

# Use of Web 2.0 Technology by Library Professionals: Study of Selected Engineering Colleges in Western Uttar Pradesh

Sunil Tyagi

*Indian Pharmacopoeia Commission, CIPL Campus, Rajnagar, Sector-23, Ghaziabad-201 002*  
*E-mail: suniltyagi1979@gmail.com*

## ABSTRACT

This paper reports on the awareness and usage analysis of Web 2.0 technologies by library professionals in library and in their personal life at their workplaces. The methodology for the proposed study is 'Survey Method' with the help of structured questionnaire. The sample respondents chosen for the study consists of librarians, deputy librarians, assistant librarians, and library assistants. Total 100 questionnaires were distributed (randomly) to the selected sample for the current year; 92 valid samples were collected and analyzed. Web 2.0 is especially useful and creative when knowledge is digitized made modular and allowed to be used and distributed in a flexible way. Study was carried out to know the awareness regarding Web 2.0 tools like blogs, wikipedia, RSS Feed, social networks, podcasting, and others (SNS, mashup). It is observed from the study that significant portion of the respondents have good knowledge about the Web 2.0. Web 2.0 provided innovative and interesting resources for librarians to serve their users as quickly and effectively as possible with new ways. The respondents having excellent skills of internet usage were more inclined towards adoption of Web 2.0 technologies in their personal life. In the geographical distribution, the libraries are far away from Web 2.0 technologies. To explore the factors affecting toward adoption of Web 2.0 technologies in the libraries, a comprehensive study should be conducted on the country level.

**Keywords:** Web 2.0, blogs, Wikis, RSS feed, podcasting, social bookmarking

## 1. INTRODUCTION

The libraries or resource centres and information services in this decade have made a great stride in being able to play a leading role. These, along with organisations that manage information, have had to integrate the necessary technological changes to adapt to the new challenges. For this, they have made important investments in technology, to update their infrastructure, and in training their personnel.

The current online presence of information services is important and in continuous evolution, just like the web itself. The current web, which includes the traditional web and the so-called Web 2.0 or Social Web, is increasingly based more on the active role of its users. Users are no longer simple consumers of contents and services, but have become an active part in its development by producing and sharing all sorts of contents. The innovation of Web 2.0 has radically redefined the world wide web by facilitating two-way communication through social networking sites such as Facebook, Twitter, and blogs. Web 2.0 takes the stagnant Web 1.0 and makes it more

user-driven, collaborative, participatory, and personalised. This study measures how effectively librarians are capturing this opportunity for increased student engagement<sup>1</sup>.

## 2. SCOPE OF STUDY

### 2.1 Statement of Problem

Many early-adopters began to experiment with Web 2.0 tools such as RSS feeds, wikis, chat tools, podcasting, video-sharing, and bookmarking. Since then, all kinds of surveys have been conducted in jurisdictions that describe how these tools are used<sup>2-6</sup>. In addition, academic librarians regularly report on their use of social media at association meetings and in scholarly papers, but no Western Uttar Pradesh-wide study has yet been conducted on application of Web 2.0 tools. The library and information sciences literature is filled with applied research, opinion-based case studies and early theoretical research<sup>7</sup> but generally it lacks a strong empirical base. It is not known, for example, what types of Web 2.0 technologies are commonly used by libraries

and whether they adapted their traditional bibliographic or legacy systems to respond to service expectations created by social media. Finally, there is a need to establish an overall view of innovative uses of Web 2.0 technology in Indian academic libraries specially in engineering libraries for capturing best practices and to apply that information to developing frameworks and novel services for faculty, staff, and students.

## 2.2 Scope of Study

The present study deals usage analysis of Web 2.0 technologies by library professionals in selected engineering colleges at Western Uttar Pradesh. The geographical area is restricted to Western Uttar Pradesh only. Further studies could identify which barriers occur at which stages in the Web 2.0 technologies using process and how can these obstacles be overcome. There is a vast scope for further research to study different types of users' behaviour and attitudes towards the Web 2.0 technologies. The present study is confined to 46 engineering colleges (owned by state government and private management) at Noida, Greater Noida, Ghaziabad, and Meerut of Uttar Pradesh (Appendix 1).

## 3. LITERATURE REVIEW

Web 2.0 provided innovative and interesting resources for librarians to serve their users as quickly and effectively as possible with new ways<sup>8</sup>. In the similar way, Keralapura<sup>9</sup> stressed that information technology (IT) influenced the functions of libraries and changed the information seeking behaviour of readers. Being self-motivated and service minded, this was the responsibility of librarians to incorporate IT-based resources and services to satisfy the customers in a better way.

Trend to adopt/use of Web 2.0 in libraries has been started for last five years. In 2009, Aharony<sup>2</sup> explored that whether librarians working in school, public and academic libraries were familiar with the technologies of Web 2.0 as well as they used them in the libraries. According to the findings of the study, personality characteristics (resistance to change, cognitive appraisal, empowerment and extroversion or introversion), computer expertise, motivation, importance and capacity towards studying and integrating different applications of Web 2.0 in the future, influenced librarians' use of Web 2.0. The individual differences with respect to technology acceptance were existed. It was disclosed that library manager as compared to librarians were more inclined to incorporate Web 2.0 technologies to offer new services in the libraries. However the 'librarians were quite exposed to these changes. They understood that to survive, remain relevant, attract new patrons, and be professional, they should master the newest technological applications and apply them in their changing work environment'. During

the survey of 60 universities, Chu<sup>3</sup> explored that 'where electronic services are becoming more and more popular, an increasing number of academic libraries are applying or planning to apply Web 2.0 technologies like wikis'. The study also highlighted the three most commonly reported difficulties; low participation rate of users, difficulty in promoting the new technology, and users' lack of knowledge towards usage of wikis.

To explore the extent of Web 2.0 technologies applications, Xu<sup>10</sup>, *et al.* surveyed of 81 academic libraries' website in the New York State. They found that 34 (42 %) libraries incorporated one or more Web 2.0 applications for various purposes. The maximum usage of the Web 2.0 technologies was blogs while the least adopted technology named podcasting in the libraries.

Based on the study's findings, they proposed a conceptual model Academic Library 2.0 which comprised Web 2.0, User 2.0, Librarian 2.0 and Information 2.0. According the model, users can be served in better way only if they are considered essential part of libraries' operations and services. Linh<sup>11</sup> conducted a survey of 47 Australian and New Zealand universities. Of the total 47, university libraries (26 in Australia and 6 in New Zealand) used Web 2.0 technologies. The findings of the study showed that "at least two-thirds of Australasian university libraries deployed one or more Web 2.0 technologies. Only four Web 2.0 technologies were used for specific purposes and with some basic features".

## 4. RESEARCH OBJECTIVES

The main objective of the study is to conduct a usage analysis of Web 2.0 technologies in library by library professionals of selected engineering colleges at Western Uttar Pradesh. The other objectives are as follows:

- (a) How are library professionals using Web 2.0 technologies to complement this and to improve service provision and use in personal life?
- (b) Is Web 2.0 making libraries more students-driven by creating an environment for increased two-way communication?
- (c) Are librarians successfully exploiting the social nature of Web 2.0 to engage students?

### 4.1 Research Methodology

The methodology for the proposed study is 'Survey Method' with the help of structured questionnaire. The structured questionnaire is designed keeping in view of the stated objectives comprising of various types of questions, keeping in view of the aspects like total population of library professionals in the engineering colleges, perceived level of computer literacy, selection/

recommendation of Web 2.0 tools, promotion of Web 2.0 technology, and future plans to improve usage of Web 2.0 technologies in library. The primary data collected from the library professionals of the study engineering colleges (46) through structured user questionnaire. Non-probability sampling specifically accidental and purposive technique was applied in the collection of primary data through the administration of questionnaire. The sample respondents chosen for the study consists of Librarians, Deputy Librarians, Assistant Librarians, and Library Assistants. Total 120 questionnaires were distributed (randomly) to the selected sample for the current year; 92 valid samples were collected and analysed. A pilot study was conducted to streamline the user questionnaire in all of the study colleges. The collected data from questionnaires is analysed with suitable statistical methods (descriptive statistics). The defects such as features and subject, etc., are rectified and finally questionnaire is free from ambiguity. The primary data collected through structured questionnaire is analysed by using suitable statistical techniques like descriptive statistics.

## 5. SURVEY RESULTS

There were 49 (53.26 %) librarians, 15 (16.30%) deputy librarians, 17 (18.48 %) assistant librarians, and 11 (11.96%) library assistants. Study was carried out to know the awareness regarding Web 2.0 tools like blogs, wikipedia, RSS feed, social networks, podcasting, and others (SNS, mashup). It is observed that all of the

respondents have good knowledge about the Web 2.0 (Table 1). The respondents were asked to indicate whether they use Web 2.0 tools in personal work. On analysis it was observed that all the library professionals of all the participated engineering colleges have been using Web 2.0 tools in their personal work. But the libraries are far away from Web 2.0 technologies (Table 2).

A question was posed to determine which particular Web 2.0 tools are being used in their library. Table 3 depicts the results and on analyses it is observed that in equal percentage (7.61 %), the library professionals are using blogs and RSS feed in their respective library. Yet, there are still majorities who do not use Web 2.0 in library (Table 4). A question was posed regarding which particular blogs are being used in their personal life (Table 4).

Analysing Table 4, it is observed that 83.69 % respondents are using Lislink for their personal use followed by INFLIBNET (33.69 %). This means that the respondents are using blogs for their personal use only not for the library services (Table 4).

The study further explored to determine which wikis is popular among the library professionals. The results depicted in Table 5. On analysing it is observed that en.wikipedia (46.74%) is most popular among the library professionals followed by en.wiktionary (23.91 %). The respondents are using wikis for their personal use only not for the library services. The study further explored to determine which RSS Reader is popular among the library

**Table 1. Awareness about Web 2.0**

S. No.	Web 2.0 knowledge	Professional status							
		Librarians		Deputy Librarians		Assistant Librarians		Library Assistants	
		Yes (100%)	No	Yes (100%)	No	Yes (100%)	No	Yes (100%)	No
1.	Blogs	49	-	15	-	17	-	11	-
2.	Wikis	49	-	15	-	17	-	11	-
3.	RSS feed	49	-	15	-	17	-	11	-
4.	Social bookmarking	49	-	15	-	17	-	11	-
5.	Podcasting	49	-	15	-	17	-	11	-
6.	Other (SNS, Mashups)	49	-	15	-	17	-	11	-

**Table 2. Application of Web 2.0 tools in personal work**

S. No.	Web 2.0 tools application in personal work	Professional status							
		Librarians		Deputy Librarians		Assistant Librarians		Library Assistants	
		Yes (100%)	No	Yes (100%)	No	Yes (100%)	No	Yes (100%)	No
1.	Blogs	49	-	15	-	17	-	11	-
2.	Wikis	49	-	15	-	17	-	11	-
3.	RSS feed	49	-	15	-	17	-	11	-
4.	Social bookmarking	49	-	15	-	17	-	11	-
5.	Podcasting	49	-	15	-	17	-	11	-
6.	Other (SNS, Mashups)	49	-	15	-	17	-	11	-

**Table 3. Application of Web 2.0 tools in library**

S. No.	Web 2.0 application in library	Professional status				Average
		Librarians	Deputy Librarians	Assistant Librarians	Library Assistants	
1.	Blog	02 (4.08 %)	01 (6.67 %)	02 (11.76 %)	02 (18.18 %)	07 (7.61 %)
2.	Wikis	-	-	-	-	-
3.	RSS feed	02 (4.08 %)	01 (6.67 %)	02 (11.76 %)	02 (18.18 %)	07 (7.61 %)
4.	Social bookmarking	-	-	-	-	-
5.	Podcasting	-	-	-	-	-
6.	Other (SNS, Mashups)	-	-	-	-	-

**Table 4. Popular blogs among library professionals**

S. No.	Popular blogs	Professional status				Average
		Librarians	Deputy Librarians	Assistant Librarians	Library Assistants	
1.	LISlinks	41 (83.67 %)	13 (86.67 %)	15 (88.24 %)	08 (72.73 %)	77 (83.69 %)
2.	Indiacompetition	02	01	02	01	06
3.	Infinitecourses	-	-	-	-	-
4.	INFLIBNET	12	07	08	04	31
5.	Educationforallindia	-	-	-	-	-
6.	Studyfreak	03 (6.12 %)	02 (13.33 %)	02 (11.76 %)	-	07 (07.61 %)

**Table 5. Popular wikis among library professionals**

S. No.	Popular wikis	Professional status				Average
		Librarians	Deputy Librarians	Assistant Librarians	Library Assistants	
1.	en.wikipedia	23 (46.94%)	08 (53.33%)	09 (52.94%)	03 (27.27%)	43 (46.74%)
2.	en.wiktionary	12 (24.48%)	06 (40.00%)	02 (11.76%)	02 (18.18%)	22 (23.91%)
3.	fr.wiktionary	02 (4.08%)	01 (6.67%)	01 (8.88%)	01 (9.09%)	05 (5.43%)
4.	answers.wikia	02 (4.08%)	01 (6.67%)	01 (8.88%)	01 (9.09%)	05 (5.43%)
5.	reviews.wikia	01 (2.04%)	01 (6.67%)	01 (8.88%)	01 (9.09%)	04 (4.35%)

professionals (Table 6). It is observed that Google Reader (36.96 %) is most popular among library professionals followed by My Yahoo (27.17 %).

A question was posed to explore which particular sharing sites (video, photo, book, movie, music, etc.) the library professionals are using in their personal life. Table 7 depicts the results and analysis shows that facebook (100 %) is most popular among the library professionals followed by orkut (48.91 %). The respondents were asked to indicate whether they use blogs application in their personal work. It is analysed that of the population of library professionals of all the participated engineering colleges' majority of them add posts to blogs (33.69 %).

Whilst among respondents 27.17 per cent read blogs of others. Whereas the population of library professionals is less who have their own blogs (13.04 %) (Table 8).

The respondents were asked to indicate whether they use wikis application in their personal work. On analysis it was found that of the population of library professionals of all the participated engineering colleges' majority of library professionals read entries from Wikipedia (14.13 %) (Table 9). Another question was sought to ascertain the benefits of Web 2.0. The analysis shows that all the respondents belonging to the concerned colleges selected; support innovative teaching methods, peer-to-peer learning, creation of personal learning environment,

**Table 6. Popular RSS reader among library professionals**

S. No.	Popular RSS reader	Professional status				Average
		Librarians	Deputy Librarians	Assistant Librarians	Library Assistants	
1.	My Yahoo	12 (24.48 %)	06 (40.00 %)	05 (29.41 %)	02 (18.18 %)	25 (27.17 %)
2.	Bloglines	03 (6.12 %)	01 (6.67 %)	01 (5.88 %)	01 (9.09 %)	06 (6.52 %)
3.	Google Reader	15 (30.61 %)	08 (53.33 %)	08 (47.06 %)	03 (27.27 %)	34 (36.96 %)
4.	RssReader	03 (6.12 %)	01 (6.67 %)	01 (5.88 %)	01 (9.09 %)	06 (6.52 %)
5.	Opera RSS Reader	01 (2.04 %)	01 (6.67 %)	-	-	02 (2.17 %)
6.	Thunderbird	-	-	-	-	-

**Table 7. Popular sharing sites among library professionals**

S. No.	Popular sharing sites	Professional status				Average
		Librarians	Deputy Librarians	Assistant Librarians	Library Assistants	
1.	Orkut	21 (24.86 %)	09 (60.00 %)	08 (47.06 %)	07 (63.64 %)	45 (48.91 %)
2.	flickr	11 (22.45 %)	05 (33.33 %)	02 (11.76 %)	02 (18.18 %)	20 (21.74 %)
3.	Twitter	12 (24.48 %)	02 (13.33 %)	02 (11.76 %)	02 (18.18 %)	18 (19.57 %)
4.	Facebook	49 (100 %)	15 (100 %)	17 (100 %)	11 (100 %)	92 (100 %)
5.	Youtube	14 (28.57 %)	04 (26.67 %)	05 (29.41 %)	02 (18.18 %)	25 (27.17 %)
6.	Way2sms	08 (16.33 %)	04 (26.67 %)	05 (29.41 %)	01 (9.09 %)	18 (19.57 %)

**Table 8. Blogs application among library professionals**

Library professionals engaged in blogs	Professional status				Average
	Librarians	Deputy Librarians	Assistant Librarians	Library Assistants	
Those who have their own blogs	08 (16.33 %)	02 (13.33 %)	02 (11.76 %)	-	12 (13.04 %)
Those who read blogs of others	14 (28.57 %)	04 (26.67 %)	05 (29.41 %)	02 (18.18 %)	25 (27.17 %)
Those who add post to the blogs	21 (42.86 %) (16.33 %)	04 (26.67 %) (26.67 %)	05 (29.41 %) (29.41 %)	01 (09.09 %)	31 (33.69 %)

**Table 9. Blogs application among library professionals**

Library professionals engaged in blogs	Professional status				Average
	Librarians	Deputy Librarians	Assistant Librarians	Library Assistants	
Those who read entries from wikipedia	08 (16.33 %)	02 (13.33 %)	02 (11.76 %)	01 (9.09 %)	13 (14.13 %)
Those who add entries in wikipedia	-	-	-	-	-
Those who edit entries in wikipedia	-	-	-	-	-

**Table 10. Benefits of Web 2.0**

Benefits of Web 2.0	Professional status			
	Librarians	Deputy Librarians	Assistant Librarians	Library Assistants
Support innovative teaching methods	49 (100 %)	15 (100 %)	17 (100 %)	11 (100 %)
Peer-to-peer learning	49 (100 %)	15 (100 %)	17 (100 %)	11 (100 %)
Creation of personal learning environment	49 (100 %)	15 (100 %)	17 (100 %)	11 (100 %)
Enhance student motivation	49 (100 %)	15 (100 %)	17 (100 %)	11 (100 %)
Learner-centered instruction tools	49 (100 %)	15 (100 %)	17 (100 %)	11 (100 %)
Learning participation	49 (100 %)	15 (100 %)	17 (100 %)	11 (100 %)
Information/knowledge sharing	49 (100 %)	15 (100 %)	17 (100 %)	11 (100 %)
Corporative/collaborative work	49 (100 %)	15 (100 %)	17 (100 %)	11 (100 %)

enhance student motivation, learner centered instruction tools, learning participation, information/knowledge sharing, and corporative/collaborative work.

Regarding query about services like instant messaging (IM), apparently there was some confusion of the terminology IM and virtual chat reference service. None college libraries used the term of instant chat reference service and do not provide other Web 2.0 services. The libraries should provide such services to improve the standard and quality.

Regarding query about training of Web 2.0 in libraries, SMS services provided, none of the respondents indicated that their library or college provides training for Web 2.0. Libraries should provide training on Web 2.0 technology, through a one-hour seminar or as part of a literature search course. Library professionals in this study were asked about the satisfaction (with options 'satisfied', 'moderatively satisfied', 'dissatisfied', and no comments) with current usage of Web 2.0 tools, which is a very important variable to investigate user behaviour. All the respondents colleges were 'satisfied' with current usage of Web 2.0 tools at their workplaces.

## 6. CONCLUSIONS

For centuries, social and technological changes have been affecting every profession. During last two decades rapid technological development has affected library services as well. Specifically, for the last five years, Web 2.0 technologies have significant impact on the higher education sector as well on the libraries all over world<sup>12,13</sup>. This research is aimed to gain a picture of Web 2.0 technologies currently being used by library professionals in engineering college's library and in their personal life at Western Uttar Pradesh of India. Only a minority of library professionals are using Web 2.0 to communicate with students. Web 2.0 can generate two-way communications and that this can genuinely make the library service more students driven, more immediate and more responsive to student needs. This research indicates that library professionals appreciate learning experiences where new technologies add value to existing practice, and enhance the library services. They

take Web 2.0 as a part of their daily lives, and would like to see it integrated into library services only if it enriches their learning experience. The respondents having excellent skills of internet usage were more inclined toward adoption of Web 2.0 in their personal life. As academic libraries strive to reposition themselves in the digital environment and try to reconfigure their role, the librarians experiment the use of social tools of the Web 2.0 to advocate, promote, and raise awareness about library collections and services.

## 7. RECOMMENDATIONS

Based on the findings of this study, the following recommendations should be considered to adopt Web 2.0 technologies:

- (i) The LIS professionals in the country should be encouraged toward adoption of Web 2.0 technologies in the library.
- (ii) Libraries provide systematic training for staff on Web 2.0 to alleviate their anxiety over technology.
- (iii) To explore the factors affecting toward adoption of Web 2.0 technologies in libraries, a comprehensive study should be conducted on the country level.

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**Engineering Colleges Surveyed:**

1. Bharat Institute of Technology, Meerut
2. College of Engineering & Rural Technology, Meerut
3. Deewan Institute of Engineering and Technology, Meerut
4. Delhi Engineering College, Meerut
5. Gyan Bharti Institute of Engineering and Technology, Meerut
6. IIMT Engineering College, Meerut
7. JP Engineering College, Meerut
8. Kishan Institute of Engineering College, Meerut
9. Meerut Institute of Engineering & Technology, Meerut
10. Radha Govind Engineering College, Meerut
11. Shobhit Institute of Engineering & Technology, Meerut
12. Shubarti Institute of Technology and Engineering, Meerut
13. Sir Chhoturam Institute of Engineering & Technology, Meerut
14. Sri Ram Institute of Engineering & Technology, Meerut
15. Translam Engineering College, Meerut
16. Vidya Engineering College, Meerut
17. Ajay Kumar Garg Engineering College, Ghaziabad
18. Babu Banarasi Das Institute of Technology, Ghaziabad
19. Dehradun Institute of Management Science & Technology, Ghaziabad
20. DJ College of Engineering & Technology, Ghaziabad
21. Dr KN Modi Institute of Engineering & Technology, Ghaziabad
22. Hi-Tech Institute of Engineering & Technology, Ghaziabad
23. HR Institute of Technology, Ghaziabad
24. Ideal Institute of Technology, Ghaziabad
25. IMS Engineering College, Ghaziabad
26. Inderprastha Engineering College, Ghaziabad
27. Institute of Technology & Science, Ghaziabad
28. KNGD Modi Engineering College, Ghaziabad
29. Krishna Institute of Engineering & Technology, Ghaziabad
30. Lord Krishna College of Engineering, Ghaziabad
31. Raj Kumar Goel Institute of Technology, Ghaziabad
32. RD Engineering College, Ghaziabad
33. Sri Ganpati Institute of Technology, Ghaziabad
34. Sunderdeep Engineering College, Ghaziabad
35. Viveknanad Institute of Technology & Science, Ghaziabad
36. Vishveshwarya Institute of Engineering & Technology, GB Nagar
37. Centre For Development of Advanced Computing, Noida
38. Noida Instt. of Engineering & Technology, Noida
39. College of Engineering & Technology, Noida
40. JSS Academy of Technical Education, Greater Noida
41. Greater Noida Institute of Technology, Greater Noida
42. Galgotia's College of Engineering & Technology, Greater Noida
43. IEC College of Engineering & Technology, GB Nagar
44. Amity School of Computer Sciences, Noida
45. MGM's College of Engineering & Technology, GB Nagar
46. Skyline Institute of Engineering & Technology, Greater Noida