Awareness and use of social media applications among library staff of power sector organizations

Rakesh Kumar Gupta[a], J N Gautam[b] and V P Khare[c]

[a]Research Scholar, Dr. S. R. Rangnathan Institute of Library & Information Science, Bundelkhand University, Jhansi,
Email: gupta_rakesh78@hotmail.com

[b]Professor, School of Studies in Library & Information Sciences, Jiwaji University, Gwalior,
Email: jngautam1@yahoo.com

[c]Professor, Dr. S. R. Rangnathan Institute of Library & Information Science, Bundelkhand University, Jhansi,
Email: khare.ved@gmail.com

The paper identifies the level of awareness among library staff in power sector organizations about select social media applications and the frequency of use of those applications at their work place. The study also identifies the perception among library staff with regard to the usefulness of those applications as well as the available sources from where they could learn about those social media applications. In this study, 48 responses were obtained from the library staff using questionnaire as survey tool. The analysis of results of the survey revealed that the library staffs in those libraries were neither adequately aware of social media applications not had fair understanding of their usefulness in libraries. It was also found that library staff lacked appropriate training on the use of social media applications in libraries.

Keywords: Social Media; Social Networking; Social Media application in Libraries; Power Sector Libraries

Introduction

In general, term 'social media' can be described in different ways and for different purposes, but the term social media which is in vogue may be understood as means of connecting the members of various internet communities. These communities consist of users who use web based computer applications with an intention to contribute, share, collaborate and communicate over the communities by maintaining different levels of transparency. According to Davis III et al. [1], "…the term social media technology (SMT) refers to web-based and mobile applications that allow individuals and organizations to create, engage, and share new user-generated or existing content, in digital environments through multi-way communication." The term social media is also used synonymously as web 2.0. The conceptual thought behind both terms is the same. However, the term web 2.0 is used for technological applications, whereas the term social media indicates social aspects of web 2.0 applications[2]. Thus, in this context the term social media has been used in this study.

Last decade witnessed rapid growth of social media applications in different spheres of our society all over the world. Some interesting facts demonstrating the growth of social media are presented here under[3]

- 72% of internet users are active on social media;

- 89% of 18 to29 year old internet users are active on social media;

- 93% of marketers use social media for business purposes; and

- Facebook has 1.15 billion active monthly users

Enormous uses and advantages of social media applications make it relevant not only for large scale business and marketing activities, but it also opens the doors of opportunities for education, research & development and other academic fields at a low cost and at increased level of efficiency. Social collaborative technologies enable people in terms of communication, information sharing, and being in touch with each other by creating online virtual

communities[4]. As revealed in a study, print media is adopting the social media to reach its distant readers[5]. Steiner[6] listed some concrete examples of social media like social networking platforms (e.g. Facebook), social news site (e.g Digg), location-based social networking service (Facebook places), wikis (e.g. Wikipedia), video and photo sharing sites (e.g. Youtube), social book marking tools (CiteULike), blogging sites (e.g. LiveJournal), micro blogging sites (e.g. Twitter), book sharing sites (Librarything), community question-and-answer sites (e.g. Wikianswer) etc. Table 1 describes some popular social media applications identified for the purpose of this study. However, it cannot be considered as a comprehensive list.

Social media applications have emerged as a very interesting and powerful tool for libraries. The scope of social media applications in libraries include communication with users community, interaction with library users and clients, marketing of library services, users education, creating awareness of library resources (new arrivals and others), connecting

with other librarians and library staff, getting feedback of library and its services etc. Secker[7] reviewed the published literature and use of social software by libraries primarily and found that libraries and librarians are experimenting a lot and have developed different web 2.0 applications having the potential to enhance library services.

Review of literature

Considering its benefits, libraries all over the world are using applications of social media. The libraries of international repute like Library of Congress are using various social media applications for the purpose of sharing the contents in a new way[8].

Social media applications are being used by many of the libraries to interact and build relationship with their communities by using wikis, flickr, blogs etc, to publish historical contents and answering questions using applications like IM, SMS, Twitter etc as is convenient for users[9]. Social networking can be implemented as a part of effective student outreach programme with focus on student privacy and,

Table 1—Description of popular social media applications

Social Media applications	Description
RSS Aggregators	A standardized xml format that offers publishing updated contents and offers the users to subscribe useful contents of the website using tools like newsreaders, aggregators or feeds[40-41].
File sharing	Storing data file (audio, video, ppts, text files etc.) over the network and sharing by the multiple users in a community
Social bookmarks	Allow users to identify and collect their favorite resources and classify them by informally assigned key words or tags[42].
Content management	Described as an integrated tool for creation, editing, publishing, and management of digital content for web publishing in a shared environment[43].
Collaborative writing	An application that allows users to simultaneously write and edit of a text or other media files by different connected users over a network[44].
Blogging (Web Blog)	Blog can be understood as an online journal publishing articles by any contributor or a group of contributors in which dated entries are arranged in reverse chronological order with the provision of hyperlinks[45].
Instant messaging/Chat	Application allowing the users online real-time interaction between two or more users connected through a computer on a network or mobile devices with the facility to send images, audio, video and other media files as attachments[46].
Discussion groups	Wikipedia define it "as an online forum for individuals to discuss various topics amongst each other. People add their comments by posting a block of text to the group. Others can then comment and respond" [47]
Wikis	Website allowing multiple users to add, remove or edit content and change content with provision of hyper linking in the text availability of old text[48].
Social networking:	Applications used for forming the groups to connect with each other and allow users to create their profiles, update personal information, locate links with people through mutual friends, share views of their interests and other information etc[49].
Listserv	Wikipedia described "Listserv used to refer to a few early electronic mailing list software applications, allowing a sender to send one email to the list, and then transparently sending it on to the addresses of the subscribers to the list" [50].

equally, coverage on all the subject area[10]. SNSs are being used at larger level by information professionals in their routine works and for individual purpose of their professional development as well[11]. Social media in libraries has a big opportunity to achieve win-win relationship between information users and information providers through users' loyalty achieved by relationship marketing and connecting library users with librarians[12]. Khan and Bhatti[13] in their study found the positive use of social media applications for marketing of library services and resources and recommended the libraries to develop their library home page incorporating social media page as well. There is a wide range of social media applications in libraries which includes information literacy of their users[14-16], for interaction with users and their awareness[17-19], marketing & promotion of library services[20-22], awareness and access of library users to information resources[23], marketing and promotion of information product[24] etc. There are many research studies that have been conducted in area on several associated issues related to social media applications in libraries. Relevant studies are reviewed here.

Mahmood and Richardson[25] conducted a survey of the web sites of the academic libraries of the Association of Research Libraries (USA) regarding the adoption of web 2.0 technologies. The websites of 100 member academic libraries of the Association of Research Libraries (USA) were surveyed and it was found that all libraries were using various web 2.0 tools like blogs, microblogs, RSS, instant messaging, social networking sites, mashups, podcasts, and vodcasts. Other tools like wikis, photo sharing, presentation sharing, virtual worlds, customized webpage and vertical search engines were relatively less used. The purpose of libraries for using these tools were sharing of news, marketing their services, providing instructions for information literacy, providing information about library resources, and for feedback from the users.

Parvathamma & Danappa[26], in a study on digital literacy among student community, have also examined the purpose of using Web 2.0 based services among students and to assess how conversant they are with those services. The study revealed that main purpose of student community for using those services is for personal purpose and for networking with friends. However, Google+ is used for the purpose of class work and study by most of the students. It is found that although students are conversant with the web 2.0 based services, there is still a need to make them aware and train them properly for better utilization of the web 2.0 services.

Madhusudhan[27] conducted a survey of research scholars of University of Delhi to find out the use, significance, benefits and effects, problems and risks associated with social networking sites. It was found in the study that majority of respondents were aware and they used the SNSs for friendly communication purposes only. Some scholars also use SNSs as a platform to connect with academic community and source of information/knowledge from other friends on these sites. It was also found that majority of research scholars used SNSs for "lurking" while few used such sites for promoting their research.

Chu and Du[28] examined the extent of use of social networking tools, library staff's perceptions of their usefulness, and perceived challenges in using them. Altogether 140 university libraries were identified and invited to respond a web-based survey. The study found that twenty-seven libraries (71.1%) used social networking tools, five (13.1%) were potential users who planned to use these tools and six (15.8%) did not plan to use these tools at all. Most commonly used tools in university libraries were found to be Facebook and Twitter. Though the opinion of library staff was perceived to be very positive, there were major barriers found in the form of hesitancy among some members of the library staff and less participation by the library users. The study offers a roadmap for academic librarians in taking wise decision while applying social networking tools.

Previous studies as cited above reflect the growing popularity and importance of social media applications in libraries. Thus, while libraries have now started to experiment with these applications, it became crucial to understand the issues from library staffs' perspectives. However, it was also learnt that there was no similar study conducted among library staff of power sector libraries. This study focuses on assessing the awareness and knowledge, and to critically examine the perceptions of library staff about social media applications.

Objectives of the study

- To understand the awareness level of library staff on social media applications;

- To assess the frequency of use of social media applications at work place by library staff;

- To evaluate the perception of library staff towards usefulness of social media applications in libraries; and

- To evaluate the source of knowledge of library staff to learn about social media.

Hypothesis

H0: There is no significant difference between PSU library staff and non-PSU library staff of power sector about their perception on usefulness of social media at work place.

H1: There is significant difference between PSU library staff and non-PSU library staff of power sector about their perception on usefulness of social media at work place.

Methodology

The study used a survey research method. A comprehensive review of the literature was conducted by using different search engines, web sites and blogs. A literature-based questionnaire was developed and used for data collection. The libraries of power sector organizations under or associated with the Ministry of Power, Govt. of India located in North India were taken for the purpose of this study (Annexure 1). In the context of this study, the term power sector organizations has been used to refer to the Head Quarter/Head Office/Main office of these organizations, not other units like regional offices, power stations, projects etc.

All the library staff excluding unskilled manpower like attendant, peon, helper etc, were selected for field investigations as the population of library staff in these libraries is small (varying from 2 – 7) and definite. Hence, the structured questionnaire is distributed among 48 library staff from 13 power sector organizations after personally contacting individual library staff. One hundred percent responses were obtained from the respondents even though it took a period of approximately 5 to 6 months (July 13 to December 13).

This study used a structured questionnaire as a tool for survey research method. Keeping in view the objectives of the study, several questions were asked

to the respondents on social media applications. Sixteen different types of social media applications were identified for this study based on the extensive literature review conducted using several online and offline sources of information. Different patterns of questions were used to get the responses of respondents like the question with option 'yes' and 'no' , Likert-type scale to measure the frequency of use and perception on usefulness of social media applications, and with possible answers to measure the major source of knowledge to learn about social media applications. The option of no response was also provided to the respondents who did not have knowledge on particular issue or were not able to respond. The responses to the items were recorded by assigning value as: Don't know = 1, Not useful=2, somewhat useful=3 and Very useful=4. The variable organization type with option PSU Organization and non-PSU organization was included to study the difference in opinion of library staff of PSU organizations and non-PSU organizations. The data was analyzed using MS Excel and the SPSS software. The statistical tools used for this study are frequency distribution, percentage, weighted average and independent sample t-test (Levin's test for the equality of variance).

Out of 48 respondents, there were 31 respondents from PSUs and 17 were from non-PSU organizations.

Analysis

Awareness of social media applications among library staff

The respondents were asked whether they are aware of applications of social media. It is found that only 33 (69%) of respondents were aware of applications of social media while 15 (31%) of respondents were not aware of it.

Out of 31 respondents from PSUs, 22 (70%) respondents are aware of social media applications. Out of 17 respondents from non-PSU organizations, 11 (65%) are aware of it. Hence, there is no significant difference among library staff from PSU and non-PSU organization in term of their awareness of social media applications in libraries.

Social media use frequency

Respondents were asked about their frequency of use of social media applications at work place. Table 2 presents the data about frequency of use of

social media applications by library staff at work place and it is found from this table that:

- Out of 48 respondents, 15 (31.3%) respondents did not respond about their frequency of use. They may be the respondents who were not aware of the use of social media applications.

- There were respondents who were aware but never used social media applications like social cataloguing (60.4%), RSS aggregators (56.3%), web file sharing service (56.3%), social bookmarks (56.3%), Powerpoint sharing (54.2%), content management (52.1%) and collaborative writing (47.9%). It was found that majority of library staff do not use these social media applications i. e. social cataloguing, RSS aggregators, Web file sharing service, social bookmarks, Powerpoint sharing, content management and Collaborative writing.

- Photo sharing and Blogging/micro blogging are never used by 20 (41.7%) and 18 (37.5%) respondents respectively and used sometimes or frequently by 13 (27.1%) and 15 (31.3%) respondents respectively.

- Social media applications which are either used sometimes or frequently by the large number of respondents are Instant messaging/Chat, Social

networking, Video/Audio sharing and Discussion Groups.

- Social networking, Wikis and Listserv are used some times or frequently by the 26 (54.2%), 22 (45.6%) and 19 (39%) respondents respectively, which are most frequently used social media applications among the selected social media tools.

Usefulness of social media

The opinion of library staff regarding usefulness of social media applications were sought to evaluate their perception. Results are given in Table 3.

It is found that majority of the respondents were unaware about usefulness of most of the identified social media applications at work place. A very small number of respondents expressed their opinion on usefulness of social media applications like Listserv, social networking, Instant messaging/chat, Wikis and Discussion Groups. Very small portion of respondents had opinion that wikis (31%), discussion groups (25%), listserv (20.9%) and social networking (16.7%) are useful at work place.

To evaluate the rating in terms of usefulness of identified social media applications as perceived by library staff, weighted average were calculated by

Table 2—Frequency of use of social media applications at work place

Social media applications	Frequency of use Count (percentage)				Total Count (percentage)
	Never	Sometime	Frequently	No response	
Social cataloguing	29 (60.4)	4 (8.3)	0	15 (31.3)	48 (100)
RSS Aggregators	27 (56.3)	5 (10.4)	1 (2.10)	15 (31.3)	48 (100)
Web file sharing services	27 (56.3)	6 (12.5)	0	15 (31.3)	48 (100)
Social bookmarks	27 (56.3)	6 (12.5)	0	15 (31.3)	48 (100)
Power point sharing	26 (54.2)	7 (14.6)	0	15 (31.3)	48 (100)
Content management	25 (52.1)	8 (16.7)	0	15 (31.3)	48 (100)
Collaborative writing	23 (47.9)	8 (16.7)	2 (4.2)	15 (31.3)	48 (100)
Photo sharing	20 (41.7)	13 (27.1)	0	15 (31.3)	48 (100)
Blogging/micro blogging	18 (37.5)	14 (29.2)	1 (2.1)	15 (31.3)	48 (100)
Instant messaging/Chat	12 (25.0)	19 (39.6)	2 (4.2)	15 (31.3)	48 (100)
Video/Audio	13 (27.1)	16 (33.3)	4 (8.3)	15 (31.3)	48 (100)
Discussion Groups	11 (22.9)	18 (27.5)	4 (8.3)	15 (31.3)	48 (100)
Wikis	11 (22.9)	17 (35.2)	5 (10.4)	15 (31.3)	48 (100)
Social networking	7 (14.6)	17 (35.4)	9 (18.8)	15 (31.3)	48 (100)
Listserv	14 (29.2)	13 (27.1)	6 (12.5)	15 (31.3)	48 (100)

Table 3—Usefulness of social media applications at work place as perceived by library staff

Social media applications	Don't know	Not useful	Somewhat useful	Very useful	No response	Total
Collaborative writing	28 (58.3)	1 (2.1)	2 (4.2)	0	17 (35.4)	48 (100)
Social bookmarks	27 (56.3)	1 (2.1)	2 (4.2)	1 (2.1)	17 (35.4)	48 (100)
Social cataloguing	27 (56.3)	1 (2.1)	3 (6.3)	0	17 (35.4)	48 (100)
RSS aggregators	26 (54.2)	2 (4.2)	2 (4.2)	1 (2.1)	17 (35.4)	48 (100)
Power point sharing	25 (42.1)	4 (8.3)	1 (2.1)	1 (2.1)	17 (35.4)	48 (100)
Web file sharing services	25 (42.1)	4 (8.3)	1 (2.1)	1 (2.1)	17 (35.4)	48 (100)
Content management	23 (47.9)	2 (4.2)	6 (12.5)	0	17 (35.4)	48 (100)
Video/Audio sharing	23 (47.9)	1 (2.1)	7 (14.6)	0	17 (35.4)	48 (100)
Photo sharing	23 (47.9)	4 (8.3)	3 (6.3)	1 (2.1)	17 (35.4)	48 (100)
Blogging/micro blogging	22 (45.8)	4 (8.3)	4 (8.3)	1 (2.1)	17 (35.4)	48 (100)
Listserv	18 (37.5)	3 (6.3)	7 (14.6)	3 (6.3)	17 (35.4)	48 (100)
Social networking	17 (35.4)	6 (12.5)	7 (14.6)	1 (2.1)	17 (35.4)	48 (100)
Instant messaging/Chat	16 (33.3)	7 (14.6)	8 (16.7)	0	17 (35.4)	48 (100)
Wikis	15 (31.3)	1 (2.1)	11 (22.9)	4 (8.3)	17 (35.4)	48 (100)
Discussion groups	14 (29.2)	5 (10.4)	11 (22.9)	1 (2.1)	17 (35.4)	48 (100)

Table 4—Usefulness of social media at work place as
perceived by library staff (n=31)

Social media applications	Weighted average
Wikis	2.13
Discussion groups	1.97
Listserv	1.84
Instant messaging/Chat	1.74
Social networking	1.74
Video/Audio sharing	1.48
Blogging/micro blogging	1.48
Content management	1.45
Photo sharing	1.42
Power point sharing	1.29
Web file sharing services	1.29
RSS Aggregators	1.29
Social bookmarks	1.26
Social cataloguing	1.23
Collaborative writing	1.16

assigning value 1 to 4 respectively to their level of knowledge i.e., Don't know, Not useful, Somewhat useful and Very useful. Thirty one responses that were received for this question were analysed.

Table 4 shows that library staff perceived *wikis* as most useful social media application in libraries. Top 5 most useful social media applications are *wikis, discussion groups, listserv, instant messaging/chat and social networking*. However, usefulness of these social media applications is not significant as the WA score is around 2 or less than 2. Rest of the social media applications were not perceived useful in libraries by library staff.

The data comparing the perception among library staff of PSUs and non-PSU organizations about usefulness of social media applications is presented in

Figure 1. It can be seen that library staff of PSUs perceived the usefulness of social media applications at work place better in comparison to library staff of non-PSU organizations, as the weighted average in respect of perceived usefulness of each social media application is higher in case of library staff of PSUs. However, the difference in perception among library staff of both the category of organization is not very significant, except in case of Wikis, where weighted average of perceived usefulness of library staff of PSUs is 2.13, and 1.76 in case of library staff of non-PSU organizations. Hence, it was found that library staff of both types of organization perceived the usefulness of social media applications in libraries in almost similar pattern.

Learning social media applications

Figure 2 shows that 15 (31%) respondents have not responded to this question. Nineteen (40%) respondents recorded that on the job experience was their major source of knowledge about social media applications, 11 (23%) respondents indicated self

study. Training/Workshop (4%) and interaction with professionals (4%) were indicated by very few respondents as their major source of knowledge about social media applications.

Test of Hypothesis

The statistical analysis of independent sample t-test (Levin's test for the equality of variance) was employed to test the only hypothesis framed for this study. As per the analysis of the data, it was found that the sig value for independent sample t-test with 95% level of confidence is 0.707, which is more than level of significance i.e. 0.05, so study fails to reject the null hypothesis. Therefore, it can be concluded that there is no significant difference between PSU library staff and non-PSU library staff about how useful they perceive the use of social media applications in libraries.

Conclusion

The result of the present study was not very encouraging as it is found in the study that awareness
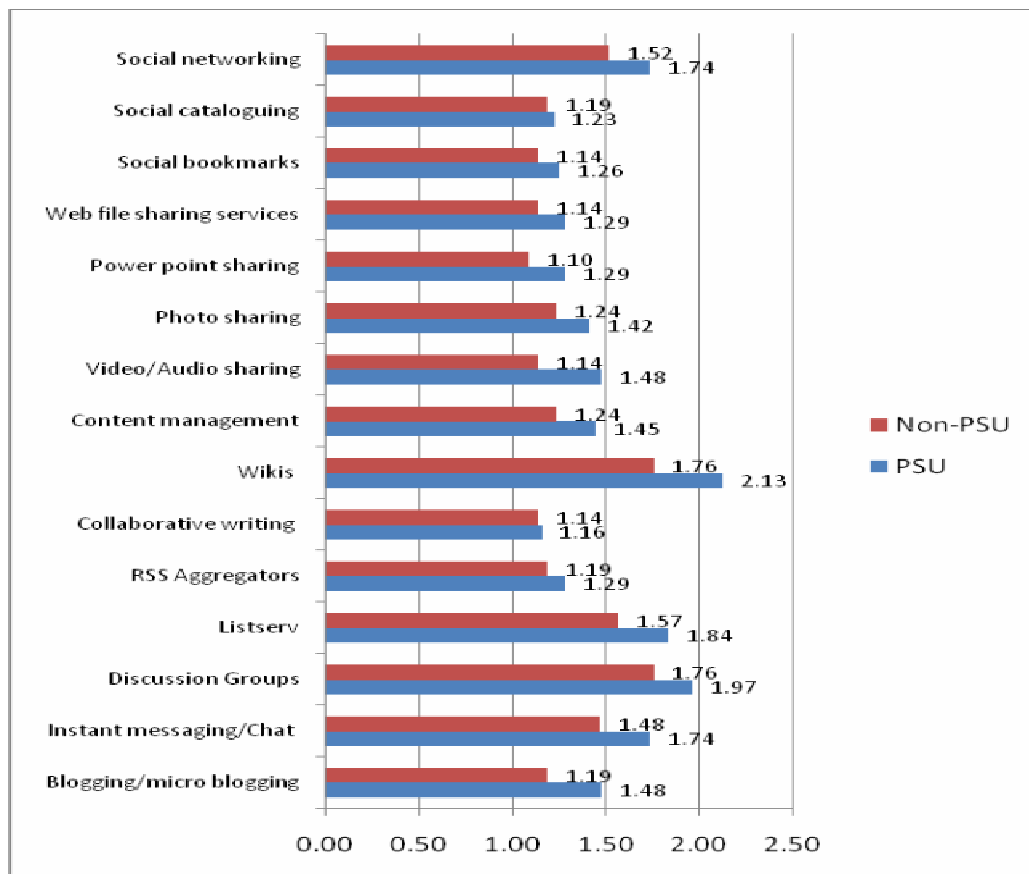

Fig. 1—Usefulness of social media at work place as perceived by PSU & Non-PSU Library staff
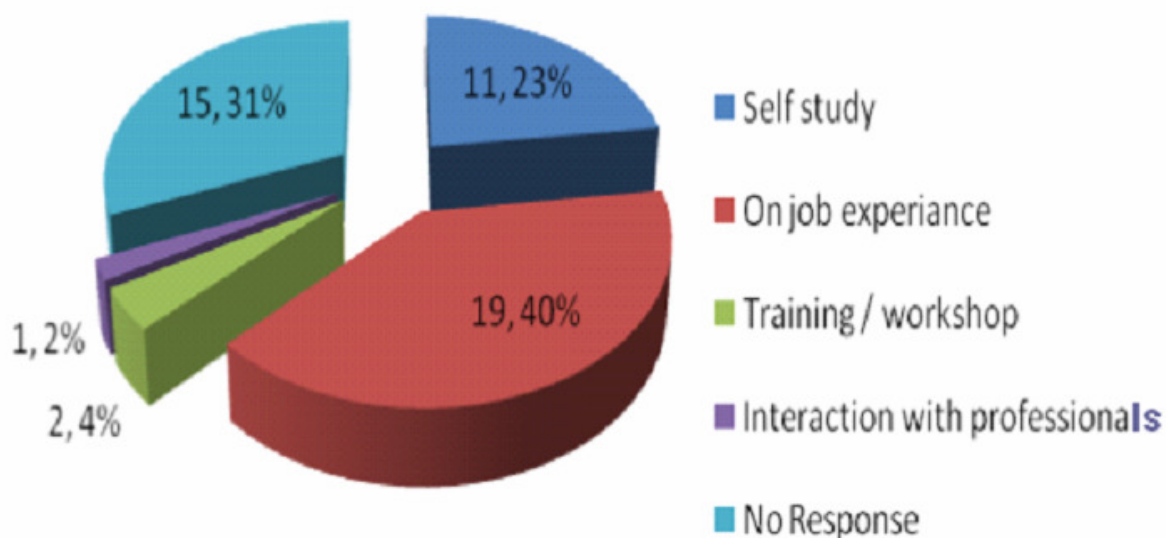
Fig. 2—Major source of knowledge about social media

and knowledge among library staff on social media applications is very poor. Majority of library staff are not using social media applications in their libraries. Very few social media applications like social networking (e.g. facebook), wikis, blogging, listserv, instant messaging are used by the library staff. Library staff is also not adequately aware of usefulness of social media applications since they are not properly getting knowledge and training on these applications. Number of studies showed that libraries are using social media applications widely at different levels of library activities, services and interactions[29]. The libraries are the major source of learning, which is a social activity itself. Similarly, social software and web 2.0 serve the education community at larger scale as such these applications have wider potential for Library Community[30]. Librarians and library staff may use and experiment with the web 2.0 technologies to enhance the value of the services they offer[31]. Social networking sites may be experimented in the libraries as an effective way of information dissemination and marketing of services[32], interaction with their patrons and to connect with other librarians[33-34], connect libraries with the information sources of great importance[35] etc. Chen et al. (2012)[36] pointed out the need of coordinating social networking sites properly for improving the quality of library services and effective interaction with the library users. For the purpose of library instruction and training on information literacy, librarians should adapt to these tools especially social media and web

2.0 technologies, including social networking websites, blogs, RSS, wikis, etc. which are freely available online over the internet[37]. Another found that libraries which have started to use these tools have achieved the success at different levels through heightened interaction and engagement among library users[38].

Considering the enormous advantages and use of the social media applications, library staff of power sector organizations should start experimenting for availing benefits of these tools. The present study revealed that the major source of knowledge to learn about social media applications is job experience, while very few respondents attend training and workshop on these tools. Hence, management and decision makers in libraries should facilitate training to enhance their knowledge in this area. Library staff should also be motivated to demonstrate their skills in implementation of these tools in the library in a hassle free environment. Library may face some resistance in establishing consistent views of these tools and their functions, and to harness the potential benefits to larger extent as a result of new idea for few or more libraries[39]. But ultimately, application of these tools would bring revolutionary changes in managing the services of power sector libraries. Based on the results of this study and the feedback received from library staff of power sector organizations, further research is warranted in the area of social media applications in power sector libraries with the aim to answer the following question:

- How can librarians make the appropriate choice for adoption of various social media applications in libraries?

- What should be the framework for application of social media in view of the requirement of the organization?

- What are the expected problems and their solutions for implementation of different social media applications in the libraries?

References

1. Davis III C H, Deil-Amen R, Rios-Aguilar C and Gonzalez Canche M. S, Social Media in Higher Education: A literature review and research directions. Claremont Graduate University (2012). Available at http://works.bepress.com/-cgi/viewcontent.cgi?article=1003&context=hfdavis (Accessed on 22 August 2014).

2. Constantinides E and Fountain S J, Web 2.0: Conceptual foundations and marketing issues, *Journal of Direct, Data and Digital Marketing Practice*, 9 (3) (2008) 231-244. Available at http://www.palgrave-journals.com/dddmp/-journal/v9/n3/full/4350098a.html (Accessed on 15 August 2014).

3. Kilroy D, Growth of social media: social media obsession [Web log message] (2014). Available at http://www.sociallystacked.com/2014/01/the-growth-of-soci-al-media-in-2014-40-surprising-stats-infographic/ (Accessed on 21 August 2014).

4. Fu F, Liu L and Wang L, Empirical analysis of online social networks in the age of Web 2.0, *Physica A: Statistical Mechanics and its Applications* 387 (2-3) (2008) 675-684. Available at http://www.sciencedirect.com/science/article/-pii/S0378437107010631 (Accessed on 22 August 2014).

5. Gul S and Islam S, Adoption of social media by online newspapers of Kashmir, *Annals of Library & Information Studies*, 60 (2) (2013) 56–63.

6. Steiner S K, Strategic planning for social media in libraries (Vol. 15). (American Library Association; Chicago), 2012, p. 2.

7. Secker J, Social software and libraries: a literature review from the LASSIE project, *Program: electronic library and information systems* 42 (3) (2008) 215-231.

8. Braziel L, Social media marketing example #12: Library of Congress [Web log message] (2009). Available at http://www.ignitesocialmedia.com/social-media-examples/-social-media-marketing-example-library-of-congress/ (Accessed on 12 Augut 2014).

9. Convertive, Using social media in major library systems. Avaialbale at http://www.convertiv.com/using-social-media-in-a-major-library-system/ (Accessed on 9 June 2014).

10. Dickson A and Holley R P, Social networking in academic libraries: the possibilities and the concerns, *New Library World*, 111 (11/12) (2010) 468-479.

11. Bhardwaj R K, Use of Social Networking Sites by LIS Professionals in Higher Education Institutions in India: A Study, *The Reference Librarian*, 55(1) (2014) 74-88.

12. Fernandez J, A SWOT Analysis for Social Media in Libraries, *ONLINE*, 33(5) (2009) 35. Available at http://digitalcommons.library.umaine.edu/cgi/viewcontent.cgi?article=1004&context=lib_staffpub (Accessed on 22 June 2014).

13. Khan S A and Bhatti R, Application of social media in marketing of library and information services: A case study from Pakistan, *Webology*, 9 (1) (2012) 1-8. Available at http://www.webology.org/2012/v9n1/a93.html (Accessed on 22 August 2014).

14. Click A and Petit J, Social networking and Web 2.0 in information literacy. *The International Information & Library Review*, 42 (2) (2010) 137-142.

15. Luo L, Web 2.0 integration in information literacy instruction: an overview, *The Journal of Academic Librarianship*, 36 (1) (2010) 32-40.

16. Ram S, Anbu K, Paul J and Kataria, S, Responding to User's Expectation in the Library: Innovative Web 2.0 Applications at JUIT Library: A Case Study, *Program: Electronic Library and Information Systems*, 45 (4) (2011) 452-469.

17. Bhat, M. I. (2009). Increasing the Discovery and use of e-resources in University Libraries.In 7th International CALIBER-2009 (pp. 532-543), Puducherry, February 25-27, 2009. Retrieved from: http://www.inflibnet.ac.in/caliber-2009/CaliberPDF/67.pdf.

18. Mathews B, Why does my library use social media? [Web log message]. Available at http://chronicle.com/blognet-work/theubiquitouslibrarian/2011/07/06/why-does-my-library-use-social-media/ (Accessed on 13 August 2014).

19. Njoroge G G and Kang'ethe P, University Libraries and Social Media-The Case of the Postmodern Library, Kenyatta University, *Journal for Library Culture*, 1 (1) (2013).

20. Harinarayana N S and Raju N V, Web 2.0 features in university library web sites. *Electronic Library, The*, 28 (1) (2010) 69-88.

21. Jain P, Application of Social media in marketing library & information services: a global perspective. *International Journal of Academic Research and Reflection*, 2(2) (2014) 62-75. Available at http://www.idpublications.org/wp-content/uploads/2014/01/Full-Paper-APPLICATION-OF-SO-CIAL-MEDIA-IN-MARKETING-LIBRARY-INFORMATION-SERVICES-A-GLOBAL-PERSPECTIVE.pdf (Accessed on 11 July 2014).

22. Šalamon-Cindori B, The role of social networks in the promotion of libraries and cultural heritage. Proceedings of paper presented in 8th SEEDI Conference, National and University Library in Zagre.

23. Maness J M, Library 2.0 Theory: Web 2.0 and Its Implications for Libraries, *Webology,* 3 (2) (2006). Available at from http://www.webology.org/2006/v3n2/a25.html (Accessed on 23 July 2014).

24. Muruli N and Gireesh Kumar T K (2013), Marketing of Library Services and Products through Social Media: An Evaluation, Proceedings of pape presented in National Conference on Inspiring Library Services 2013 (NCILS - 2013), Sree Siddhartha Pre University College, Tumkur,

Karnataka, 12-13 July 2013.Available at http://eprints.-rclis.org/20961/ (Accessed on 22 August 2014).

25. Mahmood K and Richardson Jr J V, Adoption of Web 2.0 in US academic libraries: a survey of ARL library websites. *Program: Electronic Library and Information Systems*, 45 (4) (2011)365-375.

26. Parvathamma N and Danappa Pattar, Digital literacy among student community in management institutes in Davanagere District, Karnataka State, India, *Annals of Library & Information Studies*, 60 (3) (2013) 159–166.

27. Madhusudhan M, Use of social networking sites by research scholars of the University of Delhi: A study. The International Information & Library Review, 44 (2) (2012) 100-113.

28. Chu S K W, Cheung H S C, Hui, J S C, Chan R L S and Man K S Y, Applications of social networking tools in libraries. Proceedings of Paper presented at Annual conference of International Federation of Library Associations and Institutions (IFLA) 2010, Gothenburg, Sweden. Available at http://web.hku.hk/~samchu/docs/Chu-2010-Applications-of-social-networking-tools-in-libraries.pdf (Accessed on 22 May 2014).

29. Collins G and Quan‐Haase A, Social media and academic libraries: Current trends and future challenges. Proceedings of the American Society for Information Science and Technolog, Baltimore, USA, 26-31 October 2012, 49 (1). Available at http://asis.org/asist2012/proceedings/Submissions/272.pdf (Accessed on 17 July 2014).

30. Secker J, Social software and libraries: a literature review from the LASSIE project, *Program: electronic library and information systems* 42 (3) (2008) 215-231.

31. Farkas M G, Social Software in Libraries: Building Collaboration, Communication, and Community Online, (Information Today Inc.; New Jersey), 2007, p. 1-8.

32. Burkhardt A, Social media: a guide for college and university libraries. *College & Research Libraries News*, 71 (1) (2010) 10-24.

33. Breeding M, Librarians Face Online Social Networks, *Computers in Libraries*, 27(8) (2007).

34. O'Dell S, Opportunities and Obligations for Libraries in a Social Networking Age: A Survey of Web 2.0 and Networking Sites, *Journal of Library Administration,* 50 (3) (2010) 237-251.

35. Milstein S, Twitter for Libraries (and Librarians). *Computers in Libraries*, 29 (5) (2009). Available at http://www.infoto-day.com/cilmag/may09/Milstein.shtml (Accessed on 2 August 2014).

36. Chen D Y T, Chu S K W and Xu S Q. How do libraries use social networking sites to interact with users, Proceedings of the American Society for Information Science and Technology, Baltimore, USA, 26-31 October 2012, 49 (1). Available at http://asis.org/asist2012/proceedings/Submiss-ions/85.pdf (Accessed on 17 May 2014).

37. Click A and Petit J, Social networking and Web 2.0 in information literacy. *The International Information & Library Review*, 42 (2) (2010) 137-142.

38. Chu S K W, Cheung H S C, Hui J S C, Chan R L S and Man K S Y, Applications of social networking tools in libraries. Proceedings of Paper presented at Annual conference of International Federation of Library Associations and Institutions (IFLA) 2010, Gothenburg, Sweden. Available at http://web.hku.hk/~samchu/docs/Chu-2010-Applications-of-social-networking-tools-in-libraries.pdf (Accessed on 22 May 2014).

39. Chu S K W, Cheung H S C, Hui J S C, Chan R L S and Man K S Y, Applications of social networking tools in libraries. Proceedings of Paper presented at Annual conference of International Federation of Library Associations and Institutions (IFLA) 2010, Gothenburg, Sweden. Available at http://web.hku.hk/~samchu/docs/Chu-2010-Applications-of-social-networking-tools-in-libraries.pdf (Accessed on 22 May 2014).

40. Van Zyl A S, The impact of Social Networking 2.0 on organisations, *Electronic Library, The*, 27 (6) (2009) 906-918.

41. Duffy P D and Bruns A, The use of blogs, wikis and RSS in education: A conversation of possibilities. In Proceedings of paper presented at Online Learning and Teaching Conference, Brisbane, 2006, p. 59-38. Available at http://-eprints.rclis.org/5617/1/RSS_and_libraries_EN3.pdf (Acce-ssed on 12 July 2014).

42. Barsky E and Purdon M, Introducing Web 2.0: social networking and social bookmarking for health librarians, *Journal of the Canadian Health Libraries Association*, 27 (3) (2006) 65-67.

43. Fulton C, Library perspectives on Web content management systems. *First Monday*, 15 (8) (2010). Available at http://firstmonday.org/ojs/index.php/fm/article/view/2631/25 79 (Accessed on 29 July 2014).

44. Van Zyl A S, The impact of Social Networking 2.0 on organisations, *Electronic Library, The*, 27 (6) (2009) 906-918.

45. Boulos M N K, Maramba I and Wheeler S, Wikis, blogs and podcasts: a new generation of Web-based tools for virtual collaborative clinical practice and education. *BMC medical education*, 6 (1) (2006) 41.

46. Boulos M N K and Wheeler S, The emerging Web 2.0 social software: an enabling suite of sociable technologies in health and health care education, *Health Information & Libraries Journal*, 24 (1) (2007) 2-23.

47. Discussion Group, Available at http://en.wikipedia.org/-wiki/Discussion_group (Accessed on 11 August 2013).

48. Van Zyl A S, The impact of Social Networking 2.0 on organisations, *Electronic Library, The*, 27 (6) (2009) 906-918.

49. Boulos M N K and Wheeler S, The emerging Web 2.0 social software: an enabling suite of sociable technologies in health and health care education, *Health Information & Libraries Journal*, 24 (1) (2007) 2-23.

50. LISTSERV, Available at http://en.wikipedia.org/ wiki/List-serv (Accessed on 14 February 2014).

Appendix – A

Questionnaire: Impact of IT application on Power Sector Libraries located in North India
(For Library Staff)

1.   Are you aware of Use/applications of social media: YES ☐   NO ☐

2.   How frequently, you use the following social media tools/services AND how useful you perceive it at work place:

Social Media/Tools	Frequency of use			Usefulness at your work			
	Never	Some times	Frequently	Don't know	Not useful	Somewhat useful	Very useful
a)Blogging/micro blogging (e.g. twitter)							
b) Instant messaging/Chat (e.g. GoogleTalk)							
c) Discussion Groups (e.g. Yahoo Groups)							
d) Listserv (e.g. LISforum)							
e) RSS Aggregators (e.g., Bloglines, iGoogle)							
f) Collaborative writing (e.g. GoogleDocs)							
g) Wikis (e.g. Wikipedia)							
h) Content management (e.g. Drupal)							
i) Video/Audio sharing (e.g., YouTube, Vimeo)							
j) Photo sharing (e.g., Flickr, Picasa)							
k) Power point sharing (e.g., SlideShare, Prezi)							
l) Web file sharing services (e.g, Dropbox)							
m) Social bookmarks (e.g., Delicious, Connotea)							
n) Social cataloguing (e.g., LibraryThing)							
o) Social networking (e.g., Facebook, LinkedIn)							

3.   How did you learn about above social media applications (Please tick the major source)
☐ Self study   ☐ On-job experience   ☐ Attended training/workshop   ☐ Interaction with other professionals

Personal Information:
i). Name & designation (Optional):_____
ii). Organization: _____
iii). E-Mail ID: _____

Note: This is the specific part of a descriptive questionnaire.

Appendix – B

Name of Organizations under the Study

Sl. no.	Name of organization	Location
	PSUs	
1	NHPC Limited	Faridabad
2	NTPC Limited	Noida
3	Power Finance Corporation Ltd. (PFC)	Delhi
4	Power Grid Corporation of India Ltd. (PGCIL)	Gurgaon
5	Rural Electrification Corporation Ltd. (REC)	Delhi
6	SJVN Limited	Shimla
7	THDC India Ltd.	Rishikesh
	Other than PSUs	
8	Central Electricity Authority (CEA) & Bureau of Energy Efficiency (BEE)	Delhi
9	Central Electricity Regulatory Commission (CERC)	Delhi
10	Ministry of Power, Govt. of India	New Delhi
11	National Power Training Institute (N.R.) (NPTI)	Delhi
12	National Power Training Institute (NPTI)	Faridabad
13	Power Management Institute (PMI), Noida	Noida

Note: Following two PSUs were also included for the study, but their authorities didn't allow to conduct the survey:

1.   Bhakhra Beas Management Board (BBMB), Chandigarh

2.   Power Trading Corporation (PTC), Delhi