

## Web 2.0 and Nigerian Academic Librarians

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### Abstract

Web 2.0 applications to library services are aimed at enhancing the provision of relevant and cost-effective information resources for quality education and research. Despite the richness of these web applications and their enormous impact on library and information services as recorded in the developed world, Nigerian academic libraries are yet to deploy and overcome the challenges of active participation in the application and use of these new technologies to library services. This paper reviewed various success stories of the Web 2.0 technologies to library and information services delivery around the world; competencies required and why Nigerian academic librarians should adopt, embrace and apply Web 2.0 to their academic library services. The paper recommended amongst others, the need for Nigerian academic libraries to take a policy decision on implementation of Web 2.0 technologies to library services; developing adequate core competencies required for librarians in Nigerian higher education institutions and a need for professional development of academic librarians.

**Keywords:** Librarian 2.0, Library 2.0, Nigerian Academic Librarians, Nigerian Academic Libraries, Web 2.0 for library services.

### 1. Introduction

Information can better be described as the heart of any society; without which the society will be dead. Information is indeed the pivot on which the survival of any society rests. Man has over the years realized the importance of information to his survival, hence his decision to ensure adequate preservation of generated or acquired information for future consultation and various forms of use. Knowledge which is a pertinent ingredient in planning and decision making is derived from experience(s) gained from relevant information. Information which now occurs in various forms (print, non-print, electronic as well as social media tools and sites) are made available and accessible for use by library and information science professionals in the different types of libraries, whether school libraries, public libraries, research or academic libraries.

Library is the entity devised by man to handle the sourcing, generation, acquisition, processing, preservation, management and dissemination of information all sorts in different formats to members of any community. Osa (2003) expressed that Librarianship as a profession came into existence to preserve and make accessible records of human experience. The human society as a growing organism expects that a knowledge management organization like the library must be dynamic and responsive to changes occasioned by growth and developments. One of such development is the advent and adoption of information and communication technology (ICT) to societal chores and endeavours. ICT has no doubt invaded and impacted positively on the information world, especially libraries where it has made possible establishment of digital and electronic libraries to complement library and information services delivery. ICT has also permitted effective organization and management of information for use of library staff and patrons, capacity building and electronic resources sharing which has brought about effective and low cost of library operations (on the long run), ease of access and use of resources and satisfying the changing needs of library users. The information technologies have not only changed the way information is generated, organized, stored, processed and disseminated but more importantly, how information is being used by various individuals in the university community for studying, research, teaching and learning.

ICT has also enhanced interest in the use of new web-based technologies offered by social media popularly known as Web 2.0 which has also positively influenced the way individuals and organizations collaborate, interact and connect online. Web 2.0 which is an offshoot of ICT development and adoption to societal endeavor is an improvement over Web 1.0. This concept was first mentioned and made popular by Tim O'Reilly and Dale Dougherty of O'Reilly media in 2004 which described the trends and business models that survived the technology sector market crash of the 1990 (O'Reilly, 2005). Zadeh, Veisi and Zadeh (2013) posited that companies, services and technologies that survived the technology market crash had certain characteristics in common; they were collaborative, interactive and dynamic in nature. Web 2.0 and its tools have brought significant changes not only to the way individual use the world wide web, but also the way individuals seek, use and create information (O'Reilly, 2005). Proactively, the application of Web 2.0 tools to library practices and services had been discussed at several business and academic fora. Zadeh et al (2013) posited that the use of these Web 2.0 technologies and applications will constitute substantive and significant changes. To them, there existed a great synchronicity between Web 2.0 and librarianship. It becomes highly imperative for Nigerian academic libraries and librarians to adopt and embrace Web 2.0 applications and services to their libraries and information services in order to offer wide range of quality services, reach users anywhere, anytime, anyhow, wherever, as well as justify their existence and ensure the

survival of Nigerian librarianship.

## 2. Concepts of Web 2.0

Web 2.0 is definitely an improvement on the less dynamic and rigid Web 1.0 which was developed in the 1990, characterized by the use of static web pages, essentially read-only pages for visitors as one way communication where Hyper Text Markup Languages (HTML) was used widely for web publishing. Web 2.0 considered a better web by Abram (2007) was a paradigm shift from Web 1.0 revolved around e-mail, search engines, standard websites, surfing and other interactive platforms. Web 2.0 has been defined in terms of its features and specific technologies, or social impact. The World Wide Web provided the base for Web 2.0 applications to create a new communication environment (Linh, 2008). Macaskilland Owen(2006) described Web 2.0 as a second wave that covers web tools and services. Web 2.0 threw conversations, networking, personalization and collaboration into the mix (Abrams, 2005). While Web 1.0 is a place to go and get, Web 2.0 is a place to be and do (Peltier – Davis, 2009). Web 2.0 ensured the accessibility of software and application that could be subscribed to or downloaded as against the Web 1.0 that required such being purchased and or installed (Abrams, 2005).

Notess (2006) defined Web 2.0 as a second wave of web techniques that created more interactive and easy-to-use websites using new technologies or using older technologies in a new way. Anderson (2007) captured the submissions above, when he described Web 2.0 as ongoing worldwide web technology development that resulted in a set of new technologies and services which include the use of blogs, video sharing tools, social networking and podcasting – reflecting a more socially connected web in which people can contribute as much as they can consume. Stephens and Collins (2007) and Peltier-Davis (2009) described Web 2.0 in simpler ways as read/write web, interactive two-way web, user driven web, social software or social computing. Secker (2008) described Web 2.0 as new tools and services that are changing the way people use the Internet, making it easier to collaborate, communicate and share information. To Makori (2012), it is a second generation of web-based services that include social networking sites (such as, Facebook, YouTube, My Space, Flickr, Twitter, and soon) and support systems (like, online help desk) that allows online collaboration, participation, sharing of information and communication services.

The essence of Web 2.0 is to offer collaborative, interactive, more user-friendly and multi-rich services to users by encouraging information generation, packaging and dissemination on the web in new and interesting ways. Below are some of the benefits of Web 2.0 applications to librarianship:

- Easy information sharing/feedback: Web 2.0 has brought about easy information sharing through the creation and use of applications that enable users to create new content by designing uncomplicated software that could be developed together with feedback from users. Information can thus be easily shared rather than being controlled which encourages cooperation and enhances knowledge or information sharing.
- Provides libraries the opportunity and access to software and applications that can be subscribed to or downloaded as against the case with Web 1.0 where you have to acquire before installation.
- Convenience and low cost in terms of developing and marketing the web-based application.
- Enhances libraries the opportunity to create dynamic online presence and increased awareness.
- Create universal platform for working groups to share and exchange information and knowledge using online discussion forums and other Web 2.0 tools.
- Ability to capture best practices, collaboration and communication features are some of the notable benefits of the technology.

## 3. Concept of Library 2.0

The underlying motive of Web 2.0 is generating, packaging and disseminating information on the web in a form that is readily acceptable to individuals, peers, and the global community without necessarily having web technology competencies. Consequently, developed libraries and librarians have embraced the application of Web 2.0 tools to their library practices, routines and services and have overcome the limitations of Web 1.0 and thus enjoying the opportunities and benefits provided by Web 2.0. They have addressed the ways Web 2.0 could be adopted for effective library services delivery. The result of which is the concept Library 2.0 which has emerged into librarianship and changed the entire mode of library practices as well as changed the way and behavior of users of libraries across the globe. Library 2.0 is one of the major breakthroughs in the evolution of Web 2.0, considering it as one of the places where Web 2.0 has thrived. Library 2.0 is a term coined in 2005 by Michael Casey on his Library Crunch blog, who saw it as a user-centered change and platform that library services could be enhanced using Web 2.0 tools and services (Casey and Savastinuk, 2005).

There is no clear definition for Library 2.0 just as Web 2.0 however, series of authors and researchers have conceptualized Library 2.0 in various ways. For instance, Casey (2005) conceptualized Library 2.0 as a platform in which Web 2.0 is used for the creation, collection, storage, processing, communication, use and retrieval of information to enhance the development and promotion of library services and collections. Habib (2006) while not

disagreeing Casey's submission, believed it too broad, and argued for a narrower definition, hence his reference to the term, Library 2.0 as the application and adaptation of the Web 2.0 model to the library environment (both virtual and physical). Houghton (2005 as cited in Mavodza, 2010) described Library 2.0 simply as making the library's space (virtual and physical) more interactive, collaborative, and driven by community needs. Stating that, the basic drive being to get people back into the library by making the library relevant to users want and need in their daily lives and activities. Miller (2005; 2006) described Library 2.0 as the application of Web 2.0 thinking and technologies to library services and collections. Maness (2006) described Library 2.0 as the application of interactive, collaborative and multi-media web-based technologies to web-based library services and collection and thus suggested that this definition be adopted by the library science community. Maness (2006) however noted that limiting the definition to web-based services, and not library services more generally, avoids potential confusion and sufficiently allows the term to be researched, further theorized, and renders it more useful in professional discourse.

Harinarayana and Raju (2009) described Library 2.0 as an offshoot of Web 2.0 technology that involves essentially a mash-up of traditional library services and innovative web 2.0 services, as a means for promoting and extending information services. Fan and Hu (2006) however, described Library 2.0 theory and principles from two different perspectives, one from a library software developers' point of view and the other from the aspect of personalized service. They also explored Library 2.0 current applications, such as, wiki, blog, RSS, open sources software, application integration and user's participation in resource building and concluded with discussion of challenges associated with these applications as implementation of information technology digital resource construction and usage, librarians' adaptability and orientation of research and development. The researchers however conceptualized Library 2.0 as undoubtedly one of the major successes of the Web 2.0 initiatives and acknowledged that Library 2.0 implied library services that have been planted and thriving on the principles of Web 2.0 technologies and tools.

Curran, Murray and Christian (2007) viewed Library 2.0 as a reaction from librarians to adopt the Web 2.0 tools that are relevant to library functions, noting that, the implementation of Web 2.0 tools can help libraries target individuals in the population who never visited the library to use their services as well as deliver a new range of services to meet the varying and new demands of web users (Curran et al., 2007). In Web 2.0 environment, librarians can encourage the building of institutional communities through the use of platforms to interact with the library and can also interact with other relevant communities of practice to enhance access to resources (Green, 2008). Chua and Goh (2010) seemed to have this assertion at the back of their mind when they expressed the view that libraries have recognized how the different Web 2.0 applications could be used to increase the level of user engagement. To Brophy (2007), Web 2.0 applications to library services have encouraged purposeful and regular changes through the invitation of users to participate in the creation of both the virtual and the physical library services users desired. Makori (2012) expressed that Library 2.0 has changed the information landscape in libraries perhaps forever. This is because the technology has been instrumental in the development of new information products and services as well as effective in reinventing the image and status of information professionals. Having discussed some of the concepts of Library 2.0, it is important to mention briefly some of the Web 2.0 tools that are being applied to library services and development.

**Blogs:** Blogs have been used as an efficient method of publishing information in an accessible and effective way. Information is presented in innovative ways which allows libraries to communicate with their users and keep them informed about library services and events. Blogs encourage user's reaction and comments to posts; as they contain comment feature where users can post their feedback messages.

**Instant Messaging (IM):** Zadeh et al (2013) expressed instant messaging as another tool which has already been embraced by the library community with the sole aim of communicating with users. It enables real time text communications between individuals. Libraries have employed IM in the area of virtual reference services which simply implies that the client does not have to physically show up in the library before he/she is attended to.

**Really Simple Syndication (RSS):** RSS are used to create feeds in XML for users to subscribe to. This service ensures that users can access any particular piece of information posted on a library blog/web page through this link.

**Wikis:** Wikis are open sites that allow approved users to add and alter a page's content (Boxen, 2008) through a web browser usually using a simplified markup language or a rich text editor. Wikis are being used to present digital data and also to organize information. Wikis are essentially collaborative web pages allowing for higher user participation. Wikipedia is a great example.

**Social Networks:** Social networks according to Zadeh et al (2013) have enabled people, companies, institutions and organisations share information on different levels by creating a profile where documents, pictures, music and video clips are downloaded. E-mails could be sent; blogs could also be posted while instant messaging is possible within the social network sites. Libraries have adopted social networks for their users' interest. Librarians and users are not just afforded the opportunity to communicate on social networks but can as well change and share resources dynamically on the platforms. Examples include Facebook, Twitter, Whatsapp,

LinkedIn amongst others.

**Tagging Tools:** Tagging allows users to create subject headings for resources. It allows users to add and change content (data) and content describing content (Metadata). Patrons can be allowed to make their contents (data) visible on some websites such as Flickr photos.

**Mashups:** Engard (2009) described that Mashups as web-based applications that use content from more than one source in order to create a single graphical interface. Fitcher (2009) claimed that this includes anything from simple mapping of libraries locations to a more complicated mashup which would help users with the content of remote resources based on particular parameters.

**Streaming Media:** YouTube has been the most popular of the streaming media applications that allows users, for example, librarians to post personally developed videos/recordings or video tutorials to train users how to use library resources and access various services in their library.

#### 4. Why Adoption of Library 2.0 By Nigerian Academic Librarians

Literature has documented the relevance and importance of adoption of Web 2.0 tools by librarians within higher education (Casey, 2005; Maness, 2006; Mackenzie, 2007; Kroski, 2007; Matthew, 2008; Chu, 2009; Mavodza, 2010 and HLWIKI Canada, 2012; Lwoga, 2014). Library 2.0 has been considered a change in the way libraries interact with their users. Mackenzie (2007) suggested that Library 2.0 has forever changed the library brand. Web 2.0 has placed new requirements on librarians' competencies and skills. Casey (2005) viewed Library 2.0 as a user-centered model for library services that encourages user participation in the creation of both the physical and digital services. This is because Library 2.0 is essentially about making the library more interactive, collaborative, user-driven and being to get people back into the library by making the library more relevant to users' want and needs. Library 2.0 is about using technology to help librarians become more efficient in their provision of service to patrons. Partridge (2011) noted that with Library 2.0, libraries are no longer about books or even information, but rather, about facilitating people to participate, interact and create, and to provide the means for these to happen. It is therefore imperative that Web 2.0 opportunity be grabbed by Nigerian academic librarians to not only improve promptness, accuracy and relevance of their services but also to provide ubiquitous services and extend the range of their (library) services using the Web 2.0 tools. This assertion has earlier been made by Miller, 2005; Lwoga, 2011; Makori, 2012; Lwoga, 2014 and many other researchers.

Many academic libraries have been perceived as being irrelevant, even, with the emergence of Internet-based services but with the adoption and use of Web 2.0, academic libraries now have the potential of triggering and providing a new range of services and technologies to library users generally. Barsky and Purdon (2006) captured this statement when they expressed that Library 2.0 has the capacity of plugging the library back into the heart of the information business; delivering timely and authoritative content and services at the point of need, whenever, wherever and however possible. Dickson and Holley (2010) expressed that the ubiquitous nature of social media has made academic libraries leverage them to communicate and interact with faculty, staff and students in new ways. Through these platforms, libraries gained insights into what their users want and need and understand users better (Burkhardt, 2010). Social media tools have presented effective means by which new library products, activities, and initiatives could be marketed (Burkhardt, 2010). Makori (2012) expressed that Library 2.0 have enhanced the value of information services while preserving and protecting information, enhanced productivity, effectiveness and efficiency, promoted delivery of services to library patrons as well as effective in reinventing the image and status of information professionals in academic libraries.

Libraries are increasingly adopting Web 2.0 tools to design services that allow them reach users in the virtual space that they could not reach before (Foo and Ng, 2008). Librarians have implemented Web 2.0 tools in libraries to target a segment of potential users in the population who never visited the library to their services and deliver a new range of services to meet the varying and new demands of web users (Curran et al, 2007; Casey and Savastinuk, 2007). Abram (2006) claimed that librarians could guarantee the future of their profession by embracing and exploiting the potentials of Web 2.0 technologies. Furthermore, Bradley (2006) argued that an understanding of Web 2.0 put librarians in a position to do more than they could in the past and being open to it. Chad (2007) however expressed that unless academic librarians embrace the Google generation they will become increasingly marginalized. These are just a few of the reasons why Nigerian academic libraries and academic librarians should adopt, use and apply Web 2.0 technologies into their libraries and library services. It is important also to survey literature on how advanced libraries have applied these web technologies to their library practices and services.

#### 5. Some Usage and Applications of Library 2.0 tools to Library Services

The presence of Web 2.0 applications has significantly changed the role of the library and the way librarians interact with their users. Depending on the needs of the library, different Web 2.0 applications are used for different purposes and definitely will bring different impact/benefits on the library users. Literature revealed that the use of Web 2.0 in developed academic libraries is increasing at a high pace. Unfortunately, there is very little

research evidence on development, implementation and applications of Web 2.0 in Nigerian academic libraries. Nonetheless research studies conducted elsewhere were reviewed.

Linh (2008) appraised the application of web technology adoption in Australian University libraries and revealed that 66% of these libraries have deployed one or more web 2.0 technologies where RSS was found the most widely applied technology. Harinayana and Raju (2010) appraised fifty seven (57) universities' use of Web 2.0 applications in their libraries and found that 37 of the university libraries used RSS and IM tools, while 15 used blogs while social networking sites (SNS), video cast, podcast and wikis were the least applied Web 2.0 tools in these university libraries. Chawner (2008) explored the use of Web 2.0 applications by librarians and information managers in New Zealand and found that from a total of 224 respondents, more than half of the respondents had used SMS text messaging, read blogs, used RSS feeds, looked at images on a content sharing site, and listened to podcasts. The researcher found that there was a high level of interest in understanding and exploring Web 2.0 tools amongst the respondents. Kim and Abbas (2010) extracted 230 libraries from the 459 academic libraries listed on the Yahoo website and investigated their use of web 2.0 tools. 73% of the libraries were found to be using RSS feeds, 65% used blogs and 27% used podcasts.

Hazidah and Mohd (2013) investigated use of Web 2.0 by academic libraries in South East Asia. Their findings revealed that social media, such as, Facebook was commonly used to interact with users, sharing library news or events, sharing pictures as well as marketing library services. The research also revealed that the order of popularity of Web 2.0 applications implemented on their websites were Facebook, Twitter, RSS and Messenger. A wiki-based subject guide has been used for collaboration between academic librarians and the students, for example, the Ohio University created a Biz Wiki of business resources for students in the department (The Ohio University Biz Wiki, 2009 as cited in Dickson and Holley, 2010). The Biz Wiki contained embedded catalog records for books, instructional videos by the liaison librarian, EM reference, and links to the liaison librarian's Facebook and Twitter accounts (Dickson and Holley, 2010). A study of Wikis use among academic librarians revealed that private Wikis allowing only authorized users to edit and read the content were the most common and represented 50% of the Wikis created by academic libraries using the new technology. These were followed by 31.8% of semi-private Wikis, which allow anyone to read the content but only authorized users can edit the page (Chu, 2009).

Social networking websites and tools (for instance, Facebook, Twitter, Whatsapp, LinkedIn, and so on) have become one of the most effective means of communication among young people and college students. These websites and tools are being used to share multimedia objects from photographs to videos and texts. These sites also encourage users to tag and even comment on items posted by fellow users thereby creating a new classification system within the website itself (Dickson and Holley, 2010). Due to high use of these sites and tools among college and university students, librarians used to facilitate academic library outreach with the goal of encouraging academic library usage by faculty and students (Dickson and Holley, 2010). These social networking sites have also been credited with the abilities to expand social contacts, accelerates business processes, improves customer relations, cost-effective recruitment of high-caliber staff and improved morale, motivation and job satisfaction even among library staff (Ram, Kataria, Hopkinson and Paliwal, 2010). In summary, Web 2.0 tools especially the social networking sites and tools have been used by academic librarians in developed countries to accomplish various library functions, such as, teaching and promoting information literacy programmes, handling reference services as well as posting resources, news and information on library social web pages. They have also been used in establishing web presence, sharing information through online discussion groups, promoting effective book recommendation and peer classification of resources for collective intelligence and marketing libraries services and products.

In African countries, there are evidences of implementation of Library 2.0, with academic libraries in South Africa leading the process. Academic libraries in Kenya are slowly realizing the need to implement Library 2.0 with the view to enhance access and provision of information services to the clients or customers (Makori, 2012). Evidence from Taiwan revealed insufficient participation by information service units in corporate knowledge management projects including website and intranet initiatives (Makori, 2012). In Nigeria, the popularity of social media is overwhelming on news media, smart phones and Internet such that its awareness, implementation and application are taken for granted. Web 2.0 implementation, use and application has not found much relevance in libraries by librarians, most especially academic libraries. Olasina (2011) discovered that Web 2.0 use by Nigerian library professionals was not very popular. Atulomau and Onuoha (2011) found out that librarians were more aware of Facebook than LinkedIn, microbloggings tools and Twitter. The study also found that Facebook was the most used while Twitter was the least used among Facebook, Twitter and LinkedIn. Anunobi and Ogbonna (2012) revealed low awareness and use of Library 2.0 by librarians in Anambra state; though their level of awareness was higher than their level of use of the tools. The study further revealed that the academic librarians used the Web 2.0 mainly to communicate with friends and professional colleagues as well as to publicize their profiles. This calls for an attitudinal change on the part of individual Nigerian academic librarians to adopt and embrace the use of these tools for library services.

Library 2.0 is a concept that Nigerian academic libraries have no choice but to adopt and embrace in order

to remain relevant in the present and future information environments. Library 2.0 has changed the information landscape in academic libraries, providing the potential means of taking information services to where users are, anywhere anytime. Library 2.0 initiatives needed to be grabbed by Nigerian academic librarians in order to improve the range and quality of services delivery, reach out to the university campus communities as well as to remain relevant and viable using the Web 2.0 tools. With the advent of Web 2.0, librarians need to update their competencies to include the current and emerging technologies. Updating ICTs and social media knowledge and skills will enable them operate effectively in digital environments. These skills will also assist academic librarians in demonstrating and using technology to get things done in digital and or virtual environments. Murphy and Moulaison (2009) appraised librarians in the developed worlds have responded to the popularity of social media and have used social media to expand their roles in the creation, use, and sharing of information. They further expressed that these librarians have engaged social media as a central medium for interacting with library patrons and provided services to meet patrons' information needs. Nigerian academic librarians thus need to be social media competent so as to use social media provide quality library services and maintain their role as information experts in a Web 2.0 world.

Library 2.0 competencies are the knowledge, skills, abilities and personal attributes that contribute to an academic librarian success in the use of Library 2.0 tools and applications. Library 2.0 necessitates a new paradigm for Nigerian librarianship in order to deal with the rapid changes in technology. There is the need for improvement in the capacities, competencies and attitudes of Nigerian library and information science professionals. There is the need for Nigerian academic librarians to become Librarian 2.0, a major indicating factor for the paradigm shift in librarianship. Librarian 2.0 declared by Abram (2006) as the guru of the information age have the ability, insight and knowledge to influence the creation of the dynamic web and thus guarantee the future of library profession. This assertion was also supported by Huvila, Holmberg, Kronqvist-Berg, Nivakoski, and Widén (2013) when they expressed that with Library 2.0, there has to be a comparable second version of library professionals with corresponding second version qualities. Library 2.0 is challenging librarians' mental modes and thus forcing academic librarians to think about and perceive librarianship differently. Librarian 2.0 should be an attitudinal change for Nigerian library and information science professionals, most especially academic librarians. It is therefore imperative that Nigerian academic librarians start preparing to become Librarian 2.0.

Librarian 2.0 may be seen as an extension of the discussion about Library 2.0. Cullen (2008) claimed that a Librarian 2.0 is foremost, communicative and user-oriented. Abram (2008) also stated that a Librarian 2.0 must have solid knowledge about user behaviour. Chawner (2008) categorized librarians into four roles based on their use of social web technologies as being either: content consumer (passive), content commenter (reactive), content creator (proactive) and or content collector (current awareness). Stephens (2007) created a model of the key skills of a pragmatic blogging librarian as monitoring, gathering, reflecting, sharing, commenting and creating communities. Research by Aharony (2009) also showed that the use of social web technologies among librarians is connected to personal characteristics. Huvila et al (2013) identified extroversion, coping with change, empowerment, computer skills and motivation as factors that play important role in adopting the web technologies. Partridge, Lee and Munro (2010) expressed that Librarian 2.0 skills and traits could be found in many blogs written by library professionals. It is imperative therefore that Nigerian academic librarians possess transferable and interpersonal attributes to succeed in the present and emerging social web environment in order to effectively disseminate adequate, satisfactory, interactive, collaborative and ubiquitous library and information services.

Academic librarians therefore need to be information and digital/media literate. They need to have information and digital/media literacy skills so as to be able to make use of the Web 2.0 tools and also be able to teach patrons (students, lecturers and researchers most especially) how to make effective use of the Web 2.0 tools to satisfy information needs. For instance, Nigerian academic librarians should be visible on the web. They should also be able to use the Web 2.0 tools and services to attract users to the library (online and offline), inform users of library news and events and market their library's new products and services using the Web 2.0 tools. They should also be able to create and conduct/teach library information literacy programmes/instruction using the web-based tools, such as, YouTube and other streaming media. The capability to do all these depends on whether academic librarian is information literate or not. Further, Nigerian academic librarians need to possess adequate social media skills so as to be able to effectively use the Web 2.0 tools to embrace collaborative, interactive, user-driven and multimedia rich library services among their constituencies. They are also expected to teach patrons how to use the Web 2.0 tools to become successful information seekers in the current and emerging web environment. There is thus, the need for professional development and continuous training of academic librarians in Nigerian universities. There is also the need to challenge discussions that will put academic librarians in a good stead to implement and sustain the applications of the web-based tools to academic library services.

Technological applications to our services will definitely come with its challenges. Literature on ICT applications in Nigerian universities and academic libraries have identified several elements or factors as hindrances, obstacles and or challenges. A survey conducted by Oketunji, Daniel, Okojie and Abdulsalaam (2002 as cited in Haliso, 2011) that covered fifty academic libraries in Nigeria identified hinderances to ICT use as

occasional breakdown, erratic power supply, obsolete equipment, lack of maintenance, lack of training support and lack of adequate training for librarians. Other notable elements or factors identified were funding constraint (Oketunji, 2000; Okiy, 2005; 2010; Adebayo, 2008 and Aniedi and Effiom, 2009); lack of institutional commitment (Haliso, 2011); poor/inadequate ICT and telecommunication infrastructures and facilities (Okiy, 2005; 2010; Aniedi and Effiom, 2009; Oshinaike and Adekunmisi, 2012) and lack/inadequate ICT strategy/policy (Adebayo, 2008 and Haliso, 2011). Still other challenges are inadequate ICT staff (Haliso, 2011); lack/poor ICT competencies of librarians (Gbaje, 2007); academic librarians reluctance or attitudes to ICTs use (Sani and Tiamiyu, 2005; Obajemu, 2006; Haliso, 2011).

Further challenges were erratic power supply (Sani and Tiamiyu, 2005; Okiy, 2010 and Haliso, 2011) as well as lukewarm attitude of Nigerian governments (Okiy, 2010). Internet connectivity and availability is an important and associated factor to social media or Web 2.0 tools adoption, implementation and use. Poor or inadequate Internet connectivity and problems associated with Internet connectivity and use have been identified by Otunla (2012) as well as Adekunmisi, Ajala and Iyoro (2013). Even though these studies were not related to social media but elements, such as loss of signal, high cost of data subscription, slow Internet speed, time taken to download information and a host of others identified in the two studies could encourage or discourage social media use among individuals. This catalogue of factors or elements should not deter us (librarians) from exploiting the appreciable opportunities that abound in the use of these web-based technologies. They will definitely improve our professional tasks as well as improve our image or status as guru of the information age.

## 6. Methodology

The study considered books, online documents, empirical and review literature that are relevant to issues discussed in this paper. Notable among these were the works of Abram, 2005; 2006; 2007; 2008; Anderson, 2007; Casey, 2005; Chua and Goh, 2010; Dickson and Holley, 2010; Green, 2008; Peltier-Davis, 2009; Harinarayana, and Raju, 2010; HILWIKI Canada, 2012; Huvila et al, 2013; Makori, 2012; Mavodza, 2010; Partridge et al, 2010; Lwoga, 2014 and a host of others. Many of these literature discussed benefits, opportunities, usage, applications, competencies required and challenges of Web 2.0 tools to academic libraries and librarians. Studies such as those of Chawner, 2008; Dickson and Holley, 2010; Harinarayana, and Raju, 2010; Hazidah and Mohd, 2013; Kim and Abbas, 2010, Linh, 2008 and many others were international and empirical research suggesting adoption, use, usage, application and challenges of Web 2.0 tools among academic libraries and librarians and thus proffered way forward.

Among African literature, Mavodza, 2010; Makori, 2012 and Lwoga, 2014 talked about evidences of implementation of Library 2.0 with a view to enhance access and provision of information services to libraries' clients or customers and also of librarians by (Lwoga, 2014). In Nigeria, Atulomau and Onuoha (2011); Olasina, 2011; Anunobi and Ogbonna (2012) and many others indicated that Web 2.0 use has not found much application in libraries by librarians, most especially academic libraries. These studies further revealed that Nigerian academic librarians used Web 2.0 tools mainly to communicate with friends and professional colleagues and to publicise their profiles. They call for attitudinal changes on the part of individual Nigerian academic librarians. These literatures (local and international) altogether form the basis of arguments of this study. The study however recognized Library 2.0 as a relatively new concept among Nigerian librarianship and thus concluded that Nigerian academic libraries and librarians have no choice but to adopt and embrace the Library 2.0 concept in order to remain relevant in the present and future information environments.

## 7. Conclusion

The implementation of Web 2.0 applications in Nigerian academic libraries is still far from reaching the optimum penetration. This standpoint is premised on the fact that literature on investigation into the implementation of these (web) technologies in Nigerian academic libraries is lean. Whereas, their use in libraries will to a great extent constitute substantive and significant improvements in the way academic library services are delivered in the country. It will encourage interactions between the library staff and users and make library resources completely accessible. It will equally justify our (librarians') existence as information professionals; justify the need for adequate funding to funding authorities and stakeholders and of more importance, increases web metric analysis of Nigerian universities. The fact that many librarians are on one social media or the other points to the relevance of the applications; hence, the need to exploit them in enhancing academic library services delivery in Nigeria becomes more imperative.

## 8. Recommendations

In view of the foregoing, the following suggestions are being offered by the researchers. The university library management that are yet to implement the use of technology, especially the Web 2.0 tools and services should take a policy decision on the implementation of these tools and put in place strategies to acquire and sustain infrastructures and resources to effect this. Such decisions could help direct the library's focus towards putting in

place necessary infrastructure to implement social media technologies. The policy should include strategies for implementation, effective date for implementation and training programs for library staffs, students and other members of the university community.

For effective implementation and integration of Web 2.0 services among Nigerian academic libraries, it is important to follow the success story of academic libraries that have adopted Web 2.0 and are still using them and thus seek technical support or assistance from them. It is also noteworthy to embark upon collaborative initiatives or linkages programmes with them. Other strategies could include assessment of university/campus environment and culture as well as collaboration with university ICT professionals.

The ability to use the computer and other electronic devices is a basic skill required to use the new web-based applications. There is thus the need for training and re-training of academic librarians to be media literate. Continuing professional development of academic librarians should be considered an important issue in Nigerian librarianship where numerous training courses, such as workshops, seminars and conferences could be conducted wherein library practitioners and researchers could share their experience(s) and learn new skills especially in the area of information literacy, new media literacy, information technology literacy and most importantly the Web 2.0 literacy. The Nigerian Library Association (NLA), the Librarians' Registration Council of Nigeria (LRCN) and the Committee of University Librarians of Nigerian Universities (CULNU) all have important roles to play in ensuring continuing professional development of Nigerian academic librarians and other categories of informational professionals.

The LRCN for instance, has organised series of conferences on web technology but how effective and applicable have these conferences come to be to the relevance of academic library services. The researchers believed that LRCN, CULNU and the NLA should come together to develop an acceptable, feasible and more embracing core competencies profiles expected of higher education libraries and librarians. This should include essential library competencies, library management competencies, library collection competencies, public services competencies, information technology as well as web technology competencies. The public services competencies should be designed bearing in mind the concepts of information literacy theory and principles, media literacy and digital literacy skills for targeted users. They should also develop relevant training programmes while concerted efforts should be made to provide for all the resources and facilities to make these transitions fruitful.

Within the NLA, if there exist sub-sections like information literacy unit/section, information technology sub-section/unit and academic library section, concerted efforts should be made by these various units to come up with a feasible, embracing and acceptable information literacy theory and principles, design effective ways of its implementation into universities curricula and libraries instruction programmes as well as conduct series of training opportunities for librarians as the case may be. These would constitute effective means by which academic librarians could be trained to fit in for the current and emerging information age.

With the fast pace in development of information and communication technology tools, it is important that Nigerian Library schools that train would-be library and information science professionals, expand their curricula to contain concepts, such as, learning theories and principles, teaching pedagogies, library research skills, practical information literacy skills, media literacy skills and web technology development and skills in order to graduate or produce knowledgeable librarians who are also expected to train would-be leaders of tomorrow to be information literate individuals. This could indirectly be a quick step towards transformation of Nigeria to a knowledge or information society.

It also behooves on management authorities of public and private universities to take library staffs training and development programmes, most especially those of academic librarians, of utmost priority. University management authorities should encourage and support development and training programmes both at local and international levels, especially in the areas of information literacy, media literacy, web-based technology development and skills acquisition as well as electronic marketing of library services and information products. Reserved funds initiatives, like the Education Tax Funds (ETF), Tertiary Education Funds (TETFUND) and other subvention funds could be used effectively and judiciously for these purposes.

The library is established to enhance provision, organization and timely dissemination of information. Networking and collaboration initiatives with other libraries are enhanced on Web 2.0 platforms. It is therefore being recommended that Nigerian academic libraries network and collaborate with international libraries so as to exploit the opportunities enabled on these platforms. Academic libraries should also be able to network and collaborate with international libraries to seek for training and technical supports. Exchange work experience between local and international academic libraries is also another effective initiative that Nigerian academic libraries and librarians could embark upon.

Finally, Academic librarians should not always wait for government supports. Individual academic librarian needs to change their attitudes and be more aggressive in looking for effective means of acquiring knowledge and skills, other than the usual traditional or foundational knowledge in librarianship and library leadership management skills. Academic librarians should be more proactive and interested in acquiring the various information technology skills, information literacy skills, library research skills, digital literacy skills as well as info



graphic skills to be able to use the current and emerging new web tools and services. They should also be proactive in writing proposals that could enable them secure grants either from local or international organizations and international libraries to sponsor web-based initiatives and trainings in the already identified areas. They should also be able to network and collaborate with international academic librarians to seek for professional research networking and expertise advice and training supports.

### 9. Suggestions for Further Studies

Further research is being suggested in the actual use of social media or Web 2.0 among library and information science professionals. Implementation, attitudes and perceptions of library and information science professionals towards social media (Web 2.0) use could also be researched into. Of equal importance is application, usage, determinants of use and challenges of use of these social media (Web 2.0) tools among these professionals. Other important variables of interest such as demographics (age, gender, educational qualifications, status, work experience, nature of work and so on), acceptance, self-concept, media literacy skills, digital literacy skills, ICT literacy skills, information literacy skills, library literacy, info graphic skills, and so on as determinants of social media (Web 2.0) use among library and information science professionals could also be surveyed. Studies or investigations into these areas will add to research and literatures on Web 2.0 among library and information professionals worldwide as well as add to research and literatures among Nigerian librarianship and academic librarians.

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