Awareness and Use of Web 3.0 Applications among the Library Professionals of Karnataka

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Abstract

The paper identifies awareness about select web 3.0 applications among library professionals in Karnataka and the frequency of use of those applications. The study also identifies the perception among library professionals with regard to the frequency of using and usefulness of those applications as well as the available sources from where they could learn about web 3.0 applications. In this study, 212 responses were obtained from the library professionals using questionnaire as survey tool. The analysis of results of the survey revealed that 96.80% of library professionals were aware of web 3.0 applications and highest number of professionals using web 3.0 applications frequently.

KEYWORDS: Web 3.0, Cloud Computing, Social Bookmarking, Ontologies, Web OPAC.

Introduction

Since 1990's information technology is undergoing rapid developments with the big advance technologies. The growth of the amount of data on internet is become higher than ever. Nearly there are 2.5 quintillion bytes of data created every day. So it has become difficult for users to find out and utilize required information and it also become difficult to content providers to classify and catalogue documents. Overcome from this Google initiated the idea of sitemaps which is a supplementary of listing the content available on a website in a simple, open, crawler friendly format. Because sitemaps exhibits some limits, the need for implementation of artificial intelligence in making search engines more efficient is very vital and is expected to be one of the feature of Web 3.0. Web 3.0 is a phrase penned by John Markoff in 2006 and first appeared significantly in early 2006 in a Blog article "Critical of Web 2.0 and associated technologies such as Ajax " written by Jeffrey Zeldman. Web 3.0 is about semantic web, personalization, intelligent search and behavioural advertising. Web 3.0 is a web where the concept of website disappears, where data isn't owned but instead shared, where services show different views for the same web or the same data. Those services can be applications like browsers, virtual worlds or anything else, and have to be focused on context and personalization, and both will be reached by using vertical search. One can speculate that the Google or Sun Microsystems alliance to create web based operating system for applications like spreadsheets and word processing is an early indicator of this trend.

About Web 3.0 Applications

1. Web OPAC: Web OPAC is the Online Public Access Catalogue which allows users to search library books or reading materials using internet.

2. Cloud Computing: 'Cloud computing' means using the Internet and central remote servers to maintain data and applications instead of maintaining data on individual mainframe computers or Personal computers. Cloud computing refers to the technologies that provide data access, software, storage devices that do not require physical location of the system.

3. E-Learning: eLearning is learning utilizing electronic technologies to access educational curriculum outside of a traditional classroom. In most cases, it refers to a course, degree delivered completely online.

4. Social Bookmarking: It is a form of shareable bookmarking that allows websites to be bookmarked on the Web using a service instead of using the browser's bookmarking feature. This service also allows for easy sharing of the bookmarks.

5. 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 chronological order with the provision of hyperlinks.

6. Quick Response Code (QR Code): A Quick Response (QR) Code is a type of barcode which can be read by a digital device and which stores information.

7. Semantic Web: Semantic web is an extension of World Wide Web that allows data to be shared and reused across applications, enterprise and community boundaries. It is a collaborative effort by W3C with participation from a large number of researchers and industrial partners.

8. Federated Search: It is an approach to information retrieval that aggregates query results from multiple information sources. It allows a user to submit a single query and receive results from multiple systems, whether the data resources are stored on premises or with a cloud service provider, without having to query each of the systems individually.

9. Virtual Reference Service: It allows librarians and patrons to communicate with each other in real time via Internet by e-mail, chat or instant messaging is currently a hot topic in libraries.

10. Ontologies: Ontologies are used for annotating information to the web content and expressing its semantics in a machine readable form. These are the techniques to give rich semantic relationships between terms and thoughts of knowledge. These give more standardization in managing web contents instead of merely indexing the terms.

11. Ubiquitous Contents: The ubiquitous computing offers various contents which can be used or reused frequently. The contents of this generation need to be produced in various formats and can also be easily shared, transferred and accessible through all modes of communication. Ubiquitous contents are the personal contents of the people persistently stored on the web in the form of movies, blog spots, RSS feeds, wikis, stories, articles, music, games etc.

12. Geo Tagging: It is simply a marking of various media or digital contents like images, photographs, videos, websites or RSS feeds etc. Most of the cell phones and mobile devices have GPS facilities.

Review of Literature

According to John Markoff (2006) it refers to a supposed third generation of Internet based services that collectively comprise what might be called 'the intelligent web' for instance, those using semantic web, micro formats, natural language search, data

mining, machine learning, cloud computing and artificial technologies which put stress on machine-facilitated understanding of information with a view to providing a more productive and intuitive user experience.

The Semantic Web has emerged to be a new and highly promising context for knowledge and data engineering Vossen, Lytras, and Koudas (2007). The term 'Semantic Web' was coined by Berners Lee, Hendler, and Lassila (2001) to describe the evolution from a document based web towards a new paradigm that includes data and information for computers to manipulate. The Semantic Web allows automated information access based on machine processable semantics of data. This means that the data will be available for providing specific and exhaustive information retrieval. Thus the Semantic Web provides a complementary vision as a knowledge management environment. Warren (2006) in many cases has expanded and replaced previous knowledge and information management archetypes. Hendler and Lassila (2008) Semantic Web has been named as Web 3.0 as a new version of Web 2.0 in which web have advanced to become what Tim Berners Lee (2007) has termed the 'Giant Global Graph'. According to Lytras and García (2008) in recent years, Semantic Web research has resulted in significant outcomes and the adoption of this technology from the market and the industry is becoming closer. Thus, the application of semantics to knowledge management is not new. Fensel (2002) Ontologies are the technological cornerstones of the Semantic Web, because they provide structured vocabularies that describe a formal specification of a shared conceptualization. Ontologies were developed in the field of Artificial Intelligence to facilitate knowledge sharing and reuse. Ontologies provide a common vocabulary for a domain and define, with different levels of formality, the meaning of the terms and the relations between them. Gruber (1993) Knowledge in ontologies is mainly formalized using five kinds of components, classes, relations, functions, axioms and instances.

Objectives of the Study

- To understand the awareness level of Library professionals on web 3.0 applications.
- To assess the frequency of use of web 3.0 applications.
- To evaluate perception of Library professionals towards usefulness of web 3.0 applications in libraries.
- To evaluate source of knowledge to learn about web 3.0 applications.

Methodology

The study used a survey research method. 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 about web 3.0 application. Twelve different web 3.0 applications were identified for this study based on the extensive literature review conducted using several online and offline sources of information. Likert scale type to measure the frequency of use and perception on usefulness of web 3.0 applications, and with possible answers to measure the major source of knowledge to learn about web 3.0 applications. The option of not aware 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.

Total 219 responses received from the various library professionals in Karnataka through Google forms out of 219 responses 7 responders said not aware of web 3.0 applications so those 7 responses are not taken for the analysis.

Data analysis and Interpretation

Awareness of Web 3.0 Applications among Library professionals

The respondents were asked whether they are aware of web 3.0 applications. It is found that 212 (96.80%) respondents were aware of web 3.0 applications while very less means only 7 (3.19%) respondents were answered not aware of it. So only those 212 responses were taken for the further analysis.

Frequency of using web 3.0 Applications

Respondents were asked about their frequency of using web 3.0 applications in their daily routines. Table 1 presents the data about frequency of use of web 3.0 applications by the Library professionals.

Table 1: Frequency of use of Web 3.0 Applications by Library professionals

Sl. No.	Web 3.0 Applications	Never	Some Times	Frequently	Total
1	Web OPAC	0 (0%)	26 (12.26%)	186 (87.73%)	212
2	Cloud Computing	4 (1.88%)	82 (38.67%)	126 (59.43%)	212
3	E-Learning	6 (2.83%)	101 (47.64%)	105 (49.52%)	212
4	Social Bookmarking	19 (8.96%)	92 (43.39%)	101 (47.64%)	212
5	Blog	0 (0%)	42 (19.81%)	170 (80.18%)	212
6	Quick Response Code (QR Code)	4 (1.88%)	23 (10.84%)	185 (87.26%)	212
7	Semantic Web	81 (38.20%)	47 (22.16%)	84 (39.62%)	212
8	Federated Search	68 (32.07%)	41 (19.33%)	103 (48.58%)	212
9	Virtual Reference Service	51 (24.05%)	56 (26.41%)	105 (49.52%)	212
10	Ontologies	57 (26.88%)	96 (45.28%)	59 (27.83%)	212
11	Ubiquitous Contents	62 (29.24%)	94 (44.33%)	56 (26.41%)	212
12	Geo Tagging	44 (20.75%)	69 (32.54%)	99 (46.69%)	212

 Out of 212 respondents used web opac frequently 87.73%, sometimes 12.26% all the respondents used web opac. According to the above table respondents were never used many applications like semantic web 38.20%, Federated search 32.07%, Virtual reference service 24.05% Ontologies 26.88%, Geo tagging 20.75%. Other applications like Web Opac, Cloud computing, e-learning, Social bookmarking, Blog, QR code these applications were used frequently or sometimes.

Table 2: Usefulness of Web 3.0 applications as mentioned by Library professionals

Sl. No.	Web 3.0 Applications	Don't Know	Not useful	Somewhat useful	Very useful
1	Web OPAC	8 (3.77%)	0 (0%)	44 (20.75%)	160 (75.47%)
2	Cloud Computing	24 (11.32%)	0 (0%)	78 (36.79%)	110 (51.88%)
3	E-Learning	3 (1.41%)	4 (1.88%)	92 (43.39%)	113 (53.30%)
4	Social Bookmarking	5 (2.35%)	12 (5.66%)	102 (48.11%)	93 (43.86%)
5	Blog	0 (0%)	3 (1.41%)	89 (41.98%)	120 (56.60%)
6	Quick Response Code (QR Code)	1 (0.47%)	8 (3.77%)	88 (41.50%)	115 (54.24%)
7	Semantic Web	46 (21.69%)	10 (4.71%)	68 (32.07%)	88 (41.50%)
8	Federated Search	26 (12.26%)	8 (3.77%)	98 (46.22%)	80 (37.73%)
9	Virtual Reference Service	10 (4.71%)	9 (4.24%)	101 (47.64%)	92 (43.39%)
10	Ontologies	49 (23.11%)	16 (7.54%)	66 (31.13%)	81 (38.20%)
11	Ubiquitous Contents	48 (22.64%)	32 (15.09%)	54 (25.47%)	78 (36.79%)
12	Geo Tagging	36 (16.98%)	18 (8.49%)	79 (37.26%)	79 (37.26%)

The opinion of Library professionals regarding usefulness of Web 3.0 applications were sought to evaluate their perception. Results are given in above table. It is found that the majority of the respondents said that Web 3.0 applications are very useful and somewhat useful. Very less responders were said not useful and don't know. To evaluate the rating in terms of usefulness of identified Web 3.0 applications as perceived by Library professionals, weighted average were calculated by assigning value 1 to 4 respectively to their level of knowledge i.e., Don't know, Not useful, Somewhat useful and Very useful. 212 responses that were received for this question were analysed.

How did you learn about above Web 3.0 applications?

This question has been asked to the respondents the results are in Table 3

a. Self Study	18 (8.49%)
b. On Experience	14 (6.60%)
c. Attending conferences/Workshops	82 (38.67%)
d. Interaction with other professionals	30 (14.15%)
e. Through Social media	68 (32.07%)

Out of 212 responses 82 (38.67%) respondents said through attending conferences or workshops they learned about Web 3.0 applications and 68 (32.07%) respondents through social media they learned.

Designation wise categorisation of respondents

Table 4: Designation wise categorisation of respondents

a.	Librarian	98(46.22%)
b.	Deputy Librarian	8(3.77%)
c.	Assistant Librarian	62(29.24%)
d.	Library Assistant	38(17.92%)
e.	Professional Assistant	6(2.83%)

According to above table 4 there were 46.22% of Librarians, 29.24% of Assistant Librarians, 17.92% of Library Assistants, 3.77% of deputy Librarians and 2.83% of Library Professional Assistants were responded.

Discussion

In this study found that 96.80% of Library professionals are aware of web 3.0 applications. Used web opac frequently, semantic web 38.20%, Federated search 32.07%, Virtual reference service 24.05% Ontologies 26.88%, Geo tagging 20.75%. Other applications like Web Opac, Cloud computing, e-learning, Social bookmarking, Blog, QR code these applications were used frequently or sometimes. Majority of the respondents said that Web 3.0 applications are very useful and somewhat useful. Very less responders were said not useful and don't know. It is found that the majority Library professionals learned about web 3.0 applications through attending conferences and workshops (38.67%) and through social media (32.07%) others learned through self study, on experience, and interaction with other professionals. Most of the responders were librarians 46.22%, assistant librarians 29.24% library assistants 17.92% , deputy librarians were 3.77%.

Conclusion

Considering the enormous advantages and use of the web 3.0 applications, Library professionals should start experimenting for availing benefits of these applications. The present study revealed that the major source of knowledge to learn about web 3.0 applications is attending conferences and workshops, hence management and decision makers in libraries should facilitate training to enhance their knowledge in web 3.0 applications. Library professionals should also be motivated to demonstrate their skills in implementation of these applications in the library in a hassle free environment. Library may face some resistance in establishing consistent views of these applications and their functions, and to harness the potential benefits to larger extent as a result of new idea for few or more libraries. But ultimately, application of these tools would bring revolutionary changes in managing the services of libraries.

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