Casey on his blog (Library Crunch) in September 2005. It is a pronounced revolution in the delivery of information services with vast potential that has influenced library services and user information behavior globally (Chua & Goh, 2010; Miller, 2005).

According to Xu et al. (2009), Library 2.0 comprises all kinds of libraries with academic libraries at the forefront. Habbi's (2006) pioneer work on the concept describes it as a subset of library services designed to meet users information need as a result of the effects of Web 2.0. He developed a model tagged "academic library 2.0". Although Habib's model is robust, it did not cover research activities. It only describes how web 2.0 tools could be applied in academic libraries for reference services, cataloguing and acquisition of library materials (especially e-resources). Although controversial, Library 2.0 seems to be technology-driven. However, it has also been argued that it is not solely about technology; rather, the concept also incorporates the changing activities and services of libraries (Shoniwa & Hall, 2008).

Considering the applications and the potential of the concept (Library 2.0) mentioned, to remain germane, and also improve the relevance of libraries as the information terrain changes, it is important for academic libraries, especially those in

Nigeria, to embrace the concept. Although many studies have stressed the enormous potential of the emerging technology in promoting collaboration and fostering innovation in the delivery of library services, little work has been done to explore the application of web 2.0 in library services by academic libraries in Nigeria.

Therefore, this study is an attempt to ascertain the extent to which academic libraries in Nigeria have adopted this concept for library services. The study is a survey of 126 university libraries in Nigeria, comprising federal, state and private universities. The researchers surveyed these libraries by visiting the webpages used for social networking to determine the level of adoption and implementation of web 2.0 in order to:

- identify academic libraries using web 2.0 tools in Nigeria
- identify web 2.0 tools used by academic libraries in Nigeria
- and how web 2.0 tools were applied in library operations and services.
- determine the difference in the level of adoption of web 2.0 tools by the three categories of academic libraries

Review of Related Literature

Most of the publications on web 2.0 and libraries in recent years have considered the term conceptually. However, four studies, apart from Habib's work, are particularly pertinent. A study conducted by Liu (2008), which analyzed the websites of Association of Research Libraries members, is a relevant study that recommends that the future academic library website should be designed in such a way that library users will be engaged in the process via relevant web 2.0 tools. Kim and Abbas (2010), exploring the use of Library 2.0 functionalities by academic libraries, scrutinized the websites of randomly selected 230 academic libraries and 184 users to determine the level of adoption of the tools. They discovered that RSS and blogs were widely adopted by

academic libraries, while users widely utilized the book mark function.

Another survey of 81 academic libraries in the New York State revealed that less than half (42%) of the libraries used one or more web 2.0 tools such as blogs; and the implementation of the tools in individual libraries varied. Instant messaging takes the lead in terms of frequency of use, followed by blogs and RSS. The study also proposed a conceptual framework of the academic library 2.0. The model visualizes academic library 2.0 in a three dimensional space and it signifies that academic library 2.0 evolves from library 2.0 and features what is unique to academic libraries (Xu et Al., 2009).

Likewise, Shoniwa and Hall (2008), assessing the perception and extent of use of the emerging technology by academic libraries in the United Kingdom, revealed that library 2.0 is predominantly viewed as the selective application of web 2.0 tools and techniques with user services at the heart of any implementation. They argue that library 2.0 does not present a new paradigm in library services or activities; it has only influenced the way information services are delivered.

Chua and Goh (2010) mention four activities of the library based on an initial work by Clausen (1999), namely: information acquisition, information dissemination, information organization, and information sharing with relevant web 2.0 tools that can be used to enhance the delivery of these services. Several authors have identified major web 2.0 tools that can improve library services to evolve a user-centered service model.

Goodfellow and Graham (2007) submit that blogs and wikis are pertinent tools that can be used for information acquisition. While blogs can be used by librarians to facilitate discussions with users, wikis can be used by faculty member to develop subject guide, resource lists or training resources for users. Manes (2006) also identifies another relevant tool known as Really Simple Syndication (RSS), which can be used to disseminate information to users. It can be used for current awareness services where users receive alerts on new acquisitions and services provided by the library. For information organization and sharing, tagging services, instant messaging and social networking services have been noted as vital tools. Tagging services, according to Gibbons (2008), can be used to organise resources for easy searching and retrieval of information. As regards information sharing, social networking services and instant messaging can be used for sharing information or online reference services. In addition, libraries can maximize the benefits of web 2.0 tools by adopting other services, such as Facebook and MySpace, to evolve strong virtual social networks.

Methodology

This study adapted the methodology used by Xu et Al. (2009), in a study of 81 academic library websites in the New York State mentioned earlier. In order to gather data for the study, the websites and webpages used for social networking by all academic libraries in Nigerian universities accredited by the National Universities Commission was accessed via their websites and Google search engine. The list of accredited universities was retrieved from the website of National Universities Commission in September, 2014. The webpage of each library was examined to determine any link or application of web 2.0, which include blogs, IM, podcasts, RSS, social networks, tagging and wikis. In situations where the homepage did not show the application of web 2.0 tools, the entire website was then searched via links from the first page to the last page or level. If a library had a search engine on its website, then specific web 2.0 names, like RSS, IM, and blog, were used to locate and confirm its implementation on such site. A library is determined as having

no web 2.0 presence if it has no social network page and where searching or browsing efforts on the library's webpage or Google yields no result.

Academic libraries were chosen for this study because they are more vibrant and active when compared with public libraries in Nigeria (Awoyinfa et al., 2012) Thus, a survey of university libraries in Nigeria can reasonably reflect the status of academic libraries in the country with regard to the application of web 2.0 tools. The familiarity of the researchers with the academic library terrain was another reason.

Each of the 126 libraries was examined to identify web 2.0 tools used by academic libraries, the purpose of using these technologies and how web 2.0 tools were applied in library operations and services. The libraries were classified into 3 groups and the adoption of web 2.0 was tested across the groups using analysis of variance. Other data gathered were analyzed and presented using tables.

Results and Discussion

The researchers visited the websites and social media pages of the libraries of the 126 universities registered with the Nigerian Universities Commission (NUC) in Abuja, Nigeria, as at September 2014. The web pages were visited to identify web 2.0 tools used by the libraries and how the tools were applied for library services and activities.

Figure 1 indicates that 94.4% (119) of the institutions out of a total of 126 had implemented at least one web 2.0 application, while 5.6% (7) had not adopted the emerging technology at all. This implies that a significant proportion of the libraries used one or more web 2.0 tool for various purposes. However, the researchers observed that the level of adoption was low and implementation of web 2.0 tools was still at the peripheral stage. This corroborates Anuobi and Ogbonna (2012), who revealed low level of awareness and use of web 2.0 tools amongst librarians in academic libraries in a study in Nigeria.

Table 1: Academic libraries using web 2.0 tools in Nigeria

Web 2.0 tools	Frequency	Percentage
Used	119	94.4%
Not used	7	5.6%
Total	126	100%

Web 2.0 tools used by academic libraries in Nigeria include Facebook, RSS feed, Twitter, YouTube, blogs, Google+, LinkedIn, Online help desk, Wikipedia and Instant Messaging (online chat). Facebook took the lead in terms of frequency of adoption by the libraries (Facebook, 77), followed by Twitter (54), YouTube and Wikipedia (39), as captured in Table 2.

Table 2: Web 2.0 Tools adopted by the Three Categories of Academic Libraries in Nigeria

Web 2.0 tools	Federal	State	Private	Frequency	Percent-age
Facebook	25	22	30	77	23%
RSS feeds	3	5	10	18	5%
Twitter	16	26	12	54	16%
YouTube	11	14	14	39	12%
Blog	3	8	2	13	4%
Google +	5	4	4	13	4%
LinkedIn	3	6	10	19	6%
Tagging	4	10	15	29	9%
Online helpdesk	1	10	2	13	4%
Wikipedia	13	16	10	39	12%
Online chat	2	10	3	15	5%

Facebook and Twitter were the most popular web 2.0 tools implemented by the academic libraries. This was followed by YouTube and Wikipedia. This is contrary to what was obtained in previous surveys of academic libraries in the United States and the United Kingdom. Xu et al. (2009) findings in a survey of academic libraries in New York State in the US, revealed Instant Messaging(IM) and blogs as the most popular tool. Instant Messaging was easily adapted for reference services and blogs were integrated with RSS to sort and filter news updates. However, in a similar study in

the UK by Shoniwa and Hall (2008), RSS was the most popular tool, followed by blogs. The RSS feed on libraries' site in the United Kingdom were also integrated with the library blogs. The two tools were used for library news, updating users on new acquisition and how to subscribe to and use library blogs.

In Nigeria, the application of web 2.0 tools on the websites of academic libraries does not follow an integrated approach and is still uncoordinated. Information gathered from the websites of the academic libraries visited by the researchers revealed that the implementation of the emerging technology

was uncoordinated on most of the sites visited. Some of the web pages on which web 2.0 tools were implemented were standalone and were not linked to the libraries' website. As a result, users visiting these sites for the first time may not be aware of the web 2.0 tools being implemented by the libraries. For example, the Facebook page and Twitter handle of the premier academic library, Kenneth Dike Library of the University of Ibadan in Nigeria, was not linked to the library's website. This was also the situation with some of the library websites visited.

Table 3: How web 2.0 tools were applied in library operations/activities

Library Service/Activites	Percentage
Enquries and Reference services	91(23%)
Update on library programs	47(12%)
Current awareness service	99(25%)
Documentary/Lectures	39(10%)
Online catalogs of text books and past questions	29(8%)
News update	32(8%)
History	56(14%)

The most popular application of web 2.0 tool (Facebook) in library operations and activities, is used for current awareness service (25%), followed by reference services (23%) and update on library programmes (12%). For example, Kenneth Dike Library, University of Ibadan, and Hezekiah used their Facebook pages for enquiries, information on new arrivals/scholarships and announcement on library orientation programmes. Only 10% used YouTube for documentaries, recordings of convocation ceremonies and lectures. 14% of the 126 academic libraries used Wikipedia for history (of the library and institution), whereas only 32 (8%) used it for news update. A few (8%) of the libraries implemented tagging services for online catalogs of textbooks and past questions. The

tagging service was used by Robert Pastor Library and E-learning Centre of the American University of Niger State, for its Online Public Access Catalogue (OPAC). The same service was used by the library at the Redeemer's University for the organisation of its past question papers. Only 4% of the 126 libraries used blogs for news updates. An example is the library at the Afe Babalola University. This is unlike what is obtainable in the UK and US, where a significant number of the academic libraries use blogs for news update. Libraries such the Library of the Covenant University in Ogun State and Festus Aghagbo Nwako Library, Nnamdi Azikwe University used other web 2.0 tools, like RSS feeds and Twitter, to keep library users informed about latest

happenings in the libraries and institutions. Table 3 offers details.

The analysis also revealed a significant difference in the level of adoption of web 2.0 tools among academic libraries (private, state, and federal universities' libraries, $F=4.405$, df $=58$; $p<0.05$). Private universities had a higher level of adoption of web 2.0 tools (Mean= 4.84, S.D= 4.33) than their counterparts at the state (mean=3.13, S.D= 1.41) and federal levels (mean =3.64; S.D=2.87) respectively. This implies that private university libraries have adopted more web 2.0 tools. This was followed by federal university libraries and lastly by state university libraries.

Table 4: ANOVA showing the level of adoption of web 2.0 tools by universities

Variable	Variable	N	Mean	Std. D	T	Df	Sig	Remark
social media	Private	47	4.84	4.33	4.405	58	.002	Significant
	State	39	3.13	1.41				
	Federal	40	3.64	2.87				

Conclusion

The adoption of web 2.0 tools in the delivery of information services, as revealed by the websites and social media pages of academic libraries in Nigeria showed that the use of the tools in library activities is still at the budding stage. Only few of the libraries had a proper structure for the coordination and integration of these tools in the delivery of information services. A significant proportion of those in this category were private university libraries. The implementation of web 2.0 tools on the websites of the federal and state universities was not as advanced as those of their counterparts in the private universities.

Beyond the hype surrounding the concept, academic libraries need to fully implement web 2.0 tools to maximize the benefits of the technology: These tools can be implemented in a manner that will generate feedback from users. They can also help improve the versatility of academic libraries in supporting teaching, learning and research, if properly implemented and coordinated in the library system. This should help evolve a user-centric model of service which can promote the relevance of academic libraries in Nigeria, since users (librarians and library patrons) are at the center of the emerging technology (Xu et al. 2009).

To evolve this kind of model, it is important to further investigate users' perception of the concept, challenges and issues associated with its implementation. An evaluation of the adoption of the technology should also be carried out to determine its impact on teaching learning and research. Furthermore, the capacity of academic librarians should also be developed in this area through training programmes to stimulate the use and acceptance of the technology by the users.

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