TRACE THE INNOVATIVE WEB TOOLS USED IN LIBRARY SERVICES AND SERVICES PROVIDED USING THEM: A LITERATURE REVIEW

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ABSTRACT

In this article, we seek to present the reader with a comprehensive background for gaining a better understanding of current knowledge and highlighting the importance of research on web technologies. The paper is based on a literature review to find out published literature in the period 2005 to 2021on web technologies and their tools used to provide innovative library services. The study is an attempt to trace the innovative web technology tools; applications in library services; types of services provided using web tools; problems faced by professionals in the use of web tools by analyzing published scholarly literature on the topic.

The researcher identifies and analyses 60 research papers highly related to web technology and its tools and its application. The findings of the study reveal that there is a diversity of web tools and services provided in innovative way.

Papers have been published with a focus on Web Technology, Web Tools, Social Networks, Blogs, Instant Messages, RSS Feeds and their applications in the library. The work highlights the findings and research work undertaken previously on web technologies and their tools used for library purpose. It is a guide for the researcher to choose the right way of research to carry further his/her research work.

Objective

- *To trace the intellectual progress of web tools and their application in library services;*

- *To discover innovative web tools used in library services and the services provided;*

Scope of the Study

The present paper followed qualitative research method as it is a review of related literature. The scholarly published articles from the year 2005 to 2021 were analyzed to trace the trends in Web Technologies and Its Tools.

The study mainly covers and organizes the literature on types of web technology tools and their functions and features; types of services provided using web tools; problems faced in adopting web tools; and perception studies.

KEYWORDS: *Review Paper, Web Technology, Web Tools, Social Media, Library Services, Blogs*

INTRODUCTION

Technology is developing and changing each second. The development of web technology has faced plenty of absoluteness of the literature and information gap. Web technology and its tools are used in all category of jobs and professions. Since, web technology has been acquired and adopted in all fields. The literature which is published immensely on web technology tools used in library management and services to deliver in an innovative way. A literature review describes, summarizes, evaluates, clarifies and/or integrates the content of primary reports.

The world is moving towards finding innovative tools and techniques to adopt in innumerablesegments. The library professionals and the profession in not inevitable from this consequence. There were lots of efforts put into by library science researchers to find innovative web tools to adopt and use to serve the users. (Fichter, 2003)"Librarians have had to learn how to do a lot with just a little in order to promote awareness of their programs and services. It is no surprise to see librarians stepping up to the plate and spreading the word online with blogs. Savvy librarians have identified blogs as another means to market libraries and their services".

This decade has seen libraries, information centers, and other library services play a major role in providing information for the public in situations like pandemics.(Tyagi, 2012)In order to adapt to the new challenges, organizations that manage information have had to integrate the necessary technological changes. Technology, updating their infrastructure, and training their personnel are key to keeping pace with it. It gives better understanding, if one goes with related literature to fill the gap.

METHODOLOGY

The researcher envisions tracing the innovative web tools used to deliver library services. In pursuit of this target, the qualitative research method is used for the study to summarize and bring under an umbrella the scattered literature. Finding and reviewing a vast literature to trace various web tools used in library services from an international perspective was undertaken with hundreds of papers. After scrutinizing; highly relevant, 60 papers were reviewed to meet the objective.

Researchers have surfed various standard databases like "Library and Information Science Abstract, Library, Information Science and Technology Abstract, Emerald, Google Scholar with the keywords "web technology", "web tools", "application of web tools in library service" to trace the published literature.

LITERATURE REVIEW TO DISCOVER INNOVATIVE TYPES OF WEB TECHNOLOGY TOOLS AND THEIR FUNCTIONS AND FEATURES:

In the age of internet, library users do not use the library as a natural place for study and users need to learn how to search or use key words to search on the internet. The web technology and its (Godwin, 2006)tools like MySpace, RSS Feeds are used from the view point of users in the USA.(Stephen Abram, 2007) Web 2.0 tools and technologies RSS, Wikis, AJAX, J2EE, Widgets, Mashups, Blogs and Blogging were used in library services in the initial stage of its introduction. (Greifender & Cuong Linh, 2008)In Australian university libraries, what types of Web 2.0 technologies were used? Web 2.0 technology features were like My Profile, Podcasting, MP3 files, Reviews, ratings, IM, Folksonomies, tagging, Photos, SNS, Social Bookmarking.

(Bansode & Pujar, 2008)Types of blogs, blogs in the library sphere, how to start a blog with suitable examples, areas in which it can be best implement. The (Hanif, 2009) features of Web tools like search, links, authoring, tags, extensions, signals with characteristics of Participation, Standards, Decentralization, Openness, Modularity, user control

and identity.(Kataria & Paul, 2009) applications vary greatly, ranging from web sites where users can add, organize and share, bookmarks (e.g., del.icio.us), academic (e.g., CiteULike.org), and photographs (e.g., Flickr.com) to websites which add-up and provide most of the services as a one-stop solution.

(Zhang, 2013) presented work at the 5th International Conference on Intelligent Human-Machine Systems and Cybernetics on the topic "The Analysis of Library Information Service based on Web 3.0". The Web 3.0 comes with the intelligence and instrumentation of the library service, individual services to readers, and a humanized service environment are all the effects Web 3.0 brought to the library. The features of Web 3.0 are enlisted in the paper as intelligence of information aggregation, personalized experience, terminal platform compatibility. In this paper, the effects of Web 3.0 are explained as a demand for intelligent, individual services for users, humanized library. Some hints are given as requirements for the development of library Web 3.0.

(Mi Kim & Abbas, 2010) The Web Tools like Folksonomy, Tagging, Bookmarking, Wikies, Blog, Twitter, RSS and Podcasts are the functionalities of the tools and their meanings.(Mazzocchi, 2011) has surveyed 82 library blogs and extracted a number of aspects like the stats include: the year of creation, platform used, technical characteristics like an internal search engine, chronological archives, blog roll, tags and number of posts and comments, reciprocal links between the blog and the library, and it is found that most blogs and libraries do not have links to the library website.

(Mahmood & Richardson, 2011)In all libraries, Web 2.0 tools are used. Microblogs, RSS, instant messaging, social networking sites, mashups, podcasts, and videocasts were widely adopted, whereas wikis, photo sharing, presentation sharing, virtual worlds, customized web pages, and vertical search engines were less prevalent. Libraries use these tools to share news, market their services, provide information literacy instruction, inform users about print and digital resources, and solicit feedback from users.

(Han & Liu, 2010) Web 2.0 tools through the basic functions of their web sites. Among six types of tools, Catalog 2.0 and RSS are the most common, while IM, Blogs, SNS and Wikis are less frequent.(Chua & Goh, 2010) The study has been taken on the basis of three questions i.e., what extent the Web tools common in library web sites, in what are the ways it is used, and is use of web tools enhanced any library service?Most used web tools are blogs, RSS, instant messaging, social networking services, wikis, and social tagging applications.

(Tripathi & Kumar, 2010) The study was conducted about the library websites of Australia, Canada, the U.K. and U.S.A. countries. They have studied the purpose of using these technologies and to examine the characteristic features of the Web 2.0 tools used in academic libraries in the countries. The tools like RSS, Podcasts, IM, and Wikis. Sample percentages are 29.6% UK, 54.5 USA, 13.4Canada, and 2.5 Australia. They found that RSS feeds used on Canadian library websites are higher than others by 62.2%, 43% in Blog usage, 73.0% in IM use and Australia stands highest in use of Podcasts, with 14.3% of all the library websites showing low interest in use of Wikis.

(Preedip Balaji & Kumar, 2011)discussed the present status of using new generation web technology, social media and Web 2.0 features among the technological university library websites in south India.(Mandal, 2011) has explained about the blog in five categories of blogs like Media blogs, Device blogs, Subject blogs, Legal status, and Searching blogs.(Nwogo Ezeani & Igwesi, 2012) Some well-known social networking sites have been introduced, like Facebook, MySpace, Ning, Blogs, Wikis, LinkedIn, Twitter, YouTube, Flickr, Library Thing. (Baro et al., 2013) The work is on the titled of "Awareness and use of Web 2.0 tools by librarians in university libraries in Nigeria". This work is the part of 'Emmanuel E. Baro, Ebiere Joyce Ebiagbe and Vera Zaccheaus Godfrey (2013)'.

(K. P. Singh & Gill, 2013) the studied is a bibliographic on the use of web technologies in library service. As the paper title "Web 2.0 technologies in libraries: a survey of periodical literature published by Emerald" states, it is a survey of literature published in the well - known database Emerald. It is aimed at the growth and development of the periodical literature on the topic. The key words that are used to limit the search are web tools, web technology, wikis etc. The paper also mentioned detailed information on the concept of technology. Enlisted web technologies such as blogs, wikis, SNSs, RSS, tagging, instant messaging and podcasts are popular and widely used by the user community. The authors of the paper enlisted some very important explanations and implications of the technologies. Some findings of the study are that the year 2009 is the most productive or appeared year with the contribution of 69 papers. Most of the subject inclusions are Web 2.0; SNS and blogs.

(Bhattacharya, 2016) has studied the impact of Web 3.0 on library services with the titled paper "Library 3.0 and Its Impact on Modern Library Services". The paper traces some definitions of Web 3.0 and it enlisted the way Web 3.0 developed and the evolution of it. In this work the features and the lacks are enlisted of web 1.0 to web 3.0 technologies. Some feature and applications are discussed of Web 3.0 like Web OPAC, Ontologies, Ubiquitous contents, Geo tagging, virtual reference services, semantic web, cloud computing, federated searches and QR code uses in library. (Vaaler & Brantley, 2016) the use of blogs in marketing the library prints and e-resources of the library. The services that can be given through a blog are book display, reference books, themed months, news and current events etc.

The above literature review finds the (Table 1) following types of web tools used in library services and the features.

Characteristic web tools: search, links, authoring, tags, extensions, signals with characteristics of Participation, Standards, Decentralization, Openness, Modularity, user control and identity. Information aggregation, personalized experience, terminal platform compatibility

Table 1: Types of Web Technology Tools and Their Functions and Features

Sl. No.	Web Tools	Domain/Providers	Features
1	Social Media Sites	Facebook, Twitter, MySpace, Ning, LinkedIn, Flickr, Library Thing	Profiles, Messaging, Sharing, Collaboration etc.
2	Blogs	Blogger, Wixsite, WordPress	Write-ups, Reviews, Media blogs, Device blogs, Subject blogs, Legal status, and Searching blogs
3	Wiki	Wikies	Library Bios
4	Feeds	RSS Feeds	Tagging
5	Bookmarks	del.icio.us, CiteULike.org, Flickr.com	Tagging
6	Google Services	Gmail, Drive, Forms, Docs,	
7	Vodcast	YouTube	Training
8	Podcast	Buzz sprout, Captivate, YouTube Music	Listening to Music and Audio Books
9	Instant Messaging	Google Talk, AOL, MSN, Yahoo	Messaging, Feedbacks
10	Skype	Skype	Video Calls, Audio Calls
11	Email	Gmail, Yahoo, Rediff	Notifications
12	Programming	AJAX, J2EE	Page Development
13	Widgets		Pop-up alerts
14	Mashups		Alerts, Images, Video, Audio
15	Catalogue 2.0		Bibliographic information

LITERATURE REVIEW TO DISCOVER TYPES OF SERVICES PROVIDED USING WEB TECHNOLOGY TOOLS

(Gavgani & v. Vishwa Mohan, 2008) clarifies the web technology applications in the library services as non-conventional services. Here, non-conventional services are nothing but rendering services through blogs, wikis, social networks, RSS feeds, podcasts. (Dutta, 2008) "Web services are a new breed of web application and they are self-contained, self-describing, modular applications that can be published, located, and invoked across the web". (Gross & Leslie, 2008) Essentially, the Web has moved from simply being a place for sites and search engines to being a place for work, research, education, entertainment, and social activities.

(Kumar & Sharma, 2008) "Blogging and Uses of Blogs in Libraries" which discussed the use of blogs in library to provide services to its users (McIntyre & Nicolle, 2008). Blogs were used as an internal and external communication tool (Schrecker, 2008) for collection development, children's literature review work, collaborative professional development etc.SDI services now feature News Feeds and HTML feeds.Several exciting Web 2.0 tools such as synchronous communication (instant messaging), contents delivery (RSS feeds, news feeds), streaming media capabilities, and collaborative publishing tools (blogs, wikis, tagging, etc.) are slowly becoming part of library services. This tool is used by many librarians and integrated library systems to bridge the gap between the user and the information.

(Harinarayana & Raju, 2010) Library news, events, and announcements are distributed through RSS feeds, and libraries provide users with blog spaces. There is only one university using Wiki, and 37 libraries are already using Instant Messaging for reference services, making it the most applied Web 2.0 technology. The availability of podcasts and vodcasts on university library websites has yet to gain popularity as a popular service.

(Si et al., 2011) were provided an overall picture of the adoption of Web 2.0 technology, the researchers focused on what types of Web 2.0 technology tools were used and applied in academic libraries as well as their functions. For 30 university libraries, website content analysis is used for the research to get the needed information. One of the three libraries used the web tools. One of the ten used more than 4 web tools. The most used tool is the RSS feed and the least popular is Wiki. (Sheikh, 2011) the common web tools and their impact on library services.

(Oguz & Holt, 2011) were studied about library blogs and spam comments with the purpose of library blogs and spam comments on them.(Kaushik & Arora, 2012)Using the blog for library services marketing. The research was undertaken to identify the blogs on marketing library services and resources, the features of the blogs, analyzed the blog posts. It finds out the blogs the google, yahoo and AskJeeves search engines are used.(Dunn, 2012) The Wiki is used as a display of the library policies and procedures.

(Goswami & Choudhury, 2014) studied on "Collaboration Tools and Its Relevance in Library Services". The work tries to bring light on the collaborative tools like wikis, social networks, and blogs as the previous research works studied. The writing of the paper is restricted to the word "Collaborative" to match the web technology features of the collaboration. All web technologies, as usual Wikis, IM, Blogs, Podcasts and Mashups etc. are mentioned with explanation to make the relevancy to full fill the study objective.

(Smeaton & Davis, 2014) were studied on Participatory Library Service through Social Media in an article titled "Using social media to create a participatory library service: an Australian study". It was an empirical study rather than experimental. It was a case study with the use of interview, observation and document analysis.

(Oyieke & Dick, 2017), the Web 2.0 tools as content collaboration tools like blogs, wikis, social bookmarking tools etc. (Thomas, 2017) library services where Web Technologies are used are library websites, access of database, e-bibliographic and cataloguing services, e-CAS, e-SDI, e-mail service, e-news clipping service, e-reference services, Ask a librarian, podcasting, vodcasting, blogs, wikis, RSS, Streaming media, IM and virtual meetings, tagging, social bookmarking, social networks, Mashups, Ajax, Library tool bar etc.

With a review of related literature, the (Table 2) following innovative services were found.

Table 2: Types Library Services Provided Using Web Technology Tools

Web Tools	Services Provided
Social Media Sites	Marketing, Feedback, New Arrivals CAS, Books display, news and current events
Blogging	Marketing, e-SDI, e-news clipping service, Ask a librarian, book display, themed months, Internal and External communication, Collection Development
Wiki	Library Bio, Policies, Procedures
Feeds RSS & HTML	Alert services, SDI
Bookmarks	Tagging, news and current events
Google Services	Feedback, Registration, Geo tagging,
Vodcast	Training
Podcast	Audio Book, Talks
Instant Messaging	e-SDI, Notices, Alerts
Skype	e-reference services, virtual meetings
Email	e-mail service, e-SDI

LITERATURE REVIEW TO DISCOVER PROBLEMS FACED IN ADOPTING WEB TOOLS AND PERCEPTION STUDIES

(Kai-Wah Chu, 2009)We examine the reasons for and against using wikis, the level of control exerted on wiki users, and the perceived benefits and costs of wiki use.

(Haneefa, 2011) the researcher used the survey research method to explore the perceptions of students about innovative services through social networking sites. The article explores the various social networks to deliver innovative services. The survey used 12 social network site names to ask about the usage of the sites and the purpose of the use of the networks. Orcut, MySpace, Facebook, Friendster, Hi-5, Fliker, Blog, YouTube, Classmate.com, Bebo, LinkedIn and Twitter; out these Orcut was used more and Twitter used less.

(Sheikh, 2011),the impact of using web technologies on the library services wasuse of web technologies, purpose of use, its usefulness, perception of the users.(Preedip Balaji et al., 2011),the contemporary status of using web technology, social media and web tools and its features among the technological university library websites in south India.

(Majumdar, 2012),the article wasa survey of Library web pages of Information about West Bengal's Institutes of National Importance, using Web 2.0 technology and tools to enhance library services to patrons. It is provided a tinny introduction to different Web technologies and tools such as Blog, Wiki, RSS, and Podcast.

(Makori, 2012) The case for investments in web 2.0the application purpose was to examine and identify what the university librariess provides web 2.0 tools to bridge the information gap between African countries. While many African university libraries have not embraced web 2.0, patrons believe that this is not a new concept. Blogs, delicious, YouTube

and Facebook, among others, are no longer the exclusive domain of corporations.

(Tyagi, 2012), "Use of Web 2.0 Technology by Library Professionals: Study of Selected Engineering Colleges in Western Uttar Pradesh" reported on the awareness and usage analysis of Web technologies by library professionals in libraries. The survived and carried out to understand the awareness status of the library professionals regarding Web technologies and tools like blogs, wikis, RSS Feed, social networks, podcasting, etc.The article was explored an interesting fact is that the library professionals are 100% population is aware of web technology and using for their personal purposes and it is not used for the library. (Walia & Gupta, 2012)in the paper covered only national libraries of the world. The research is based on a survey of 66 national libraries. The explored research reveals that 42% of national libraries adopt one or more Web 2.0 technologies. RSS, Social Networking and Micro-blog are popular application tools used by national libraries which were in the survey study. Library of Congress and The British Library, National Library of USA and UK are major and good examples mentioned by the author in his study.

(Okonedo et al., 2013) the paper explored the study of the survey about the use of Web Technologies in the library of South West Nigeria with paper title which were areness and Use of Web technologies by Library and Information Professionals in Selected Libraries in South West Nigeria". The Survey method was the descriptive. The study found that the awareness of Web Technologies among the library professionals was very high. The types of Web technologies used in the library services were social networking tools (Facebook, Twitter, Hi5, LinkedIn); instant messaging; Blogs and Wikis. The factors are mentioned those are affected the use of Web technologies are low bandwidth, time constraint, inadequate training, and lack of funds, inadequate power supply and lack of web skills to adopt the technologies. The pointed fact is 19.6% of the professionals are not aware of the technologies. The study is explored as an eye opener for the stakeholders to be unaware of the existing technology.

(Chu & Du, 2013) the paper titled, "Social Networking Tools for Academic Libraries" is a conference draft presentation paper on social media use in academic library. It is a survey study to bring out the interest of the professional to adopt the web tools for their university library. In the section of literature review, definitions and some usefulness of the social networking sites are discussed in the paper. The authors are discussed in dept about the responses and the amount of the respondents are very less as it is expected. Most of the libraries are using the social networking sites to provide various services as it is stated in the survey questions.

(Jadhav, 2014)in his article titled "Application of Social Networking Services (SNS) for Library Collaboration: An Exploratory Study" studied that perception of the library professionals about the use and collaboration of social networking site in their library services. The researcher used the survey method to collect the data from the targeted audience. The article is highlighted the various applications of social networking sites in library services like information exchange, resource sharing, sharing services, work collaboration, resource description and standards of practice.

S. Swaminathan & G. Karthikeyan (2014) "A study on level of awareness of computer and collaborative tools among library and information science professionals" titled is a survey article on the awareness of the web technologies in library professionals.

(Barik et al., 2014) studied on "Use of Web 2.0 Tools among LIS Professionals for managing and sharing of Knowledge in Private Engineering College Libraries of Odisha" which is almost same as Tyagi, Sunil (2012) with the changes of geographical area of the study.

(Chatterjee & Maity, 2014) are studied on Facebook in their research paper titled "Communication of Universities of Asia through Facebook: A Study". The study explored that most of the universities and institutions were preferred to use social networking as one of the most effective way of communication with the users. The paper is reached the entire objective by analyzing the data in an excellent manner. It finds that Facebook pages covered most of the information related to academics instead of library.

(Seena & Pillai Sudhier, 2014) paper titled "Impact of Web 2.0 Technology Applications in Kerala University Library: Library Professionals' Perspective". In study it was assessed the web technology skills among library professionals in the University of Kerala. To collect the data is used the structured questionnaire. The study found that the majority of the library professionals did not have much idea about RSS feeds, content management, social bookmarking, podcast, and wikis. In this study the Lickert's 5-point scale is used for the statements. It has revealed an interesting statistic is that most of the respondents are females.

(N. Singh & Tarade, 2014)studied the significance of the web 2.0 technology application in library services in her research paper "Significance of Web 2.0 Technology and its Application in Academic Libraries". Some social networks and its purpose of use are enlisted but how it is useful in library services is not explained. In this paper main work is done to highlight the potentiality of web technologies in the context of academic library services. He possible tools & technology discussed which is useful for library. But the paper or the research work is lagged in exploring the new type or intuitiveness.

(Chitumbo E.M.M & Chewe P., 2015)Researchers investigated how social media tools (SMTs) can be used by libraries in higher education to market library services. Researchers found that both librarians and students utilized social media solely for social networking rather than for library service purposes. Furthermore, the study noted that there were several potential challenges, including limited Internet access points, poor Internet connectivity, and lack of awareness of some exiting SMTs by most librarians and users. The study recommended the following measures to mitigate the challenges: i. Increasing bandwidth, computer access points, and wireless hot spots. ii. Conducting awareness campaigns, workshops, and training for both librarians and users on the use of social media for information provision. iii. Adopting a social media policy. iv. The institutional websites should include a social media link to promote their services. Identification of a librarian position dedicated to social media communication and services. vi. In addition, the government needs to actively provide ICT infrastructure to its institutions.

(Islam & Habiba, 2015)The work found that most of the libraries use Facebook and LinkedIn for marketing of library services and for sharing library news and events, video conferencing, advertisement, and research purpose. (Thanuskodi, 2013) had investigated the "Awareness of Library 2.0 Applications among Library and Information Science Professionals at Annamalai University, India". He studied the factors those will influence the implementation of the Web 2.0 tools in the library. The awareness about the Web 2.0 tools among the professionals is moderate. The study also found out that the blogs and Wikipedia is used most with showing the high rate of use. The work is discussed the Web 2.0 definitions. The comparative study is done with Web 2.0 and Library 2.0. The survey research method is used in this study to carry out the data with structured questionnaire tool is used to collect data. For the interpretation of the data, it is used the graphs.

(N. Singh & Tarade, 2014) are made study on "Significance of Web 2.0 Technology and its Application in Academic Libraries" to find out the significance of the Web 2.0. They are tried to provide the Web 2.0 information in the

context of academic library. The work also enlisted some key ones include social networking sites, wikis, IM, RSS, Blogs, and Book marking etc. in libraries. The work is enlisted the Web 2.0 services and web applications.

(Frank Boateng & Yan Quan Liu, 2014) had worked on "Web 2.0 applications' usage and trends in top US academic libraries". The work was aimed to look at Web 2.0 technology tools' usage and trends in the top 100 US academic libraries as demonstrated through the academic library websites. Researchers used the US News and World Report's ranking to select the university libraries for the research work. They also used the checklist as the main research instrument along the questionnaire. Each university libraries' websites were visited within a period of two weeks to explore implementation and usage of web tools like SNS, blog, RSS, wikis, podcast/vodcast, and social bookmarking/tagging. 100% of the university libraries are used the social networking sites of Facebook and Twitter. Wiki was the least used tool. Blog was the second most popular tool with a 99 percent participation rate, followed by RSS and IM/Chat with 97 percent and 91 percent respectively.

(Seena & Pillai Sudhier, 2014) conducted a study "Impact of Web 2.0 Technology Applications in Kerala University Library: Library Professionals' Perspective" to extract the professional's perspective on adoption of Web 2.0 tools in libraries. The Web 2.0 technologies facilitate interactive information sharing, interoperability, user-centered design, dynamic content, and user participation. The purpose of this paper is to assess web 2.0 technology skills among library professionals at the University of Kerala. This study aims to identify the choice of web 2.0 technology used by library professionals, their level of skill and attitude towards using them, and their level of familiarity with them.

(Goswami & Choudhury, 2014) are presented their research output in 9th Convention PLANNER conference on "Collaboration Tools and Its Relevance in Library Services" to bring out the Web 2.o tools are as the collaborative tools. Based on the personality characteristics, computer skills, Internet capabilities, and usage purposes of academic librarians in the North-Eastern region, this study examines the concept and impact of collaboration tools use and perception. In this paper the definition for collaboration is tried to explain in the context of web tools use.

(Kadyan & Singroha, 2014) were discussed the concept of Web 3.0 in their paper titled "Web 3.0 in Library services: A Utilitarian effect". They also tried to find out the possibilities to use these tools and technologies in library. It is briefed upon and stated that Web 3.0 is the semantic web which allow the users to Read, Write and Execute web. Researchers tried here to provide some definition for Web 3.0 and its characters. We can find the duration of Web 1.0 and Web 2.0 and further. Some features of Web 3.0 are found in the paper like Intelligence, Interoperability, Personalization, and Virtualization. Authors discussed the Web 3.0 technologies adoption by the library professionals in personal desktop, web spaces, remote control, mobile web, surface PC, internet radio, semantic web, real world web, ontologies, metadata, ubiquitous content, geo tagging, social bookmarking, virtual reference services, blog.

(Barik et al., 2014) were studied on the topic of "Use of Web 2.0 Tools among LIS Professionals for managing and sharing of Knowledge in Private Engineering College Libraries of Odisha". It is found that it is an assessment study of LIS professionals' awareness about Web Tools and use of Web 2.0 tools in different private engineering college libraries of Odisha state. The investigators have used five-point Likert scale to measure the intensity of data. Study reveals that Social Networking Sites (SNS), Instant Messaging, blogs are the most popular tools used by the LIS professionals. The co-relation between female and male professionals in perceptions to Web 2.0 tools found no significance difference. Again, it is observed that lack of IT infrastructures, internet connectivity and lack of time are the main constraint for effective sharing of knowledge in private engineering college libraries.

(Amrohi, 2015), "Application of Web Technology in Special Libraries: A Challenge before Library and Information Professionals in Digital Era". Some usual services are discussed with the use of web technologies. The services are discussed same as 'Raysh Thomas (2017)'.(Ur Rahman et al., 2016) were undertaken research to know the status of awareness about Web tools. The study is showcased that Facebook, YouTube and Skype were mostly used as 93.4%. Most of the librarians do not aware of RSS. In this paper it is urged to provide the uninterrupted internet from the university authorities and some training programs.

(Ranjan & Kumar Bhatt, 2021) The probe of the application of web 2.0 in selected libraries in Delhi and awareness of web 2.0 technologies by library professionals. The main focus on the research was to be aware of web 2.0 tools and its use by libraries in providing better services and enhances learning process to users. The studies reflected the web tools such as blogs, wikis, Facebook, twitter, Instant messaging etc. The studies revealed most frequent purpose of using web tools were reference service, training, blogging, announcements, OPAC, new arrivals, sharing purpose with users.(Panda, 2021)In order to realize that the marketing of information products and services is an integral part of the administration, libraries and informal learning was built.

Table 3: Problems Faced and Perception on Using / Adopting Web Tools in Library Services

Sl. No.	Problems Faced	Perceptions
1	Technical Knowledge and Skills	Uncontrolled Share, Loss of identity
2	Internet connectivity	Interrupt in services
3	Subordinate cooperation	Trainingise staff
4	Learning and understanding	Required training programs
6	Awareness in users	Sometimes not interested

FINDINGS AND DISCUSSIONS

The survey has made an attempt to bring all published research works for the analysis. There were many web tools which were reiterated in almost all the works were Facebook, Twitter, Blogs, IMs, YouTube, Wikies etc. Few web tools like Orkut and Wikies were among the users. The Web tools were used for marketing library resources, to provided current awareness, new arrivals alert, notification, and as a library guide.

Less research found on; perceptions about web technology faced in adopting them; infrastructure required; user's acceptance, to use web tools which could be more researchable topics.

CONCLUSIONS

The research process on the use of web technology tools is taken by the scholars to incorporate web tools in library services. Still there is gap of research work on the library professionals' perception on the adaptation and learning difficulties about the web tools. There were expressions that show most of the professionals using web tools for their personal purpose.

REFERENCES

1. Amrohi, R. A. (2015). *Application of Web Technology in Special Libraries: a Challenge Before Library and Information Professionals in Digital Era. International Journal of Digital Library Services, 5(3), 43–53.*

2. Bansode, S., & Pujar, S. M. (2008). *BLOGS: A Online Tool for Library Services. 6th International CALIBER, 446–451.* http://bloggerbookclub.blogspot.com

3. Barik, N., Pushpanjali, J., Professor, &, Head, P. G., & Librarian, A. (2014). Use of Web 2.0 Tools among LIS Professionals for managing and sharing of Knowledge in Private Engineering College Libraries of Odisha. In *International Research: Journal of Library & Information Science* | (Vol. 4, Issue 4). https://www.researchgate.net/publication/323219662

4. Baro, E. E., Idiodi, E. O., & Godfrey, V. Z. (2013). Awareness and use of Web 2.0 tools by librarians in university libraries in Nigeria. *OCLC Systems and Services, 29(3)*, 170–188. https://doi.org/10.1108/OCLC-12-2012-0042

5. Bhattacharya, A. (2016). LIBRARY 3.0 AND ITS IMPACT ON MODERN LIBRARY SERVICES. *International Journal of Next Generation Library and Technologies, 2(1)*. www.ijnglt.com

6. Chatterjee, A., & Maity, A. (2014). Communication of universities of Asia through Facebook: A study. *DESIDOC Journal of Library and Information Technology, 34(5)*, 376–383. https://doi.org/10.14429/djlit.34.5878

7. Chitumbo E.M.M, & Chewe P. (2015). Social media Tools for Library service delivery in Higher learning Institutions: Case of University of Zambia and National Institute of Public Administration Libraries. *Research Journal of Library Sciences, 3(5)*, 1–7. www.ijhssi.org

8. Chu, S. K. W., & Du, H. (2013). Social Networking Tools for Academic Libraries. *Journal of Librarianship & Information Science, 41(1)*, 64–75.

9. Chua, A. Y. K., & Goh, D. H. (2010). A study of Web 2.0 applications in library websites. *Library and Information Science Research, 32(3)*, 203–211. https://doi.org/10.1016/j.lisr.2010.01.002

10. Dunn, M. J. (2012). Wikis: The Perfect Platform for Library Policies and Procedures. *The Southeastern Librarian, 60(3)*.

11. Fichter, D. (2003). Why and How to Use Blogs to Promote Your Library's Services. *Computer in Libraries, 17(6)*.

12. Frank Boateng, & Yan Quan Liu. (2014). Web 2.0 applications' usage and trends in top US academic. *Library Hi Tech, 32(1)*, 120–138. https://doi.org/10.1108/LHT-07-2013-0093

13. Gavgani, V. Z., & v. Vishwa Mohan. (2008). Application of Web 2.0 tools in Medical Librarianship to Support Medicine 2.0. *Webology, 5(1)*.

14. Godwin, P. (2006). How Google and Web 2.0 affect librarians' support of Information.

15. Goswami, P. K., & Choudhury, N. (2014). Collaboration Tools and Its Relevance in Library Services. *9th Convention PLANNER*, 25–27. https://www.researchgate.net/publication/352152020

16. Greifender, E., & Cuong Linh, N. (2008). A survey of the application of Web 2.0 in Australasian university libraries. *Library Hi Tech, 26(4)*, 630–653. https://doi.org/10.1108/07378830810920950

17. Gross, J., & Leslie, L. (2008). Twenty-three steps to learning Web 2.0 technologies in an academic library. *Electronic Library, 26(6)*, 790–802. https://doi.org/10.1108/02640470810921583

18. Han, Z., & Liu, Y. Q. (2010). Web 2.0 applications in top Chinese university libraries. *Library Hi Tech, 28(1)*, 41–62. https://doi.org/10.1108/07378831011026689

19. Haneefa, M. K. (2011). *Perception and Use of Social Networking Sites by the Students of Calicut University. In DESIDOC Journal of Library & Information Technology (Vol. 31, Issue 4).*

20. Hanif, M. (2009). *Need for Web 2.0 Technology for the Libraries.* http://liswiki.org/wiki/Main_Pag0065

21. Harinarayana, N. S., & Raju, N. V. (2010). *Web 2.0 features in university library web sites. Electronic Library, 28(1), 69–88.* https://doi.org/10.1108/02640471011023388

22. Islam, M., & Habiba, U. (2015). *Use of Social Media in Marketing of Library and Information Services in Bangladesh. In DESIDOC Journal of Library & Information Technology (Vol. 35, Issue 4).*

23. Jadhav, V. G. (2014). *Application of Social Networking Services (SNS) for Library Collaboration: An Exploratory Study. International Research : Journal of Library & Information Science, 4(1), 121–129.*

24. Kadyan, S., & Singroha, R. (2014). *Web 3.0 in Library services: An Utilitarian ef-fect. Journal of Information Management, 1(2), 159–166.* www.pacificresearchpublication.com

25. Kai-Wah Chu, S. (2009). *Using Wikis in Academic Libraries. The Journal of Academic Librarianship, 35(2).* https://doi.org/10.1016/j.acalib.2009.01.004

26. Kataria, S., & Paul, J. A. K. (2009). *Applications of Web 2.0 in the Enhancement of Services and Resource in Academic Libraries : An Experiment @ JIIT University Noida, India. ICAL, 1 –7.*

27. Kaushik, A., & Arora, J. (2012). *Blogs on Marketing Library Services. In DESIDOC Journal of Library & Information Technology (Vol. 32, Issue 2).* http://themwordblog.blogspot.com/

28. Kumar, A., & Sharma, D. H. (2008). *Blogging and Uses of Blogs in Libraries. International CALIBER, 437–445.* http://info.cern.ch/,

29. Lwoga, E. T. (2014). *Integrating Web 2.0 into an academic library in Tanzania. Electronic Library, 32(2), 183–202.* https://doi.org/10.1108/EL-06-2012-0058

30. Mahmood, K., & Richardson, J. v. (2011). *Adoption of Web 2.0 in US academic libraries: A survey of ARL library websites. In Program (Vol. 45, Issue 4, pp. 365–375).* https://doi.org/10.1108/00330331111182085

31. Majumdar, S. (2012). *Web 2.0 Tools in Library Web Pages: Survey of Universities and Institutes of National Importance of West Bengal. In DESIDOC Journal of Library & Information Technology (Vol. 32, Issue 2).* http://www.wbnsou.ac.in:8080/wbnsou/

32. Makori, E. O. (2012). *Bridging the information gap with the patrons in university libraries in Africa: The case for investments in web 2.0 systems. In Library Review (Vol. 61, Issue 1, pp. 30–40).* https://doi.org/10.1108/00242531211207406

33. Mandal, P. S. (2011). *Blog and its Role in Library and Information Services. In DESIDOC Journal of Library & Information Technology (Vol. 31, Issue 3).* www.blogger.com

34. Mazzocchi, J. (2011). *Italian library blogs: A difficult trend to follow? The International Information & Library Review, 43(2).* https://doi.org/10.1016/j.iilr.2011.04.001

35. *McIntyre, A., & Nicolle, J. (2008). Biblioblogging: Blogs for library communication. Electronic Library, 26(5), 683–694. https://doi.org/10.1108/02640470810910701*

36. *Mi Kim, Y., & Abbas, J. (2010). Adoption of Library 2.0 Functionalities by Academic Libraries and User：A Knowledge management perspective. https://doi.org/10.1016/j.acalib.2010.03.003*

37. *Nwogo Ezeani, C., & Igwesi, U. (2012). Using Social Media for Dynamic Library Service Delivery: The Nigeria Experience. Library Philosophy and Practice (e-Journal). http://digitalcommons.unl.edu/libphilprac/814*

38. *Oguz, F., & Holt, M. (2011). Library blogs and user participation: A survey about comment spam in library blogs. Library Hi Tech, 29(1), 173–188. https://doi.org/10.1108/07378831111116994*

39. *Okonedo, S., Chimeziri Azubuike, F., & Adeyoyin, S. O. (2013). A Survey of the Awareness and Use of Web 2.0 Technologies by Library and Information Professionals in Selected Libraries in South West Nigeria. International Journal of Library Science, 2013(4), 61–68. https://doi.org/10.5923/j.library.20130204.01*

40. *Oyieke, L. I., & Dick, A. L. (2017). Empowering academic librarians for effective e-services: An assessment of Web 2.0 competency levels. Electronic Library, 35(2), 263–282. https://doi.org/10.1108/EL-10-2015-0200*

41. *Panda, S. (2021). Marketing and Promotional Means of Academic Library Products and Services with Reference to WEB 2.0 Tools. In Web Based Services in Library and Information Science, 343–359. https://doi.org/10.5281/zenodo.5091383*

42. *Preedip Balaji, B., & Kumar, V. (2011). Use of web technology in providing information services by south Indian technological universities as displayed on library websites. Library Hi Tech, 29(3), 470–495. https://doi.org/10.1108/07378831111174431*

43. *Preedip Balaji, B., Kumar, V., Balaji, P. B., & Kumar, V. (2011). Use of web technology in providing information services by south Indian technological universities as displayed on library websites. Library Hi Tech, 29(3), 470–495. https://doi.org/10.1108/LHT-10-2014-0100*

44. *Ranjan, J., & Kumar Bhatt, R. (2021). Application Of web 2.0 Tools And Technologies By Library Application Of web 2.0 Tools And Technologies By Library Professionals In Select Libraries In Delhi: A Study Professionals In Select Libraries In Delhi: A Study. Library Philosophy and Practices (e-Journal). https://digitalcommons.unl.edu/libphilprac*

45. *Schrecker, D. L. (2008). Using blogs in academic libraries: Versatile information platforms. New Library World, 109(3–4), 117–129. https://doi.org/10.1108/03074800810857586*

46. *Seena, S. T., & Pillai Sudhier, K. G. (2014). Impact of web 2.0 technology applications in kerala university library: Library professionals' perspective. DESIDOC Journal of Library and Information Technology, 34(5), 419–425.* https://doi.org/10.14429/djlit.34.6784

47. *Sheikh, M. I. (2011). Impact And Application of Web 2.0 In Libraries: A Case Study of 12 National Libraries of The Developed Nations. Brazilian Journal of Information Science, 5(2), 41–56.*

48. *Si, L., Shi, R., Chen, B., Si, L., Shi, R., & Chen, B. (2011). An investigation and analysis of the application of Web 2. 0 in Chinese university libraries. https://doi.org/10.1108/02640471111177080*

49. *Singh, K. P., & Gill, M. S. (2013). Web 2.0 technologies in libraries: A survey of periodical literature published by Emerald. In Library Review (Vol. 62, Issue 3, pp. 177–198). https://doi.org/10.1108/00242531311329491*

50. *Singh, N., & Tarade, R. S. (2014). Significance of Web 2.0 Technology and its Application in Academic Libraries. Article in International Journal of Computer Trends and Technology, 10(5). https://doi.org/10.14445/22312803/IJCTT-V10P143*

51. *Smeaton, K., & Davis, K. (2014). Using social media to create a participatory library service: an Australian study. Library and Information Research, 38(117).*

52. *Stephen Abram. (2007). Web 2.0, library 2.0 and librarian 2.0: preparing for the 2.0 world. http://en.wikipedia.org/*

53. *Thanuskodi, S. (2013). Awareness of Library 2.0 Applications among Library and Information Science Professionals at Annamalai University, India. International Journal of Library Science, 1(5), 75–83. https://doi.org/10.5923/j.library.20120105.02*

54. *Thomas, R. (2017). Impact of Web Technologies on Library and Documentation Centres. International Journal of Library & Information Science (IJLIS), 6(5), 27–37.*

55. *Tripathi, M., & Kumar, S. (2010). Use of Web 2.0 tools in academic libraries: A reconnaissance of the international landscape. International Information and Library Review, 42(3), 195–207. https://doi.org/10.1016/j.iilr.2010.07.005*

56. *Tyagi, S. (2012). Use of Web 2.0 Technology by Library Professionals: Study of Selected Engineering Colleges in Western Uttar Pradesh. In DESIDOC Journal of Library & Information Technology (Vol. 32, Issue 5).*

57. *Ur Rahman, A., Idrees, H., & khan, A. (2016). Prerequisite and awareness status of Web 2.0 applications in University Libraries of Khyber Pakhtunkhwa. Library Hi Tech News, 33(8), 5–7. https://doi.org/10.1108/LHTN-04-2016-0019*

58. *Vaaler, A., & Brantley, S. (2016). Using a blog and social media promotion as a collaborative community building marketing tool for library resources. Library Hi Tech News, 33(5), 13–15. https://doi.org/10.1108/LHTN-04-2016-0017*

59. *Walia, P. K., & Gupta, M. (2012). Application of web 2.0 tools by national libraries. Webology, 9(2).*

60. *Zhang, J. (2013). The analysis of library information service based on web 3.0. Proceedings - 2013 5th International Conference on Intelligent Human-Machine Systems and Cybernetics, IHMSC 2013, 2, 114–117. https://doi.org/10.1109/IHMSC.2013.174*