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Use of Web 2.0 and Its Implications for Libraries: Perceptions of Information Professionals in Pakistan

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Introduction

The history of Internet is not too long and almost all historians are agreed on the fact that the history of Internet starts from ARPANET (Advanced Research Projects Agency NETwork), very first shape of Internet that was developed by DARPANET (Defense Advanced Research Projects Agency). Until 1992, the Internet was available at educational and government institutions. In 1992 the commercial companies started taking up the control of developing this wonderful phenomena. Invention of Internet was a paradigm shift in the history of networks and network communication.

In the beginning, static web pages were being created for one way of communication and these pages were read-only for visitors. Hyper Text Markup Language (HTML) was being used widely for web-publishing. This initial form of web was named Web 1.0 later. The term Web 2.0 was being popularized in 2004. Initially this term was used by Darcy DiNucci in 1999. Web 2.0 can be defined in terms of its features and specific technologies, or social impact. In other words, World Wide Web (www) provided the base for Web 2.0 applications to create a new communication environment (Linh, 2008). It is a second wave that covers web tools and services (Macaskill and Owen, 2006). Davis (2005) describes Web 2.0 as an attitude not a technology and Birdsall (2007) believes that Web 2.0 is a social movement. So Web 2.0 applications differ from Web 1.0 applications by their frequency of usage too. As Web 2.0 applications are socially rich and community building is the core of these applications, so their usage increases many times than Web 1.0 static websites/applications.

Boateng, Mbtika & Thomas (2010) defines Web 2.0 as a set of trends and tools for using the internet. He further explains that these socio-technological innovations

have enabled interactivity and gathering of knowledge through experience and practice on a global scale. The concept of collaborative work, social networking and the ease in the usage of these applications has brought a significant change in the Internet usage style of Internet surfers in the world. The popularity of social networking applications, blogs and sharing of media has also changed the way and behavior of users of libraries all over the world. The concept of Web 2.0 has emerged into other disciplines and changed the entire mode of practices in library science as well and a new concept of Library 2.0 has been introduced.

Library 2.0 is the application of interactive, collaborative, and multi-media web-based technologies to web-based library services and collection (Maness, 2006). The real advantage of Library 2.0 can be achieved only by adding advanced functionality and features directly into the content (Abram, 2005). Aharony (2008) has emphasized that the library schools must come up with upgraded curriculum by introducing Web 2.0 course. According to him, Web 2.0 applications may be thoroughly taught as a separate course in the LIS curriculum. It will equip the library professionals with skills and competencies that are necessary to design dynamic and modern user oriented services.

A brief description of few Web 2.0 applications is below:

Blog (Web Log) is a major application of Web 2.0 era. The blogs are new forms of publication (Maness, 2006). Blogging is an easy process of publishing the ideas on the web and to get the comments from other users of web. This is a one-click process of publishing posts. Blogs are a relatively recent Internet phenomenon dating from the late 1990s (Clyde, 2004). Hane (2001) says that Blogs are a natural for librarians. Libraries all over the world are using blogs for the easy dissemination of information to the targeted users. Blogs are the fastest growing medium of information over World Wide Web. Most of the time, blogs are created as single-person effort but some blogs are created and published as cooperative or group projects (Clyde, 2004). Most of libraries are maintaining their blogs by collaborative efforts.

RSS is another Web 2.0 application which helps users to bring the updates and feeds from other websites. It is a very simple tool to bring the latest stories, updates from news groups, magazines, journals and blogs. In a recent study of Australian University Libraries, RSS was found the most widely applied technology (Linh, 2008). It creates a feed from a site that readers can then add into an aggregator to create one point of access for many sources (Davison-Turley, 2005).

Instant Messaging (IM) is also a very useful tool which may help library professionals to provide library services. Maness (2006) claimed that Instant Messaging was initially Web 1.0 application because it often requires the downloading of software but now a day IM can be categorized in Web 2.0 applications because IM is available through browsers from most of service providers (AOL, Meebo, MSN, Google Talk, etc). IM is vastly being used for online reference services in libraries. Ask a librarian service is provided by instant messengers all over the world. A study of top 100 university libraries shows that IM features have extensively been used in libraries to provide quick online reference services using IM technology (Harinarayana, 2010).

Currie (2010) states that libraries can provide online reference services by employing staff at public desks during nights and weekends when the library is closed for other services.

Wikis areanother example of collaborative creative work. Multiple users from all over the world can build a knowledge base by using this application. Wikipedia is a great example of this kind of collaborative work. A library wiki as a service can enable social interaction among librarians and patrons, essentially moving the study group room online (Maness, 2006). Wikis can be used to create help files, tutorials with the help of users in libraries. Wikis are the mix of many other technologies like messaging, blogging, streaming media, and tagging (Maness,

2006).

Flickr, an online image sharing application is being used to share images within communities and is a very good source of sharing different events with the help of images and image sets. It allows users to upload, share and tag images by keywords. These tags are very useful for retrieving relevant images (Angus, Thelwall & Stuart, 2008).

In short, the use of Web 2.0 applications in the libraries is increasing day by day due to many factors. The rate of adoption of Web 2.0 applications is very high because these are easy to use and intuitive, and enable the direct and immediate online publication and distribution of user content (Schneckenberg, 2009).

In Pakistan, the use of computer in libraries was started in 1980s. At that time the libraries started using word processors and spread sheets. Some libraries also started using desktop applications for library automation. Most of these applications were commercial or locally developed (Mamood, 2008). Internet or Internet based applications were not being used in those days because Internet was introduced in Pakistan in 1991. Initially libraries and librarians used Internet for E-mail and World Wide Web all over the world. A few library professionals were using FTP or Telnet (Saeed et al., 2000). Ramzan and Singh (2009) stated that the academic libraries of Pakistan are far behind in the achievement of excellent information technology level, although the government and private sector is trying to bring these technologies available to the library users.

Currently the use of Internet is increasing in Pakistan and many indicators show that Pakistan is going to be an emerging information society (Shafique & Mahmood, 2008). Another survey of one thousand educated adults conducted by Shafique and Mahmood (2009) also shows that there is a tremendous increase in the use of Internet in Pakistan, especially among the young students. Contrarily, the rate of adoption of Web 2.0 applications for library services in Pakistan is comparatively low. Qutab and Mahmood (2009) reported that only two libraries were using RSS on their websites and no other Web 2.0 application could be found on the selected websites of their study. There is scarcity of literature on the usage of Web 2.0 applications in Pakistan. Only one study by Arif and Mahmood (2010) has been conducted to date to explore the adoption of Web 2.0 technologies in Pakistani libraries. Their study has revealed that Internet skill was the main factor towards adoption of Web 2.0 technologies in the libraries. More than half, 116, respondents employed Web 2.0 technologies to provide library services. The maximum usage of Web 2.0 technology was instant messaging followed by social networking. About half of the respondents used blogs, electronic groups and Wikis. Forty-five respondents used RSS while only 3 used podcasting services. They also found that lack of computer literacy, unavailability of computers and Internet facility were the main hindrances toward adoption of Web 2.0 technologies in the libraries.

Problem Statement and Purpose of the Study

There is a wide gap in the literature in exploration of these technologies and their current and potential usage in the libraries of Pakistan. Keeping the emerging use of Web 2.0 applications all over the world in view, this study aims at finding the use of Web 2.0 applications by the information professionals and their perceptions about the potential usage of these applications in the libraries of Pakistan.

Methodology

Triangular method of research has been used for this study. An online questionnaire was designed and the link of this survey was sent on the three professional discussion groups LISTSERVS (PakLAG, LibCoop and LibrarianWelfare). Initially a pilot survey was conducted to test the validity of tool

from 17 library professionals and some nominal changes were made in a few phrases. More than 100 library professionals participated in this survey. Statistical tests were applied to find out the findings of this study. Another method used to understand the issue more deeply was the interview of eminent scholars and practitioners of Web 2.0. For this purpose a purposive sample of 8 library professionals from Karachi, Lahore, Rawalpindi, Islamabad, and Bahawalpur were interviewed. These semi structured interviews helped in understanding experts' point of view about the usage of Web 2.0 applications in libraries of Pakistan.

Data Analysis and Related Discussions

Personal Profile of Respondents

In total 115 respondents from different types of libraries participated in this survey. Of the 115 respondents, 27 (23.5%) were female. The frequency distribution is presented in Table-1.

Table 1. Frequency Distribution of Respondents' Gender

Gender	Frequency	Percentage
Male	88	76.5
Female	27	23.5
Total	115	100.0

The participating professionals were asked to mention their designation. Table-2 shows that 22 percent respondents belonged to the group of decision makers or top management i.e. Chief Librarians/Head of Departments (12, 10.2%); and Sr. Librarians and Deputy Chief Librarians (13, 11%). Of the 115 respondents, 53 (44.9%) were Librarians/Library Officers, 27 (34%) were Assistant Librarians, four (3.4%) teaching staff members and four (3.4%) from other library positions.

Table 2. Frequency Distribution of Respondents' Professional Positions

	Frequency	Percent
Chief Librarian / Head	12	10.2
Sr. Librarian / Deputy Chief Librarian	13	11.0
Librarian/Library Officer	53	44.9
Assistant Librarian	27	22.9
Teaching Staff	4	3.4
Others	4	3.4

The results show that 69 (58.5%) respondents were from academic libraries, 32 (27.1%) from special libraries and four (3.4%) were from public libraries (Table 3).

Table 3. Frequency Distribution of Respondents' Institutes

Institutes	Frequency	Percentage
Academic Library	69	58.5
Special Library	32	27.1
Public Library	4	3.4
Missing	13	11
Total	115	100

Use of Web 2.0 Applications by the Information Professionals

Frequency of Use

The respondents were asked different questions to probe the status of using different web 2.0 applications. Descriptive statistics presented in Table 4 show that most of the respondents were using E-mail groups (LISTSERVS) daily (mean= 5.69). The second most favorite Web 2.0 application according to the usage scale is the Instant Messenger, which was used twice/thrice a week (mean= 4.66). Wikis and social networking sites were used weekly (mean values are 4.35 and 4.04 respectively). On the other hand social bookmarks, video sharing sites and blogs were used fortnightly (mean values are 3.49, 2.99 and 2.75 respectively). Images sharing, RSS and micro blogging sites were used monthly (mean= 2.07).

Table 4. Descriptive Statistics About the Usage Frequency of Web 2.0 Applications by the Respondents

Web 2.0 Applications	Mean	Median	Mode	Std. Deviation
E-mail Groups	5.69	6	6	0.90
Instant Messenger	4.66	6	6	1.85
Wikis	4.35	5	6	1.76
Social Networking	4.04	4.5	6	1.92
Social Bookmarks	3.49	4	1	2.16
Video Sharing	2.99	3	1	1.90
Blogs	2.75	2	1	1.90
Images Sharing	2.44	2	1	1.72

RSS	2.43	1.5	1	1.75
Micro blogging	2.07	1	1	1.65

Scale: 6=Daily, 5=Twice/thrice a week, 4=Weekly, 3=Fortnightly, 2=Monthly, 1=Not used

Learning Mode of Web 2.0 Applications

Respondents were asked to mention the mode through which they learnt the usage of web 2.0 applications. It was found that 89 (75.4%) respondents learnt through self learning or through online tutorials. On the other hand 57 (48.3%) leant it from their friends and/or professional colleagues. Twenty eight (23.7%) learnt through formal training or from library schools (23, 19.5%). See Table-5.

Table 5. Frequency Distribution of Learning Mode of Web 2.0 Applications by the Respondents

Learning Mode	Frequency	Percentage
Self Learning / Online Tutorials	89	75.4
Friends / Professional Colleagues	57	48.3
Formal Training	28	23.7
Library Schools	23	19.5

Personal Blogs/Websites

The respondents were asked about the possession of personal blogs or websites by them. The results presented in table 6 show that only 15 (13.04 %) responded information professionals had their own Blogs/Personal Websites.

Table 6. Frequency Distribution of Possession of Personal Blogs/Websites by the Respondents

Possession of Personal Blogs	Frequency	Percentage
No	95	82.61
Yes	15	13.04
Missing	5	4.35
Total	115	100

Use of Web 2.0 Applications for Library Services

To find out the information professionals' perceptions about the usage of web 2.0 applications in library services, they were asked to give their opinion about the

usage of different Web 2.0 applications for the provision of library services. The results presented in Table-5 show that the responded information professionals strongly agreed with the usage of E-mail groups/list-serves for library services (mean=4.82). Similarly they agreed with the usage of social networking sites, Wikis, Instant Messenger, Social Bookmarks, Blogs, Video Sharing, Images Sharing, RSS and Micro blogging (mean values are 4.44, 4.44, 4.31, 4.17, 4.12, 4.10, 4.06, 4.00 and 3.81 respectively).

Table 5. Descriptive Statistics of Respondents' opinion About the Usage of Web 2.0 Applications in Library Services

Web 2.0 applications	Mean	Median	Mode	Std. Deviation
E-mail Groups	4.82	5	5	0.45
Social Networking	4.44	5	5	0.70
Wikis	4.44	5	5	0.85
Instant Messenger	4.31	5	5	0.91
Social Bookmarks	4.17	4	5	0.87
Blogs	4.12	4	5	1.02
Video Sharing	4.10	4	4	0.78
Images Sharing	4.06	4	4	0.85
RSS	4.00	4	5	0.96
Micro blogging	3.81	4	4	0.87

Scale: 5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree

Qualitative Data Analysis

For in depth understanding of the information professionals' perception about web 2.0 and its application in libraries, semi structured interviews of a purposive sample were also conducted by the researchers. Here are the major findings of the interviews:

Information Professionals' Views About Web 2.0

It was observed during the interviews that most of the library professionals believed that Web 2.0 is the continuity of Web 1.0 which was a static web (n=5). According to them, Web 2.0 is just like a two way communication where users have their own point of view that can be expressed and shared with other users (n=4). Web 2.0 is more dynamic, versatile, effective and attractive for users (n=2). Developers of Web 1.0 applications were not creating services with the consent or interest of Web users, however the Web 2.0 is driven by the users so it is more attractive and social for them (n=1). Web 2.0 applications are not a new concept because these applications were being used in the past as well. Now these

applications have been re-grouped in different categories (n=1). In other words, Web 1.0 can be said one tier and Web 2.0 is another tier of communication and new tiers are being added day by day (n=1).

Potential Usage of Web 2.0 Applications in Libraries

The interviewees believed that the users of internet are increasingly using Web 2.0 applications for social interactions with friends, family and other communities, so libraries can approach their users at their desktop using social networking applications. As most of Web 2.0 applications are offering services free of cost, libraries with low budgets can get the benefits from these technologies (n=6). The Web 2.0 technologies are providing the opportunity of powerful authoring tools using Wikis and Blogs and can also be used for marketing of library services on the Web (n=3).They stressed that library professionals have to embed them in their new role otherwise libraries will go into isolation (n=2). These applications are for assisting us in our services process, so we must not be driven by these applications. In this context, information professionals should think about the users' needs which they want to fulfill with these applications then they should select a feasible service accordingly (n=1).

In short Web 2.0 technologies are the blessings for library professionals. Libraries can design attractive services using Web 2.0 applications without spending huge budgets for online hosting and storage (n=2).

Effects of Web 2.0 Applications on Traditional Library Services

The interviewees stressed that these applications are not affecting the traditional library services in a negative sense but helping library professionals in the provision of library services (n=4). These applications help to refine the quality of service delivery to the users in their own communities (n=3). As these are not the core services but the add-ons to the previous services (n=1), so the basic task is to introduce services in libraries which can be refined by using Web 2.0 applications (n=1).

They mentioned that it is necessary to focus on the current and upcoming generations while designing library services (n=1). Librarians should be very focused in the provision of library services using Web 2.0 applications because these applications are socially interlinked with other applications and communities (n=1).

Problems Hindering the Usage of Web 2.0 Applications in Libraries

The most prominent problem indicated by the interviewees was the non-availability of proper learning and training environment in the usage and then implementation of these applications in libraries. They stressed that there is little or no training facility available in Pakistan for the learning of these applications (n=5).

Training Opportunities

Regarding the training opportunities, the interviewees mentioned that there is no good and effective infrastructure of training available in Pakistan to teach the usage of these applications (n=5). Some efforts have been made by professional associations to provide the basic information and awareness about Web 2.0 applications such as LISolutions provided two days training on Library 2.0 in August 2009 at Islamabad. It was a unique effort to provide practical hands-on training for professionals in Pakistan (n=4). Few other efforts have been made in

the use of RSS, and Social tagging etc by Pakistan Library Association (Punjab & Federal Branch) but these were theoretical lectures or seminars (n=5). Few interviewees believed that the learning of these applications do not require any formal training or workshop. All these technologies are easy to use and online tutorials, manuals, and official documentation is available to learn these technologies/applications. The only thing required is the urge to learn (n=2). It was also stressed that self learning is sometimes as harmful as self medication. If someone gets a wrong concept during self learning, that concept cannot be changed even after a long time. So initially it is necessary to get formal trainings from experts (n=1).

When talking about the role of library schools or professional organizations, it was observed that most of the respondents think that the basic role goes to library schools (n=6). In this regard, teacher training is an important element that is not being addressed in Pakistan (n=3). If teachers of library schools will get trainings for these technologies they can further teach thousands of professionals during their formal education, so it is very important to train the teachers first (n=3). Another important role of library school is to equip their departmental libraries with latest technologies. These departmental libraries of LIS schools can play a role model for other libraries (n=1).

Most of the interviewees were not satisfied with the role of library schools in continuing education programs (n=5). So it was emphasized by them that for the promotion of Web 2.0 applications in libraries, the ultimate role should be played by library schools (n=6), professional bodies (PLA, PakLAG, LISolutions, PLC, etc.) (n=4) and National Library of Pakistan (n=3).

Conclusion

The use of Web 2.0 applications is increasing among the information professionals of Pakistan and it is a very positive sign that the users of Web 2.0 applications are from both the sectors (Private and Public) irrespective of any gender discrimination.

All the library professionals were committed and well aware of the usage of these applications to deliver better services to the library users. It was also found that perception of library professionals about many Web 2.0 applications were not very clear such the use of Instant Messaging (IM), which can be used to provide online reference services in libraries. Similarly RSS is being used by library professionals of the world for selective dissemination of information (SDI) but its awareness and use by library professionals in Pakistan is significantly low; same is the case of Micro Blogging (Twitter). Library professionals in Pakistan can avail the benefits of Web 2.0 technologies/applications only by learning the usage of these applications to offer attractive and dynamic services for the users of Web 2.0.

It was found from the interview results that professional associations and library schools can play a vital role in the training of library professionals for the use of Web 2.0 applications. Library schools, Professional bodies and National library should realize their role of capacity building of professionals so that the well trained human resource can be developed to cope with the challenges of future era.

Recommendations

Following recommendations are made on the bases of conclusions of the study:

1. Library Schools in Pakistan should integrate the Web 2.0 applications in teaching the IT courses. Thus the future information professionals will get awareness about the potential usage of these technologies;

2. Hands on practice workshops should be organized by the library schools and professional organizations like PLA, PULISAA or National Library of Pakistan;

3. National, academic and special libraries should include the Web 2.0 components on their websites. Library and Information Science Journals/Newsletters and magazines should be available through RSS on their websites;

4. Twitter is a very popular service in libraries of the world for the provision of Current Awareness Service (CAS) among subscribers/users. The cellular companies should provide the Twitter Feeds service on Cell Phones in Pakistan as well, so that the real benefit of Twitter may be availed.

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