USE OF WEB TECHNOLOGY IN ENGINEERING AND TECHNOLOGICAL INSTITUTION LIBRARIES: A STUDY: SPECIAL REFERENCE TO GOOGLE SERVICES

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Abstract
The research paper extracts the information on use of Google Services by engineering college library professional. The study is based on a survey research method. The paper cover four VTU regional divisions affiliated college as random samples. The questionnaire is distributed through mail IDs with Google Form design. 40 college libraries are selected for research sample. The study is limited to use of Google Services and its use by the professionals and awareness. The SPSS statistical software is used to analyse and design the graph for the received data.
Keyword: Google Services, Gmail, Google Books, Google Image Search, Survey, Web Tools, Web Technology,

Introduction
Google is providing a number of web tools to use for library services. The web technology tools are getting into new stage of evolution. There has been discussion on the evolution of the web technology in recent concerning about what to decide this new phase. Web technology advancements are popular to the point that they presently command the regular individual, proficient existence of a large number of library users. This fame is influencing the way that libraries are in need to associate with these tools in its day to day services. As librarianship advances and adjusts to the requirements of the web age, utilizing Web tools has turned into an essential mechanism in serving the library users by working librarians. The term Web Technology Tools has been approximately characterized as the 4G and 5G era of online stages. These comprise of applications explicitly intended to help online cooperation and client produced content sharing

(Clear Swift, 2007; O'Reilly, 2007). As per Wang (2011, p. 3) "numerous energetic curators around the globe are executing web technology tool' instruments furthermore, thoughts in every single diverse sort of library settings and imaginative projects, and attempting to connect with their patrons in new ways."

Google Services are part of Web Technology Tools right now offered by libraries incorporate bookmarking, client included surveys/rating/outlines, online journals, wikis, RSS, digital broadcasts, Vodcast, texting, labeling, person to person communication destinations, video, talk, network photograph administrations, networking, Twitter, book records, and keeping up a virtual library. In the developing and evolutional pace the network giant the Google services at the most for the society. From this the library professional community is also benefited.

Problem Statement

Google is a giant service provider of many web technology tools to the Net users. There is remarkable boost to use them in library to offer various services to the library patrons like searching books, sending mails, digital document delivery, image, scholarly search etc.

Nature and Scope of the Study

The paper is based on the survey research with analytical method. It covers engineering college libraries in Karnataka, India. The paper is on Google Product or Services used in the college libraries to provide services and awareness status on it.

Objectives

- To find out the frequency of use of Google (Products) Services by library professionals working in engineering colleges in Karnataka
- To find out the awareness of the Google Services in working library professionals
- To find out how many of them are using Google Services for library purpose and personal

Research Methodology

The survey research method is used to collect data from the working library professionals. Online questionnaire is used for the survey. Questionnaire is designed using Google form. It is sent through email address with the

questionnaire URL link to fill and to submit.

The kinds of questions are *awareness, not aware, using for personal or library purpose*. All the data received from the respondents through Google form is saved in a Google Spreadsheet. The Google spreadsheet is exported as MS Excel to work comfortably.

It is checked for error correction and missing data in MS Excel. The MS Excel sheet which contains the raw data is processed in SPSS 25 for data analysis, frequency analysis to ease of understanding by the reader. The processed and analyzed data is exported to MS Word for the interpretation.

Literature Review

Vahideh Zarea Gavgani & V. Vishwa Mohan (2008) has presented the application of Web Technologies in medical libraries to support medical college library users. Gokhale, Pratibha A. and Chandra, Smita (2009) discussed the web 1.0 and its features. It is discussed that both the web 1.0 and web 2.0 has the different features to handle the human created information which can edit, update, modify and do more.

Kataria, Sanjay & John Paul Anbu K. (2009) it is a case study of the university library which used the web technologies for the library services. Mary Hricko (2010) writes on using micro-blogging tools for library services. The author is states that the Micro-blogging is the web technologies which can be used in any type of library to share information, interact with content, and regenerate resource and for instructional activities, library event promotion.

Roy, Projes and Arora, Dipti (2011) are given a research work on "Social Semantic Digital Library: The Future". The paper is given a comparative study about how the web technologies can be used in the library.

Haneefa, Mohamed K. and Sumitha E. (2011) has written paper on "Perception and Use of Social Networking Sites by the Students of Calicut University" which is used the survey research method to explore the perceptions of the students about social network sites for the various reasons.

Tyagi, Sunil (2012) in his paper titled "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.

Chinwe Nwogo Ezeani (2012) the author is expressed the usage of the social networking sites for library in Nigeria in his paper titled "Using Social Media for Dynamic Library Service Delivery: The Nigeria Experience".

Goswami, Pallab Kr. & Choudhury, Nisangka (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.

Pushpanjali Jena & Nilaranjan Barik (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.

Aziz Ur Rahman, Haroon Idrees and Arif khan (2016) were undertaken a research to know the status of awareness about Web tools. Raysh Thomas (2017) is discussed in his paper "Impact of Web Technologies on Library and Documentation Centres" the fast development of Web Technology and its application in the library and documentation centers.
V. R., Renjith, (2018) studied on 'Citations of DESIDOC Journal of Library and Information Technology: Statistical analysis of Google Scholar based Research Impact for the period of 2006 to 2015'. It is a statistical analysis which is based on the retrieval of research impact.

Luo, Jiebei, (2018) studied on 'Using Google apps to manage embargo records: Automating institutional repository reminders' to discuss the use of the Google app for automated notification about IR of the institution. Mckie, Indra & Aalia, Bhuva Narayan, (2018) worked on 'Put Uncle Google and Auntie Alexa to work in your library'. The paper discussed about the Chatbots used on the library website.

Hedgespeth, Melanie, (2018) are focused on reading activities using the Google Forms in his paper titled 'Simplifying Summer Reading with Google Forms'.

Cole, Carmen & et. al., (2018) presented their paper on 'Google Scholar's Coverage of the Engineering Literature 10 years Later' which covers citation study on engineering literature.

Data Analysis and Interpretation

Table Statistics shows that there is a missing data on the question of 'No. of Computers for Library Users?' It is indicates clearly that the respondent is not replied or not answered to the question.

Statistics

		Courses Offered	Total Number of Library Users	Internet Access Facility	No. of Computers for Library Users	Library Automation
N	Valid	40	40	40	38	40
	Missing	0	0	0	2	0

Table-1 is evidently showing that in engineering college libraries the Master's Degree professionals are dominated and there is less number of Doctoral degree holders. It is positive impact that most of the professionals are young population. 32 (80%) of the professionals are qualified Masters Degree whereas 7 (17.5%) are Ph. D. holders.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-10	12	30.0	30.0	30.0
	11-20	21	52.5	52.5	82.5
	21-30	7	17.5	17.5	100.0
	Total	40	100.0	100.0	

Table 1: Educational Qualification

40 library professional respondents are responded to the questionnaire. Table 2 which represents that there are 21 (52.5%) respondents are between the experience 11-20 ranges which seems a budding professional. There are 12 (30%) professionals; those are between 0-10 years of professional experience who is expectedly technological savior to deem to use the web tools to serve the patrons. There are 7 (17.5) professionals who have been crossed the 20 years of experience and have between 21-30 years of experience.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	BLISc., MLISc.	1	2.5	2.5	2.5
	MLISc.	32	80.0	80.0	82.5
	Ph.D. in LISc.	7	17.5	17.5	100.0
	Total	40	100.0	100.0	

Table 2: Years of Professional Experience

Table-3 which indicates the democratic system adopted in choosing the respondent to answer the questionnaire. It is considered all category professionals like assistant librarians, librarians and chief librarians and other staff working in library. 26 (65%) of the respondents are working as Librarians in engineering colleges in Karnataka and 10 (25%) are working as Chief Librarians. Assistant Librarians replied with 4 (10%) which shows the researcher is given freedom to take a chance to reply with all category professionals irrespective of the head of the library.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Assistant Librarian	4	10.0	10.0	10.0
	Chief Librarian	10	25.0	25.0	35.0
	Librarian	26	65.0	65.0	100.0
	Total	40	100.0	100.0	

Table-3: Respondent of the Questionnaire

There are 4 regional divisions which are divided according to geographical location Belagavi, Bangaluru, Kalaburagi and Mysuru divisions. All division's professionals are participated in the survey. The Table-4 articulate that Belagavi and Bangaluru divisions are responded with same number of 13 (32.5%) and shares the top 1 positions and the Mysuru division stands second with 11 (27.5%) respondents whereas Kalaburagi division is stands with 3 (7.5%).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Belagavi Division	13	32.5	32.5	32.5
	Bangaluru Division	13	32.5	32.5	65.0
	Kalaburagi Division	3	7.5	7.5	72.5
	Mysuru Division	11	27.5	27.5	100.0
	Total	40	100.0	100.0	

Table 4: Regional Division?

Table -5 which provide the frequency analysis of participated respondents from which kind of colleges. In the survey, the Private College working library professionals participated highest than any other type of colleges. Table-5 declares that 33 (82.5%) respondents are from private college and remaining 4 (10%) autonomous and 2 (5%) are from government colleges. 1 (2.5%) aided college.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Aware	7	17.5	17.5	17.5
	Both Personal and Library Service Purpose	29	72.5	72.5	90.0
	Library Service Purpose Only	1	2.5	2.5	92.5
	Not Aware	1	2.5	2.5	95.0
	Personal Use Only	2	5.0	5.0	100.0
	Total	40	100.0	100.0	

Table 5: Type of Institution

Table-6 shows the total users for the library. There is need of the application of the web tools in library services to handle routine work with less human resource especially in private colleges. 23 (57.5%) college libraries have users more than 1500. 3 (7.5%) college libraries have less than 500 and 1001-1500 are 6 (15%) college libraries. 8 (20%) college have 501-1000 users for the college library. It shows clearly and explicitly about the strength of the college library users and there is an urgent need of such college libraries to adopt web tools those are available with no cost.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-500	3	7.5	7.5	7.5
	1001-1500	6	15.0	15.0	22.5
	1501 and Above	23	57.5	57.5	80.0
	501-1000	8	20.0	20.0	100.0
	Total	40	100.0	100.0	

Table-6: Total Number of Library Users

To access the web tools facility, it is must to have internet facility in library or in the college campus to access the provided services. The Table 7 nicely presents that 33 (82.5%) college libraries are providing internet to the users through LAN (Local Area Network) and Wi-Fi. 5 (12.5%) have facility of LAN only which becomes the cumulatively 95% and 2 (5%) are have LAN mode of internet connectivity with cumulative index of 100%. It shows that all the college libraries have provided internet access facility in one and the other mode of access.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Both of the Below	33	82.5	82.5	82.5
	LAN Only	5	12.5	12.5	95.0
	Wi-Fi Only	2	5.0	5.0	100.0
	Total	40	100.0	100.0	

Table-7: Internet Access Facility

No. of Computers for Library Users Type of Institution	Maximum	Minimum	Median	Mean
Autonomous	100	30	50.00	60.00
Autonomous, Aided	40	40	40.00	40.00
Government	2	2	2.00	2.00
Private	70	4	20.00	25.79
Total	100	2	24.00	28.24

Table-8a: Mean Comparison

There is significance to provide the computer access to the library users to access the study materials in e-format. The study and analysis in Table-8a shows that there are maximum 100 PCs provided in an Autonomous college and minimum 30 PCs whereas all autonomous colleges have more than 1500 above library users which is showing lack of PCs provided to access in library. Even the Median is 50 PCs which will not be valid to meet the library users' strength. In case of private college libraries, 70 PCs are the maximum and 4 PCs are the minimum. It shows that private colleges are not concentrating on library facilities. A college which has minimum strength for a course is 60 intake and the PCs provided in college libraries are lesser than the minimum requirements. Most of the college libraries have strength of above 1000 library users, the median and mean are showing that students are suffering without having sufficient PCs to access for their academic works in library.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	2.5	2.6	2.6
	4	1	2.5	2.6	5.3
	5	1	2.5	2.6	7.9
	10	2	5.0	5.3	13.2
	11	1	2.5	2.6	15.8
	12	2	5.0	5.3	21.1
	15	4	10.0	10.5	31.6
	16	2	5.0	5.3	36.8
	18	1	2.5	2.6	39.5
	20	3	7.5	7.9	47.4
	23	1	2.5	2.6	50.0
	25	1	2.5	2.6	52.6
	30	6	15.0	15.8	68.4
	35	1	2.5	2.6	71.1
	36	1	2.5	2.6	73.7
	37	1	2.5	2.6	76.3
	40	2	5.0	5.3	81.6
	45	1	2.5	2.6	84.2
	50	3	7.5	7.9	92.1
	56	1	2.5	2.6	94.7
	70	1	2.5	2.6	97.4
	100	1	2.5	2.6	100.0
	Total	38	95.0	100.0	
Missing	System	2	5.0		
Total		40	100.0		

Table-8: No. of Computers for Library Users

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Aware	10	25.0	25.0	25.0
	Both Personal and Library Service Purpose	24	60.0	60.0	85.0
	Library Service Purpose Only	6	15.0	15.0	100.0
	Total	40	100.0	100.0	

1.Use of Google (Products) Services in Engineering College Library

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Aware	11	27.5	27.5	27.5
	Both Personal and Library Service Purpose	22	55.0	55.0	82.5
	Library Service Purpose Only	3	7.5	7.5	90.0
	Not Aware	1	2.5	2.5	92.5
	Personal Use Only	3	7.5	7.5	100.0
	Total	40	100.0	100.0	

Table1.1: Google Books

Table-1.1 declared that 100% of the respondents are aware about the Google Books. 24 (60%) of the respondents are using it for library as well as personal purpose and it is very significance that cumulative index says that 100% of the professionals are using it.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Aware	9	22.5	22.5	22.5
	Both Personal and Library Service Purpose	24	60.0	60.0	82.5
	Library Service Purpose Only	6	15.0	15.0	97.5
	Not Aware	1	2.5	2.5	100.0
	Total	40	100.0	100.0	

Table-1.2: Google Translator

Table 1.2 points out, 22 (55%) are using the Google Translator for both Personal and Library purpose whereas 11 and 3 are aware and using for library purpose only respectively. There is 1 respondent who have been not aware about Google Translator. Google Translator will help in translating the language to do the cataloging in automated environment.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Aware	8	20.0	20.0	20.0
	Both Personal and Library Service Purpose	29	72.5	72.5	92.5
	Library Service Purpose Only	2	5.0	5.0	97.5
	Not Aware	1	2.5	2.5	100.0
	Total	40	100.0	100.0	

Table-1.3: Image Search

Google Image search is a service that allows users to search the Web for

image content. It was introduced on July 12, 2001 due to a demand for pictures of Jennifer Lopez's green Versace dress that the regular Google search couldn't handle. In 2011, reverse image search functionality was added to it. When the user clicks on a thumbnail, the image is displayed in a larger size, and users may visit the page on which the image is used[1]. It is used in library as library service and to find images for library itself. Table 1.3 projects 24 (60%) are using the Google Image search for their personal work as well as library purpose. 9 (22.5%) are aware about the Google Image search. 6 (15%) are using for library services purpose only while 1 (2.5%) are not aware about it. Aware and using are cumulatively 97.5% are known this search of Google.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Aware	7	17.5	17.5	17.5
	Both Personal and Library Service Purpose	29	72.5	72.5	90.0
	Library Service Purpose Only	1	2.5	2.5	92.5
	Not Aware	1	2.5	2.5	95.0
	Personal Use Only	2	5.0	5.0	100.0
	Total	40	100.0	100.0	

Table-1.4: Google Scholar

Table-1.4 represents the use of Google scholar by professionals. It can be used as a service as selective dissemination of information by searching research papers related to research works going on in the colleges by the faculty and students. It shows that 8 (20%), 29 (72.5%) and 2 (2.5%) of the respondents are aware and using the Google Scholar for personal and to serve the college learning fraternity which make the cumulative index of 97.5%. Only 1 (2.5%) respondent is not aware about the Google Scholar.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Aware	5	12.5	12.5	12.5
	Both Personal and Library Service Purpose	28	70.0	70.0	82.5
	Library Service Purpose Only	3	7.5	7.5	90.0
	Personal Use Only	4	10.0	10.0	100.0
	Total	40	100.0	100.0	

Table-1.5: Google Forms

The outstanding service or product of the Google is Google Forms which is helpful for the library services to collect various data like to collect newly joined students' demographic data. If the library is automated, it is easy to import the data directly to the service database. Table-1.5 shows that 29 (72.5%) respondents are using it for both library and personal purposes

and 7 (17.5%) are aware about the Google Forms and 1 (2.5%), 2 (5%) are using it for library purpose only and personal respectively. There is only 1 respondent who doesn't aware about Google Forms.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Aware	14	35.0	35.0	35.0
	Both Personal and Library Service Purpose	6	15.0	15.0	50.0
	Library Service Purpose Only	3	7.5	7.5	57.5
	Not Aware	12	30.0	30.0	87.5
	Personal Use Only	5	12.5	12.5	100.0
	Total	40	100.0	100.0	

Table-1.6: Google Drive

Google drive is a cloud storage service. It provides maximum 15GB of space to store without paying. It can be used for storing database backup, documents, images, videos etc. The usage and awareness on this is shown in the Table-1.6, 28 (70%) of the respondents are using it for both personal and library purpose. 5 (12.5%) are aware but not using it for any work and 3 (7.5%) are using for library purpose and 4 (10%) are using for personal purpose. It shows that 100% of the professionals are aware about this and the remaining 12.5% are potentials of using it to provide library services. It is declared that cumulatively 100% are using Google Drive or at least they are aware about it.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Aware	10	25.0	25.0	25.0
	Both Personal and Library Service Purpose	25	62.5	62.5	87.5
	Library Service Purpose Only	3	7.5	7.5	95.0
	Personal Use Only	2	5.0	5.0	100.0
	Total	40	100.0	100.0	

Table-1.7: Feedburner

'FeedBurner is a web feed management provider launched in 2004[2]. It provides custom RSS feeds and management tools for bloggers, podcasters, and other web-based content publishers. Google acquired FeedBurner in 2007. FeedBurner was founded by Dick Costolo, Eric Lunt, Steve Olechowski, and Matt Shobe'[3]. Table-1.7 shows that there are 14 (35%) aware about the Feedburner whereas 12 (30%) of respondents are not aware. 6 (15%) are using it for both personal and library services purpose. Some are using it exclusively for library service purpose.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Aware	4	10.0	10.0	10.0
	Both Personal and Library Service Purpose	31	77.5	77.5	87.5
	Library Service Purpose Only	2	5.0	5.0	92.5
	Personal Use Only	3	7.5	7.5	100.0
	Total	40	100.0	100.0	

Table-1.8: Google Docs

Google Docs includes, Google Text Document, Google Sheets, Slides and Forms. These are useful to maintain the documentation works in library for its routine jobs like approval, place order and preparing covering letter. Table 1.8 represents the data of awareness and usage of the Google Docs in engineering college library as 10 (25%) are aware about Google Docs and 25 (62.5%) are using for both personal and library purpose. 3 (7.5%) respondents are using Google Docs exclusively for library service purpose only. 2 (5%) respondents are using Google Docs for personal work only.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Aware	4	10.0	10.0	10.0
	Both Personal and Library Service Purpose	31	77.5	77.5	87.5
	Library Service Purpose Only	2	5.0	5.0	92.5
	Personal Use Only	3	7.5	7.5	100.0
	Total	40	100.0	100.0	

Table-1.9: Gmail

Google's worldwide used service is Gmail. There is no internet user who does not know Gmail for sending text online. Not only is it used for personal? It is also used for library service purpose. Table-1.9 declares that out of 40 respondents are aware about the Gmail and 31 (77.5%) are using it for both library and personal while 2 (5%) using Gmail exclusively for library service purpose and 4 (10%) are aware about Gmail. In Cumulate percent 100% are aware about the Gmail services. In future all the 40 respondent will be the potential users of the Google service.

Findings

The outcomes of the study are, in Engineering and Technological colleges most of the respondents are using Google services in their library to give services to the patrons. Here it is observed that still some are not incorporated in their library.

Discussion and Suggestions

- It is found that workshops and seminars on use of Google Services are required to convert the potential users into users.
- Further study can be carried out regarding the perception on Google Services.
- Case Studies can be done on the use of Google Services in Engineering College Libraries to understand, what kind of services? are provided by the librarians using the Google Services.

Conclusion

The study revealed that Google's products or services like Gmail, Google Docs, Google Forms, and Google Drives are most useful in the role of library services. There are still working professionals who doesn't aware about some Google services which can be incorporated in library. Some are aware but not able to integrate into library. There are requirement of more study on this topic and further research can be taken up.

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