

# Medical Librarians and New Web Technologies: How Familiar are we with Web Facilities and Use of Library Services Applications?

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## Abstract.

**Objective:** In recent years, new information technology has changed the nature of services Offered by libraries around the world. Librarians are considered to be the link between the source of information and the end users. It is therefore necessary for the librarians to be fully versed in the process and workings of the system applications in order to provide the required services in libraries. The research carried out here has concentrated on the medical librarian's knowledge, about the new generations of World Wide Web, as well as the use of new applications and facilities in library services.

**The research method:** A descriptive Research Survey Method has been applied in this study. The comprehensive questioner had been designed for collection and collation of data which was distributed between 60 medical librarians, working in central and faculty libraries in three Medical & Sciences Universities. The data was collated and processed by SPSS software.

**Result:** The findings concluded the fact that, minority of Medical librarians in the conducted survey were reasonably familiar with facilities and applications of new web generations such as pod casts, video-casts, electronic discussion groups ... and were able to use these facilities in library services and the he majority were well versed and had sufficient knowledge in respect to general internet facilities like, Internet browsers, search engines and e-mails. Furthermore, the research has shown that about 90% of respondents believe that they need to continue their career development programs (CDP) and associated Education courses about web innovations.

## Conclusion:

As results show, the level of familiarity with the new web generations and use of the web applications in library services is relatively low.

Holding relevant courses and encouraging medical librarians to use these technologies in all library departments, including reference library services, should be encouraged and serious consideration must be implemented by relevant department managers.

**Keywords:** Librarians, Web 2.0, Blogs, Pod Casts, Social networks, Library services

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## 1. Introduction

World Wide Web, as the most common service available on the Internet has grown rapidly and innovatively from the time of its conception. The invention of technologies such as Web 2.0 and web 3.0, Library 2.0, Wikis and other services, are testament to this fact.

Through advent of the Internet, the number of news groups and specialized groups are increasing and the number of web pages has risen exponentially during the last decade. (From 1994 to 2004).<sup>7</sup>

At present, there are many scientific websites, data bases and e-journals providing information in various scientific areas. In today's world having a productive system, does not mean an expensive laptop or the latest software, although important; more enfaces must be made on training and use of the system software and understanding the components factors in relative totality.

So the librarians, as a link between information resource and users, must understand and apply the last information technology in order to sustain and provide a credible service to the library users.

The accelerated rapid growth of Internet-related technologies, the World Wide Web and delays in updating and training of the librarians in our society (especially in developing country), has created a knowledge vacuum in relation to the new web services and related facilities. So there is a lack of want, unfamiliarity and investment in use of these applications in library services.

In this situation, the question which comes to mind is that; to what extent are the medical librarians familiar with the internet concepts and applications?

How often do they use these applications and facilities to provide information for the library users?

The research survey's aim has been to identify and determine the medical librarians' knowledge, about the new web generations' tools and applications available such as, Web logs, Pod casts, Video-casts, newsgroups; introduction and process of using these facilities in library services.

In conclusion a survey will be conducted to see, if participants need to attend training class about the web to update their knowledge in this area.

Watson has mentioned that librarians approach to the web is different from other users. While the users believe that Web is a source of information, the librarians consider it as an information source and consider the technology as the means for developing a better information delivery services.<sup>8</sup>

Anderson worked on preparing the framework for web 2.0 services and discusses the librarians' contribution to be the development of services based on web 2.0 in libraries.<sup>3</sup>

Accordingly, in recent years some studies has been conducted on academics and students knowledge about the internet, its tool's and using the advantages of the Internet to access the required information.

Some other studies have been focused on librarians' familiarity and usage of the Internet and information technology.

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This study aim to survey the knowledge of librarians working in academic medical libraries about the new web technologies (Web 2.0 and Web 3.0) and using these features in library services.

## **2. Methods and Materials**

Descriptive survey research method has been used in this study. This study has been taken in February 2010. The research community included librarians working in the central and faculty libraries of three medical universities in Tehran. (Group (I) universities: Tehran University of Medical Sciences, Iran University of Medical Sciences, and Shahid Beheshti University of Medical Sciences that these libraries in Iran are tremendous and very famous)

The questionnaire was designed based on objectives of the study using Data gathering methods. It contained questions that had been validated and their accuracy and reliability was confirmed by a number of academic staffs at the medical Libraries and information technology sciences Departments in Tehran University.

Sample size formula was used to determine the proper number of Questionnaires that should be distributed among the research community. From 70 questioners, 60 of them have been returned.

The questioners comprised of 33 questions about familiarity with new concepts in internet and web technologies such as email, discussion groups, e- conferences, web 2 and web 3 features like weblogs, RSS, Pod cast, Video-Cast, social networks and use of these technologies in the library services. The last question was about, waether the librarians need to attend training classes and workshops about the new web generations.

The returned questionnaires were analyzed by SPSS software (version 13). Likert scale was used for assaying each question. The first part of questions were about librarian's level of knowledge about internet concepts, new webs applications and the second part of questions asked about the level of use regarding these facilities in library services.

Four options were considered for responses to these questions: "high", "medium", "low" and "nothing". These options were allocated pointed 4, 3, 2 and 1 respectively. The mean score calculated for each question would indicate the level of the medical librarians' knowledge about that subject. (I.e. Telnet, FTP, web log, Pod cast... And the level of interaction with the application programs in library services).

After calculating the mean score for every question, the overall mean was also calculated in each table that was indicative level of knowledge in the research community and use level of the utilities by them to promote library services.

## **3. Results**

Results derived from this study have shown that between 60 librarians that responded the questionnaires, 52 (86.7%) were females and 8 (13.3%) were males. (Table 1). So the number of female medical librarians working in medical universities in Tehran is considerably more than male medical librarians.

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**Table 1.** Frequency distribution of respondents

Gender	Percent	Frequency
Female	86.7	52
Male	13.3	8
<b>Total</b>	<b>100</b>	<b>60</b>

According to table 2, majority of community research (approximately 70%) have university degree in library and information science and nearly 30% have studied other subjects.

**Table 2.** Frequency distribution of respondents' educational background

Field of study	Percent	Frequency
Library and information science	70	42
Other fields	28.3	17
<b>Total</b>	<b>98.3</b>	<b>59</b>

The bachelor degree with 58.3% and master degree with 21.7% were the most common level of respondent's education standard while just about 1.7% of librarians had studied for PhD degree.

**Table 3.** Frequency distribution of education degree of respondents

Degree	Percent	Frequency
PhD	1.7	1
Master	21.7	13
Bachelor	58.3	35
Diploma	18.3	11
<b>Total</b>	<b>100</b>	<b>60</b>

Table 4, provides the details regarding, the indication of job experiences of research community. As results show about 80% of librarians have worked in medical university libraries for 6 years or more.

**Table 4.** Frequency distribution of work experiences of respondents

Degree	Percent	Frequency
PhD	1.7	1
Master	21.7	13
Bachelor	58.3	35
Diploma	18.3	11
<b>Total</b>	100	60

Table 5, indicates the medical librarians knowledge about internet concepts. Generally, 42.55% of librarians were familiar with the internet concepts like Usenet, Telnet, FTP, and Http....; and amongst the participants, the majority was familiar with Multimedia (66.33%) and http (62.77) while about 16.11% of librarians were familiar with XML. Considering the Likert Scale (1.27 in scale of 3) it may be conclude that the librarians level of knowledge regarding internet concepts to be in the average and mid-point level.

**Table 5.** Frequency distribution of medical librarians who were familiar with Internet and Web concepts

Concept Knowledge Level	Telnet		FTP		HTTP		XML		Multimedia		Likert average percent	Likert average
	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency		
High	8.3	5	15	9	31.7	19	8.3	5	33.3	20	42.5	1.27
Medium	40	24	31.7	19	41.7	25	36.7	22	38.3	23		
Low	8.3	5	13.3	8	10	6	16.7	10	13.3	8		
Nothing	43.3	26	40	4	16.7	10	38.3	23	15	9		
Total	100	60	100	60	100	60	100	60	100	60		
Likert Scale	37.7	1.13	40.5	1.21	62.7	1.88	16.1	0.4	66.3	1.9		

Results in Table 6, shows the librarians' level of knowledge about Web applications and facilities. According to results, the level of community knowledge about applications and facilities available on the Web is more than 50%. Most librarians in this group have worked with E-Mail (91.11%) , search engines (86.66%) ,

Internet browsers with 70%, and news groups with 55% participants using other applications that are common among our research community.

**Table 6:** Frequency distribution of medical librarian's familiarity with web applications and facilities

Applications and facilities	Internet browser		Search engine		E-mail		Discussion group		News group		Forum		E-conference		SDI		Likert average	Likert average percent
	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency		
High	28.3	17	63.3	38	76.7	46	23.3	14	20	12	5	3	6.7	4	23.3	14		
Medium	57.6	34	33.3	20	20	12	28.3	17	41.7	25	20	12	28.3	17	23.3	14		
Low	11.7	7	3.3	2	3.3	2	25	15	21.7	13	36.7	22	31.7	19	26.7	16		
Nothing	3.3	2	0	0	0	0	23	14	16.7	10	38.3	23	33.3	20	26.7	16		
Total	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60		
Likert scale	70	2.1	86.6	2.6	91.1	2.7	50.5	1.51	55	1.6	30.5	0.9	36.1	1.08	22	0.6	1.65	55.1

In the last part of questions related to assessment of librarians' level of knowledge, we examined the research community's knowledge about new web generations (web 2.0 and web 3.0) applications.

Based on the results indicated in table 7, only about 34% of medical librarians are familiar with the new Web generations. When assessed in detail, the Majority of respondents (nearly 60%) have worked with blogs, Google Earth and Google Map. But the level of familiarity with RSS, wikis and library 2.0 was only about 36%. The lowest awareness rating in this area was not surprising, it was devoted to Podcast, Social networks, video-cast and Open technologies. (Table 7)

**Table 7.** Frequency distribution of medical librarians familiarity with new web generations applications and facilities

Applications and facilities	Weblog		R.S.S		Podcast		Social network		Wikis		Google map & Google earth		Library.2		Video cast		Open AIP		Likert average percent	Likert average
	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency		
High	33.3	20	18.3	11	3.3	2	5	3	20	12	30	18	16.7	10	1.7	1	0	0		
Medium	33.3	20	18.3	11	20	12	15	9	15	9	35	21	21.7	13	16.7	10	18.3	11		
Low	10	6	21.7	13	25	15	23.3	14	18.3	11	11.7	7	15	9	23.3	14	18.3	11		
Nothing	23.3	14	41.7	25	51.7	31	56.7	34	46.7	28	23.3	14	46.7	28	58.3	35	63.3	38		
Total	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60		
Likert scale	58.8	1.76	36.6	1.1	25	0.7	22.7	0.6	36.1	1.08	57.2	1.71	36.11	1.08	20.5	0.6	18.3	0.5	34.5	1.03

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As regards to the use of above mentioned technologies in library services by librarians, results show about 41% of them have used new web technologies to serve their users.

According to the findings on Table 8, Databases with about 73% was the most used web technology for offering information to users, e-mails and live chat with nearly 50%, while only 16% of medical librarians had used Podcasts in library activities.

**Table 8.** Frequency distribution of web applications and facilities have been used in library services by medical librarians

Applications and facilities using level	E-mail & chatting		folksonomy		Discussion group		Data base		Pod cast		Weblog		Likert average percent	Likert average
	percent	Frequency	percent	Frequency	percent	Frequency	percent	Frequency	percent	Frequency	percent	Frequency		
Yes	30	18	3.3	2	25	15	56.7	34	8.3	5	26.7	16		
Some how	36.7	22	23.3	14	23.3	14	33.3	20	15	9	26.7	16		
No	33.3	20	73.3	44	51.7	31	10	6	76.6	46	46.7	28		
Total	100	60	100	60	100	60	100	60	100	60	100	60		
Likert scale	48	0.9	35	0.7	36.6	0.7	73.33	1.46	15.8	0.3	40	0.8	41.33	0.8

In the last question regarding the need for continuous education program that was focused on new web technologies, nearly all respondents replied that they need to attend such classes in order to update their knowledge and capabilities in new web technologies and to be able to apply to such training in library services.

**Table 9.** Frequency distribution of medical librarians needs to attend in training classes focused on new Web generations

Need to attend training class	Frequency	Percent	Likert average percent	Likert average
Yes	57	95		
Some how	3	5		
No	0	0		
Total	60	100	95	1.9

#### 4. Discussion

Findings in this study have concluded that the majority of librarians working in medical universities libraries are females. Near 70% of the research community are graduated

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in library and information science field with bachelor and master degrees and that most individuals have worked in medical libraries for 6 years or more.

According to results obtained, librarian's knowledge about internet concepts showed that, less than half were familiar with specialist internet concepts. In this category, Http and Multimedia were more common in contrast with some structural concepts like XML. On the other hand, majority of librarians had enough knowledge about web applications and facilities like emails, search engines, internet browsers... etc.

After questioning the librarians about new web generations' applications and facilities, it was found that in totality their level of familiarity in these subjects was relatively low. Although about half of the research community knew about blogs, Google earth and Google map, their knowledge about the technologies such as Library 2.0, RSS and Social networks were not so up to date.

As the librarians' knowledge indicates they are not familiar with some features of new web generations, therefore the level of usage regarding these facilities in library services is limited in their libraries. For example the databases were being extensively used to offer required information to users, but Pod casts were rarely used for these purposes.

Finally the study has shown that the vast majority of the research community expressed the fact that they need to attend training class regarding new areas in web technology.

The results of studies conducted previously have been compared with the results of studies conducted here. A research run by OCLC showed the student knowledge and usage of web was suitable and also they satisfied web based library services. The researchers concluded that the librarians offered web based resources and information to student in a satisfactory level.<sup>5</sup> While in this study using the new web technologies in library services was less than 50%. Librarians lack of familiarity and knowledge about web 2.0 and web 3.0 features lead to lower level of access-service features in library services.

Rahimi and Bohlul surveyed the factors influencing the level of internet use by medical librarians. They found that the majority of librarians knew and worked with common applications of the internet. Similarly, the present study has shown that, more than half of librarians were familiar with common web applications and used such facilities in library services.<sup>6</sup>

Almokhtar and Rahimi indicated in a similar research that, librarians in central library at the medical university of Isfahan were considerably less familiar with the web features like e-conferences, discussion groups and SDI, than emails, Internet directories and search engines. As their findings are similar to this survey results, it has been concluded that the librarians must upgrade their knowledge in new technology areas in order to be more efficient in their libraries.<sup>2</sup>

Aharony in a research about using of Web 2.0 by librarians mentioned that, librarian's knowledge about Web 2.0 concepts and applications will affect their use of these facilities directly. He also found that librarians' computer skills and individual attributes are the factors which have direct effect on their use of Web 2.0.<sup>1</sup>

Similarly, the result of the present study shows that librarians familiarity with Web applications has a direct relationship with continues use of these facilities.

Ankara University researchers (2004) in a survey about academic staffs' knowledge and use of online library resources found that, over 80% of their research community knew e-resources and more than half of them used these resources.<sup>4</sup>



However results here indicate that less than 50% of librarians had enough knowledge about new web generations and used these applications in library activities.

Today the survival and growth of libraries and information centers without using new technologies is impossible, the benefit from these facilities require the knowledge and skills needed so that the librarian may provide the required services, hence it is imperative that librarians have the opportunity to update their knowledge in this area in order to apply new technologies in library services successfully.

## 5. Conclusion

The findings in this study show that medical librarians did not use new web technologies in library services willingly. This is a fundamental point that should be concentrated on and discussed from two sides: Firstly the librarians may have insufficient knowledge about new web services and facilities. Secondly, their present environment probably does not encourage them to use these technologies. Any of these factors can affect the progress and improvement of library services in today's information age.

This research concludes that Continuous Education focusing on new web technologies should be held extensively in the libraries of medical universities in order to update the librarian's knowledge in this area.

Furthermore, they will be encouraged to use these facilities in order to improve their libraries services. In conclusion the availability of relevant and advanced training regarding new web technologies as part of career development program in library services will be beneficial before and after attending web training classes for academic librarians.

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