Websites of State Universities in Kerala: A Webometric Study

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Abstract

This paper explores the Web Impact Factors (WIFs) for websites of Kerala State Universities. It discusses why External Web Impact Factor (EWIF) is more meaningful than simple WIF. The study also attempts the websites of State Universities in Kerala by considering website ranking systems and compares the WIF and EWIF. It found that the Shree Sankaracharaya University of Sanskrit ranked 1(0.0035) in Self link Web Impact Factor of State University Websites in Kerala. National University of Advanced Legal Studies is in the 2nd (0.0032) rank in Self Link Web Impact Factor. The Kerala University is ranked 1 (0.00083) in External Link Web Impact Factor.

Keywords

Web sites; Kerala state Universities; Web Impact Factor; EWIF.

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INTRODUCTION

Webometric is an attractive and one of the most relevant info-metric sub-discipline among traditional bibliometrics approaches. The availability of reliable webdata is important to achieve standard results, despite of tool related technical problems and intermediaries requires for web data recovery. Through Webometric studies one can observe that how users actually react ad use specific we document. The history of library and information science has seen the extensive development of different types of metrics studies. Two major breakthroughs in the history of information were the advent of the printing press in 1450 and the creation of the Internet in 1990, both of which resulted in information explosions. In the digital age, university websites are very important to their stakeholders and there is a need to assess their ranking. Webometric is the study of the quantitative aspects of the construction and use of information resources, structures and technologies on the web, drawing on bibliometrics and informetric approaches. It covers research of all network based communication using quantitative measure. Webometrics, in future, may become one of the most interesting research areas for the vast collection of electronic information available on the publicly indexable web. Paisley rightly identified this area as the future domain of bibliometrics research.

WEB IMPACT FACTOR (WIF)

- The idea of measuring average link frequencies, that is, the WIF, as one of the quantitative indicators or the average link frequencies has been developed by Ingwersen (1998). The feasibility and reliability of calculating impact factors for websites, called Web Impact Factors. WIF is a "snapshot" of a search engine database at a specific time. The WIF was based on an analogy between hyperlinks and citations and was the adaptation of the "*Journal Impact Factor*" for the Web.

The idea of applying bibliometric techniques to the web was proposed by Almind and Ingwersen, (1997) According to them WIF should be defined as the ratio of links made to a website, to the number of pages at the website. Ingwersen distinguished between:

- The External link WIF, the ratio of external links to the number of pages.

- The internal or Self WIF, the ratio of internal links within the site to number of pages.
- The WIF, the ratio of inlinks to the target site, to the number of pages at the site.

In links from outside represent more effort to point to target pages, and thus contain more valuable information. However, it is not always easy to separate self links from inlinks (Li, 2003).

OBJECTIVES OF THE STUDY

The primary objective of this study is to examine the WIF for websites of State universities of Kerala. Other specific objectives include:

1. To study about the different types of domain names
2. To study the growth of Universities in Kerala
3. To calculate the Simple Web impact factor (SWIF) for the Kerala state university websites
4. To calculate the maximum number of inlinks (external links) that refer to the Kerala State Universities' websites under study

This study also undertakes link analysis for the inlinks to websites of the selected Kerala State Universities. In doing so, the total number of inlinks is calculated, which refers to a particular website anywhere in its text body.

METHODOLOGY

Formula for calculating WIF:

WIF = A _ total linked pages (all inlink and self-link pages) D_number of web pages published on the website which are indexed by a search engine (not all web pages of the website)
WIF = A/D

Formula for calculating EWIF:

EWIF = A _ External links (external links) to the website B _ number of web pages published in the website which are indexed by the search engine (not all web pages of the website)
EWIF = (A/B)

DATA SOURCES IN WEB IMPACT FACTOR RESEARCH

Mainly there are two categories of data sources in Web Impact Factor research:

(a) Commercial search engines and (b) Personal web crawlers.

LITERATURE REVIEW

In 1955, Eugene Garfield introduced the term *impact factor* to measure the overall influence of a journal's articles on later literature, subsequently calling it *journal impact factor* (JIF). JIF is a measure of frequency that reflects the average number of citations received by a journal article within a specified period, normally one year. The JIF serves as a measure of the importance of a journal within its field, as journals with higher JIFs are considered to be more important than those with lower ones. For websites, the impact factor is calculated by the number of hyperlinks divided by the number of web pages for a particular website and is called the *web impact factor* (WIF). For WIF, citation data are substituted by *inlinks* (hyperlinks referring to the website or web page) and the idea of self-citation is replaced by *self-links* (navigational links within a website). Webometric approaches require four types of analysis of a website: content analysis (web page), structure analysis (web links), usage analysis (exploiting log files for users'searching behaviour) and technology analysis (search engine performance and optimization) that covers both the usage and structural aspects of the Web (Montelongo, 2013). The term WIF was introduced by Ingwersen in 1998 and is based on the same pattern as JIF to measure the impact of websites in a particular field of study (Noruzi, 2006a). WIF is considered to provide a website's relative importance and competitive relationship to other websites in the same field or domain. The WIF is generally defined as the ratio between the number of links received and the total number of web pages of a particular website.

SCOPE AND LIMITATION

The research followed the descriptive approach. The research method used in this study is survey method. In order to collect data, we have used the list of State Government universities in Kerala provided by the University Grant Commission of India (www.ugc.ac.in). Before using the list, we have checked the access of each university web sites. The study included 13 State Government universities in

Kerala. The advanced search facility of Small SEO web ranking tool was used for data collection

Table 1: Domain Wise Distribution of State Universities in Kerala

S. No.	Domain Name	No. of Universities	Percentage
1.	.ac.in	8	61.54
2.	.edu	1	7.69
3.	.info	1	7.69
4.	.edu.in	2	15.39
5.	.in	1	7.69
	Total	**13**	100.00

Table 01 shows the domain-wise distribution of the websites of State Universities in Kerala. Out of 13 state Universities, 8 (61.54%) universities are having '.ac.in'. Remaining universities, one university is used .edu', one university is used '.infor' and other comes has .in' domain. Two (15.39) universities are having their domain name '.edu.in'. It is revealed from the table, that ac.in has been widely used in the websites of state Universities in Kerala.

Table 2: Year of Establishment

S.No.	Block Period	No. of Universities	Percentage
1.	Before 1980	4	30.77
2.	1981-1990	1	7.69
3.	1991-2000	2	15.39
4.	2001 and above	6	46.15
5.	Total	13	100.00

Table 02 shows the year of establishment of state Universities in Kerala. The years of establishment are categories under four block years such as before 1980, 1981-1990, 1991-2000 and 2001 & above. Among the 4 universities, 4 (30.77%) are established before 1980, 1 (7.69%) universities is in 1981-1990 and 6 (46.15%) are established after 2001. It is highlighted from the table; only two universities were established in the block period of 1991 to 2000.

Table 3: Distribution of Internal Link WIF of Websites of State Universities in Kerala

S. No.	University Name	Internal Links	No.of Web Pages	WIF	Rank
1.	Shree Sankaracharaya University of Sanskrit	186	53418	0.0035	1
2.	National University of Advanced Legal Studies	139	43530	0.0032	2
3.	Cochin University of Science & Technology	193	62934	0.0031	3
4.	University of Calicut	216	79180	0.0027	4
5.	Kerala University	132	48388	0.0027	
6.	Mahatma Gandhi University	204	78170	0.0026	5
7.	A.P.J. Abdul Kalam Technological University	61	27385	0.0022	6
8.	Kerala Agricultural University	205	125085	0.0016	7
9.	Kerala Veterinary & Animal Sciences University	61	47244	0.0013	8
10.	Kannur University	N/A	N/A	-	-
11.	Kerala University of Fisheries & Ocean Studies	N/A	17145	-	-
12.	Kerala University of Health Sciences	N/A	N/A	-	-
13.	Thunchath Ezhuthachan Malayalam University	N/A	1282	-	-

Table 03 shows the distribution of Internal-link Web Impact Factor of websites of State universities in Kerala. From the table, it is obvious that Shree Sankaracharaya University of Sanskrit is in the first position with 0.0035 of internal links Web Impact Factor. National University of Advanced Legal Studies has the second place with 0.0032, Cochin University of Science & Technology is in the third place with 0.0031 and University of Calicut and Kerala University shares the fourth place with 0.0027 and Mahatma Gandhi University occupies the fifth place with 0.0026. No Data available for the Dr Kannur University, Kerala University of Fisheries & Ocean Studies, Kerala University of Health Sciences and Thunchath Ezhuthachan Malayalam University in the respective sources.

Table 4: Distribution of External Link WIF of Websites of State Universities of Kerala

S. No.	University Name	External Link	No.of Web Pages	EWIF	Rank
1.	Kerala University	40	48388	0.00083	1
2.	Cochin University of Science & Technology	46	62934	0.00073	2
3.	Shree Sankaracharaya University of Sanskrit	20	53418	0.00037	3
4.	University of Calicut	24	79180	0.00030	4
5.	Mahatma Gandhi University	19	78170	0.00024	5
6.	Kerala Veterinary & Animal Sciences University	8	47244	0.00017	6
7.	Kerala Agricultural University	18	125085	0.00014	7
8.	National University of Advanced Legal Studies	2	43530	0.00005	8
9.	A.P.J. Abdul Kalam Technological University	1	27385	0.00004	9
10.	Kannur University	N/A	N/A	-	-
11.	Kerala University of Fisheries & Ocean Studies	N/A	17145	-	-
12.	Kerala University of Health Sciences	N/A	N/A	-	-
13.	Thunchath Ezhuthachan Malayalam University	N/A	1282	-	-

Table 04 illustrates the distribution of External Link Web Impact Factor of websites of state universities in Kerala. From the table it is revealed that Jawaharlal Kerala University stands first with 0.00083 of External Web Impact Factor, the second position is secured by Cochin University of Science & Technology and its External Web Impact Factor is 0.00073 followed by Shree Sankaracharaya University of Sanskrit with 0.00037. University of Calicut has the fourth place with 0.00030. No Data available for the Dr Kannur University, Kerala University of Fisheries & Ocean Studies, Kerala University of Health Sciences and Thunchath Ezhuthachan Malayalam University in the respective sources.

FINDINGS

- Majority of State Universities 8 (61.54) are having .ac.in domain name for their websites. .ac.in is specially using for academic purpose in India.
- The three state universities each 1 (7.69) is having .edu, .info and .in domain for their university websites. .com is a commercial purpose domain.
- 6 (46.15) State Universities were established after the year 2001 even though the kerala is the number one state in literacy in the country.
- Shree Sankaracharaya University of Sanskrit ranked 1(0.0035) in Self Link Web Impact Factor of State University Websites in Kerala.
- National University of Advanced Legal Studies is in the 2nd (0.0032) rank in Self Link Web Impact Factor.
- Kerala University ranked first (0.00083) in External Link Web Impact Factor.

CONCLUSION

WIF is becoming a more reliable indicator worldwide to measure the scientific utility of websites. Frequent studies have been conducted to calculate different types of WIFs for websites, especially academic websites. This study concludes that WIF, being a quality indicator, helps in measuring the utility of a website, rather than measuring its overall impact on the Web. However, website evaluation methods, using webometrics tools, require a multidimensional approach and should never be confined to link analysis only. Bibliometric methods on the Web are highly affected by the distributed and diverse nature of the Web (Noruzi, 2006b). Traditional methods of publishing scientific and research material, language barriers, no links to institutional research material on its website, unawareness of Web ranking by webmasters and university Web developers, structural problems in Web designing, limitation of access to material, absence and non-linkage of institutional repositories on the Web are some commonly identified factors that contribute to increase or decrease the impact of an academic website globally.

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