Application of web 2.0 tools for the provision of library services for teaching, learning and research in Polytechnics

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Article Info	Abstract
	This study investigated the application of web 2.0 tools for the provision of library services for teaching, learning and research in Polytechnics. The researchers employed a descriptive survey method and a questionnaire was used as instrument for data collection. The population of the study consisted of ninety one (91) library staff in polytechnic libraries in Edo and Rivers states. However, eighty four (84) library staff was found in their respective offices during the period of this study and were subsequently selected as the sample for the study using convenience sampling techniques. The data obtained from the copies of questionnaires retrieved from respondents were analyzed using frequency counts and percentages and mean to answer the research questions. Any item with a mean score of 2.5 and above was considered as an acceptable standard for judgment/ decision making in this study. The results indicated that social networking sites and instant messaging are the most used Web 2.0 applications utilized by the library staff. It was discovered in the study that the library staff in the polytechnic libraries in Edo and Rivers states did not use web 2.0 applications for the provision of library services to users rather for personal purpose to dissemination of information, for communication and for entertainment. The study therefore recommended that government and polytechnic management should be committed to library development by providing the necessary infrastructure and facilities to enable polytechnic libraries render 21st century services to their patrons and the entire polytechnic community.

1. Introduction

Web 2.0 concepts have led to the development and evolution of web-based communities, host services and applications such as blogs, RSS, Wikis, social networking sites and file-sharing sites. Boateng, Mbtika and Thomas (2010) define Web 2.0 as a set of trends and tools for using the internet. The term Web 2.0 first appeared in Darcy DiNucci's "Fragmented Future" concerning the future of computers. At that time, Web 2.0 was still in the embryonic stage compared to its present widespread use (DiNucci, 1990). Web 2.0 was first conceptualized and made popular by Tim O'Reilly and Dale Dougherty in O'Reilly Media 2004 conference to describe the trends and business models that survived the technology sector market crash of the 1990s (O'Reilly, 2005). Web 2.0 tools enable and facilitate the exchange and growth of information, knowledge and culture among faculty, staff, students, and the general public (Albayrak & Kıyıcı, 2017; Tripathi &

Kumar, 2010). Birdsall (2007) believes that Web 2.0 is a social movement. Web 2.0 applications are socially rich and community building is the core of these applications, so their usage increases more than Web 1.0 static websites/applications.

The academic libraries' primary missions are to acquire, processed and provide access to published information and disseminate knowledge. In this present era, library resources such as books, journals, and monographs are increasingly produced in electronic formats. In response to these challenges, academic libraries are undergoing a fundamental paradigm shift in the way they support users and offer services. Web 2.0 has the potential to promote participatory networking where librarians and users can communicate, collaborate, and generate content (Chua & Goh, 2010). Linh (2008) posited that the capabilities of Web 2.0 enable users to engage the library in two-way communication and knowledge exchanges. Web 2.0 applications include blogs, wikis, social networking sites, social tagging, instant messaging, RSS, file sharing sites, social bookmarking and online virtual games. Many libraries implementing Web 2.0 applications have potential to promote their services and activities.

The advent information and communication technology offers academic library tremendous opportunities to reach out to patrons beyond the traditional boundaries of physical building. Web 2.0 phenomenon is a part of this technology that academic libraries can harness for effective service delivery. Libraries have been affected by technological advancement in many ways before, but what signifies the penetration of Web 2.0 is the emphasis on "user-centeredness" or user-participation. Web 2.0 is the application of interactive, collaborative, and multi-media web-based technologies to web-based library services and collections (Maness, 2006).Web 2.0 will bring about library users active participation and communication with the library staff in polytechnic libraries to enhance effective teaching, learning and research.Web2.0 could be deployed as a strategic marketing tool for polytechnic libraries to show case their resources and services. This information revolution in librarianship has provided a unique platform for speedy provision and dissemination of information for learning, teaching and research in polytechnics and other institutions of higher learning when effectively harness. How effective these highly celebrated technological tools in librarianship have been fully deployed by polytechnic libraries in Nigeria to improve the teaching, study and research of their patrons?. It is against this backdrop that this study attempts to investigate the Application of Web 2.0 tools for the Provision of Library Services to Promote Effective Teaching, Learning and Research in Polytechnics in Edo and Rivers States, Nigeria.

The purpose of this study is to examine Application of Web 2.0 tools for the Provision of Library Services to Promote Effective Teaching, Learning and Research in Polytechnics in Edo and Rivers States, Nigeria. Specifically, the study sets out to:
➢   To determine the level of application of web 2.0
➢   To examine the purpose for the application of web 2.0
➢   To identify the factors militating against the application of web 2.0

1.1. Literature Review

Web 2.0 is defined as the social use of the web enables users to collaborate, create content, generate knowledge and share information online. Due to the nature of the platform and application, web 2.0 is often referred to as social media (Anunobi & Ogbonna, 2012). Klempere (2006), and Anderson (2007) pinpointed the basic characteristics of web 2.0 as follows: the user generated content, self/personal publishing and self-expression; collective intelligence or wisdom of crowds; information sharing; network effect or chain effect; openness or working with open standards, using open sources, free data, re-using or remixing of data. However, Scottish Library and Information Council and Chartered Institute of Library and Information professionals in Scotland cited in Anunobi and Ogbonna, (2012) listed web 2.0 tools as social networking, video and photo sharing, blogging and micro blogging, social book-marking, wikis and resource organizing tools. In addition, Abram (2005) included folksonomies and tagging.

The main objectives of web 2.0 is generating, packaging and disseminating information on the web in the form that is acceptable to individuals, peers and the global community without web technology competences.   Librarians whose responsibility is primarily aimed at providing information to general public can now overcome the limitations of static web and enjoy the opportunities provided by web 2.0. To achieve that, librarians began to address the ways Web 2.0 could be adopted for effective library services. The result is the evolving term "Library 2.0" as commented by Michael Casey on his Library Crunch Blog (Anunobi & Ogbonna, 2012). Casey and Savastinuk (2006) considered library 2.0 to be the instrument for the revitalization of the operations of libraries. Library 2.0 is the application of Web 2.0 thinking and techniques to library services and collections. Maness (2006) posited that library 2.0 is user-centered, provides multi-media experience and it is socially rich and communally innovative. Anunobi and Ogbonna, (2012) emphasized that these elements which was derived from the innovative nature of Web 2.0 seems to augur well for the 21st century information users who are more interested in instant, interactive, social and multimedia services.

The numerous reasons and benefits derived from the use of web 2.0 in libraries include sharing of information through discussion groups, promoting social interaction, book recommendation, and peer classification of resources (folksonomy) for collective intelligence, creation of Internet subject guide, adding and updating content and information literacy. The importance of web 2.0 in education and recreation suggests that librarians whose primary role is to provide information resources in a way acceptable to their community of users should be at the fore front of the use of Web 2.0. Furthermore, librarians play the leading role in newest technologies and often train others on their use through information literacy (Abram, 2005).

Studies have been conducted on the awareness and the use of web 2.0 by librarians especially in developing world. The popularity of Web 2.0 use is overwhelming on news media, telephones and Internet such that its awareness is taken for granted (Anunobi & Ogbonna, 2012). Pacheco, Kuhn and Grant cited in Anunobi and Ogbonna (2012) reported that only a few UK medical school librarians are currently using Web 2.0 and this use is still at the experimental level. They use it mostly to push information rather than as a two way communication platform. Atulomah and Onuoha (2011) found that librarians are more aware of Facebook than the LinkedIn, micro blogging tools, and twitter. Bonanno (2005) found that library and information professionals mostly used wikis and blogs most. Librarians enjoy using blogs. According to Scottish Library & Information Council & Chartered Institute of Library & Information Professionals, blogs, image/video sharing tools and wikis are used to post resources, reviews and information on new books and programs of interest by librarians; embed services, establish web presence, collective intelligence and to teach information literacy (Anunobi & Ogbonna, 2012). Pachecho, Kuhn and Grant cited in Anunobi and Ogbonna (2012) further suggest that the use of social networking sites are used to announce information to users, recycle content, communicate with experts and colleagues, market services, create discussion groups, and find solution to work problems. Really Simple Syndicate (RSS) feeds and social book-marking tools are used to aggregate, reuse and remix content, to create internet subject guide, folksonomies and to create updates on news items (Barsky& Purdon, 2006).

Despite the benefits of Web 2.0, Aharony (2009) discovered in his study of Israeli librarians that four elements influence its use. Librarians may differ in their use of Web 2.0 based on personality characteristics (resistance to change or techno-phobia), computer expertise, motivation, importance and capacity towards studying and integrating different applications of Web 2.0. Ascroft and Wetts (2005) pointed out that lack of competencies is a major challenge to the use of web 2.0. Lack of facilities in developing countries, Laissez–faire attitude of information professionals and privacy issues are some of the major obstacles to the use of web 2.0 (Atulomah & Onuoha, 2011; Gbaje, 2007).

2. Method

2.1. Research Design

This study employed a descriptive design to investigate Application of Web 2.0 Tools for the Provision of Library Services for Teaching, Learning and Research in Polytechnics in Edo and Rivers States, Nigeria. This is because descriptive design gives room for studying very small and large population (Yin, 2009). It enables the researchers to gather data from members of the selected participants with the aid of the questionnaire in order to determine the current status of web 2.0.

2.2. Participants

The population for the study comprises of all the Library staff in selected polytechnic libraries in Rivers States. The libraries are Auchi polytechnic library, Auchi, Edo state and Elechi Amadi polytechnic library, Rivers State, Nigeria. There was ninety one (91) library staff in the two polytechnics. The population of this study is relatively small and as such the entire population was used as representative sample using Availability sampling techniques. Egbule and Okobia (2001) cited in Oni, Odaro-Ekhaguebo, & Akpoduado (2018) posited that the entire population can be studied or investigated when the population is not large, as long as there are enough funds and time to ensure accurate result. This study falls into this category. Table 1 presents the demographic characteristics of the respondents.

Table 1
Characteristics of the participants (N=84)

	Frequency (f)	Percentage (%)
Librarians (Professionals)	17	20.2
Library Officers (Para-professionals)	14	16.7
Library support staff (Non-Professionals)	53	63.1
Male	46	54.8
Female	38	45.2
Total	84	100

Table 1 shows the categories of library staff. The table reveals that the majority of the library staff studied are Library support staff with 53 (63.1%), followed by professionals with 17(20.2%) and Para-professional 14(16.7%). This simply implies that the library support staff are more in number when compare to professionals and Para-professional. This category of library staff were trained and exposed to the tenets of library profession and are functioning properly. Table also reveals the gender distribution of the respondents. A total of 46 (54.8%) respondents were female and 38 (45.2%) male. This simply implies that female library staff is more than their male counterpart in the study.

2.3. Data Collection

This study employed the questionnaire as instrument for data collection. The questionnaire was constructed by the researchers. The questionnaire entitled "Application of Web 2.0 Tools for the Provision of Library Services for Teaching, Learning and Research in Polytechnics in Edo and Rivers States, Nigeria Questionnaire (AWPLSTLRQ) was used in this study. The researchers visited the sample institution and administered the questionnaire. Table 2 shows the details about the measurement of the study variables.

Table 2
Details of the measurement of the study variables

Variables	Operationalization	Measurement	Appears in the data gathering instrument as question numbers
Categories of Staff	Librarians (Professionals)	3point interval scale	ITEM 1
	Library Officers(Para-professionals)		
	Library support staff (Non-Professionals)		
Sex	Male Female	2 point interval scale	ITEM 2
Dependent variable	Level of Application of Web 2.0 Tools	4point Likert scale	Q1-Q7
Independent variable	Purpose for the application of Web 2.0 tools	3 point Likert scale	Q8-Q15
Independent variable	Factors that militating against the application of Web 2.0 tools	3 point Likert scale	Q16-Q24

3. Results

The data obtained from the copies of questionnaire were analyzed using simple descriptive analysis of frequency counts, percentage and mean score. A total of ninety one (91) copies of the questionnaire were administered to the respondents and eighty four (84) were returned completed. Table 3 shows the level of Web 2.0 tools usage by library staff.

Table 3
Level of use of Web 2.0 Tools by library staff in providing library services

Level of use of Web 2.0 Tools	VHU		HU		LU		VLU		Total		Mean	
	f	%	f	%	f	%	f	%	f	%	f	%
Blogs	7	8.3	9	10.7	32	8.1	64	2.9	84	100	187	2.2
RSS	4	4.8	4	4.8	26	4	50	59.5	84	100	139	1.6
Social networking sites	54	64.3	30	35.7	-	-	-	-	84	100	306	3.6
Instant messaging (IM)	31	36.9	42	50	9	10.7	2	2.4	84	100	270	3.2
Social bookmarking	16	19.1	19	22.6	23	27.4	26	31	84	100	193	2.3
Flickr	9	10.7	11	13.1	27	32.1	37	44.1	84	100	160	1.9
Wikis	11	13.1	17	20.2	25	29.8	31	36.9	84	100	176	1.9

*VHU(Very High Use), HU(High Use), LU(Low Use), VLU(Very Low Use)

Table 3 reveals the level of use of Web 2.0 tools by library staff in providing library services. The opinion of the respondents varies on the level of use of Web 2.0 tools. Social networking sites are the most highly used Web 2.0 tools by library staff with 64.3% very high (M=3.6). This is followed by instant messaging with 50.0% high (M= 3.2). It may be inferred that majority of the

library staff in this study make use of social networking sites and instant messaging in providing library services in promoting effective teaching, learning and research of the patrons.

Table 4
Purpose for Using Web 2.0 Tools by library staff

Purpose	Agree		Disagree		Undecided		Total		Mean	
	f	%	f	%	f	%	f	%	f	%
Communication	77	92.7	2	2.4	5	6	84	100	240	2.9
Entertainment	69	82.1	10	11.9	5	6	84	100	232	2.8
Academic purpose	32	38.1	22	26.2	30	3.7	84	100	170	2.0
For library services	21	25	43	51.2	20	23.8	84	100	169	2.0
Dissemination of information	80	95.2	4	4.8	-	-	84	100	248	3.0
Marketing/ Advertisement library services	20	23.8	36	42.9	28	33.3	84	100	248	3.0
For socialization	46	54.8	23	27.4	27	32.1	84	100	199	2.4
Personal	82	97.6	2	2.4	-	-	84	100	250	3.0

Table 4 reveals the purpose for using Web 2.0 Tools by library staff. The study revealed that the majority of the library staff used Web 2.0 for personal purposes with 97.6% agreement rate (M= 3.0). Other purpose of using Web 2.0 are for dissemination of information 95.2% agreement rate (M=3.0), for communication with 92.7% agreement rate (M=2.9) and for entertainment with 82.1% agreement rate (M= 2.8). This is an indication that library staff in polytechnic libraries in Edo and Rivers states used Web 2.0 applications mostly for personal use, dissemination of information, communication and entertainment.

Table 5
Factors That Militating Against the Use of Web 2.0 Tools in Polytechnic Libraries

Factors	Agree		Disagree		Undecided		Total		Mean	
	f	%	f	%	f	%	f	%	f	%
Lack Management support /Commitment	89	2.9	6	7.1	-	-	84	100	246	2.9
Lack of web 2.0 Knowledge & skills	64	76.2	6	7.1	14		84	100	218	2.6
Lack of Equipment and infrastructures (software, hardware)	80	95.2	4	4.8	-	-	84	100	248	3
Lack of training	73	86.9	7	8.3	4	4.6	84	100	237	2.8
Technophobia	56	66.7	18	21.4	10	11.9	84	100	214	2.5
Weak Internet connectivity/ bandwidth	68	81	4	4.8	12	14.3	84	100	224	2.7
Lack of automation/functioning e-library section	82	97.6	2	2.4	-	-	84	100	250	3.0

Table 5 reveals the factors that militating against the use of Web 2.0 tools in polytechnic libraries Edo and Rivers states. The majority of the library staff agreed that Lack of automation/functioning e-library with 97.9% agreement rate (M= 3.0) and lack of equipment and infrastructures (software and hardware) with 95.2% agreement rate (M=3.0) are the major factor militating against library staff 92.9% agreement rate (M= 2.9), lack of training with 86.9% agreement rate (M=2.8), weak Internet connectivity/bandwidth with 81.0% agreement rate (M= 2.7), lack of Web 2.0 knowledge & skills with 76.2% agreement rate (M= 2.6) and Technophobia with 66.7% agreement rate (M= 2.5). This study clearly indicates that library staff in polytechnic libraries in Edo and Rivers states do not use Web 2.0 to provide library services and academic purpose because of lack of automation and functional e-library section in their libraries, lack of equipment and infrastructures (software and hardware), lack of management support /commitment, lack of training, weak Internet connectivity/bandwidth, lack of Web 2.0 knowledge and skills and technophobia.

As a summary, the study reveals that social networking sites and instant messaging are the most used Web 2.0 applications by library staff in the polytechnic libraries in Edo and Rivers states. It was discovered in the study that library staff in polytechnic libraries in Edo and Rivers states applied Web 2.0 tools for personal purpose, for dissemination of information, for communication and for entertainment. The study reported that lack of automation/functioning e-library section, lack of equipment and infrastructures (software and hardware), lack management support /commitment, lack of training, weak Internet connectivity/bandwidth, lack of Web 2.0 knowledge & skills and Technophobia are the major problems militating against the application of Web 2.0 tools in promoting effective teaching, learning and research in polytechnic libraries in Edo and Rivers states.

4. Discussion and Conclusion

Web 2.0 as an interactive web has created a new dimension of library and information operations and it has also offered services which library staff of all categories should welcome to remain informed about the fields and learn information effectively in the technological era. Application of Web 2.0 tools in providing library services by library staff can facilitate effective teaching, learning and research in polytechnics. However, among the numerous Web 2.0 tools, social networking sites and instant messaging are the mostly used ones by library staff in polytechnic libraries in Edo and Rivers states. This study is incongruence with Atulomah and Onuoha (2011) study found that librarians are more aware of social networking sites such as Facebook than the LinkedIn, and micro blogging tools. However, this study is in contradiction with the work of Bonanno (2005) who revealed that library and information professionals used wikis and blogs. This study is also in contrast with Sauers (2006) who posited that librarians enjoy using blogs. The purpose for using Web 2.0 tools was not to provide library services to users but for personal use such as dissemination of information, communication and entertainment. This study agrees with Pacheco, Kuhn and Grant's study cited in Anunobi and Ogbonna (2012) which reported that only a few UK medical school librarians are currently using Web 2.0 though, indicating that Web 2.0 is still at experimental levels. They use it mostly to push information rather than as a two way communication platform. It is clear from the study that a majority of the library staff do not use Web 2.0 tools for academic purposes and providing library services.

The use of Web 2.0 tools for the provision of library services by library staff is challenged by the lack of automation and functional e-library section in the libraries, lack of equipment and infrastructures (software and hardware), lack of management support /commitment, lack of training, weak Internet connectivity/bandwidth, lack of Web 2.0 knowledge and skills and technophobia. This study aligns with the findings of Aharony (2009) who revealed in his study of Israeli librarians that four elements influence its use. Librarians may differ in their use of Web 2.0 based on personality characteristics (resistance to change or techno-phobia), computer expertise, motivation, importance and capacity towards studying and integrating different applications of Web 2.0. Gbaje (2007) posited that lack of facilities in developing countries hinders Web 2.0 usage

in libraries. Ashcroft and Watts (2005) discovered in their study that lack of competencies in the use of Web 2.0 is a major challenge. These challenges need to be properly addressed to facilitate the application of Web 2.0 tools for the provision of library services to enhance effective teaching, learning and research of the library users in polytechnics.

4.1. Recommendations

Government and polytechnic management should be committed to library development by providing it with the necessary infrastructure and facilities to enable polytechnic libraries render 21st century services to their patrons and the entire polytechnic communities. Training and retraining of library staff especially in this digital era should be taken seriously by government and polytechnics management because librarians are the custodian of explicit knowledge. Library staff should try as much as possible to embark on self-training or development especially in the area of technology to acquire the necessary skills that would enable them use Web 2.0 tools to provide services to library users. Government and polytechnics management should ensure that the e-library section of the library is well structured and organized to enable library staff and users to make use of Web 2.0 tools in order to meet their academic and information needs. Government and polytechnics management as a should embark on total and complete automation of the polytechnic libraries matter of urgency to enable polytechnic libraries users and staff utilizes Web 2.0 tools to meet their information needs and services.

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