Summer 5-2019

Webometric Analysis of Open Universities in India

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Abstract: *Web Impact Factor (WIF), Search Engine Optimization (SEO) ranking improve the visibility of a website's presence in the online environment. The present study predominantly focuses on the WIFs of the Indian Open University websites. Calculating three types of web impact factors it has been found that among the selected Open Universities Yashwantrao Chavan Maharashtra Open University (YCMOU), Nashik holds the numero uno status in Simple and Internal-link WIFs with SWIF 0.2214 and IWIF 0.2092. In case of External-link Web Impact Factor (EWIF) Netaji Subhas Open University (NSOU), Kolkata holds the rank one position with EWIF of 9.9750. Among the websites IGNOU holds the best global rank i.e. 4439 and it has the 2nd best Indian rank also i.e. 349. This Open University is followed by KSOU in the global ranking i.e. 4517. KSOU holds the best Indian rank i.e.270. IGNOU has the maximum number of backlinks i.e. 1265605. The website of KSOU having domain authority of 59, ranks highest YCMOU ranks lowest by obtaining 29 out of a total of 100 points. In case of page authority, the website of IGNOU ranks first with page authority score of 59 followed by the UOU having score of 51. Again the least score (35) is obtained by the YCMOU in page authority.*

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1. Introduction

"Distance Education is the answer to the ever growing demand of higher education for a populous country like India, who adorns herself with a number of challenges, barriers and variations in topography, language, culture, tradition, religion and races" (Punitha, 2016). The earnest zeal of all the aspiring people in India, who are unable to pursue regular education, nowhere gets a most prolific solution than the open universities which provide a platform for distance education. Not only in academic, technical and professional subjects, distance education is also provided in emerging inter-disciplinary areas such as disaster management, consumer protection, environment, human rights, women empowerment, child development and so on. Open Universities in India offer undergraduate, post-graduate, doctoral degrees besides certificate and diploma level courses. To build the skill and knowledge capability of the general community these universities execute various literary programmes, apart from teaching. In India to regulate, promote and coordinate distance education system especially through the window of open universities, Distance Education Council was constituted under the Indira Gandhi National Open University Act in 1985 (Open universities in India, n.d.).

For the dissemination of information and spreading of communication web has played a significant role. Websites and web based user interfaces have become the window of communication in today's world (Sarkar and Pal, 2018). In case of the websites of the Open Universities, they have sublime roles to play. In disseminating valuable information regarding course curricula, scheduled dates of form fill-ups, examinations and other necessary events, websites are the main medium of communication with the students of distance mode. To judge the merits of these websites, webometric analysis is highly important. Webometric study on the basis of WIF (Web Impact Factor) as the strong indicator of this metrical analysis doubtlessly helps the evaluation of the websites. The Web Impact Factor (WIF) was developed by Ingwersen to measure the impact of websites by the number of links it receives. It provides quantitative tools for ranking, evaluating, categorizing and comparing websites and top-level domains and sub-domains. A website with a higher impact factor may be considered to be more prestigious or of higher quality than those websites with a lower impact factor (Bharma and Verma 2018). However, with the purpose of exploring the present status of the websites of the open universities in India, the present study has been conducted.

2. Literature Review

Jalal, Biswas and Mukhopadhyay (2009) in their study on web presence of Indian central universities collected data through Yahoo and Google search engines using special query syntax and ranked the universities. The study revealed that University of Delhi topped the rank list (with score 4.28 and Sikkim University occupied the last position (with score 1.64). Jeyshankar and Babu (2009) in their webometric study examined and explored the websites of 45 universities in Tamil Nadu comprising of 27 state and 18 private universities. The study identified the domain systems of the websites and analysed the number of web pages and link pages, and calculated the

simple web impact factor, self-link web impact factor and external web impact factor of the university websites in Tamil Nadu and finally ranked the websites as per the WIF. The study reflected that some universities in Tamil Nadu have higher number of web pages but correspondingly their link pages are very small in number and websites fell behind in their simple, self link and external link web impact factor. Verma and Brahma (2017) examined and analyzed the websites of Indian universities with status of potential for excellence on the basis of established webometric criteria i.e. number of web pages, link pages, domain authority, equity passing links, individual domain authority and web impact factor. As no such study has been conducted on the websites of the open universities in India, the present study has been undertaken to fill up the knowledge gap in this area.

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3. Objectives

The present study deals with the following objectives:

- ➢ To calculate three types of web impact factors (Simple WIF, Internal link WIF, External link WIF).
- ➢ To rank the websites on the basis of three types of web impact factors.
- ➢ To show the domain extension percentage of the websites.
- ➢ To represent the page size and load time of the websites.
- ➢ To calculate the back links of the websites.
- ➢ To calculate the domain authority and page authority of the websites.
- ➢ To find out the Indian and global popularity ranking of the websites.

4. Methodology

An observation method has been used to conduct this research. Data have been collected from the websites of the 14 selected Open Universities in India. Data have been collected during 5 to 7 April, 2019. For calculating three types of WIFs (simple, self-link and external link WIF) first the number of links has been counted from a link analyser tool named CleverStat (http://cleverstat.com/link-analyzer).

For calculating the number of webpages of a particular website "**site:domain name**" syntax has been used (Sarkar and Pal, 2018). On the basis of these the formula of calculating WIF as introduced by Ingwersen (1998) i.e. the ratio of the number of links to a site, to the number of webpages at the site, has been used. This can be stated thus:

A = Total number of webpages to a particular site

B = Total Number of Inlinks to a given site

C = Total Number of External links to a given site

D = Total number of links (External + Internal) to a site

Therefore, WIF (Simple) = **D/A**; WIF (Internal) = **B/A,** and WIF (External) = **C/A.**

In this study online SEO report generation tool, Neil Patel's SEO Analyzer (https://neilpatel.com/seo-analyzer/) has also been used to analyse and compare India's Open University websites on various parameters like backlinks, page size, load time, SEO score and speed score. For finding out the Indian and global popularity ranking of the selected websites Alexa (https://www.alexa.com/siteinfo) tool has been used.

5. Scope of the Study

The websites of 14 Open Universities in India (1 central and 13 state Open Universities) have been considered for this webometric analysis. The table 1 represents the brief details of those universities with their websites' domain extensions.

Table 1: List of Selected Open Universities in India

SL No	Name of the Open University	URL	Abbvr.	Type	Domain Extn.
1	Indira Gandhi National Open University (IGNOU), New Delhi	http://www.ignou.ac.in/	IGNOU	Central	.ac.in
2	Dr.B.R. Ambedkar Open University (BRAOU), Hyderabad	https://braou.ac.in/	BRAOU	State	ac.in
3	VardhamanMahaveer Open University (VMOU), Kota	https://www.vmou.ac.in/	VMOU	State	ac.in
4	Nalanda Open University (NOU) Patna	http://www.nalandaopenuniversity.com/	NOU	State	.com
5	YashwantraoChavan Maharashtra Open University (YCMOU), Nashik	https://www.ycmou.ac.in/	YCMOU	State	ac.in
6	Madhya Pradesh Bhoj Open University (MPBOU), Bhopal	http://www.bhojvirtualuniversity.com/	MPBOU	State	.com
7	Dr. BabasahebAmbedkar Open University (BAOU), Ahmedabad	http://www.baou.edu.in/	BAOU	State	.edu.in
8	Karnataka State Open University (KSOU), Mysore	http://ksoumysore.karnataka.gov.in/kannada/Pages/home.aspx	KSOU	State	.gov.in
9	Netaji Subhas Open University (NSOU), Kolkata	http://www.wbnsou.ac.in/	NSOU	State	ac.in
10	UP RajarshiTandon Open University (UPRTOU), Allahabad	http://www.uprtou.ac.in/	UPRTOU	State	ac.in

11	Tamil Nadu Open University (TNOU), Chennai	http://www.tnou.ac.in/	TNOU	State	ac.in
12	Pt. sundarlalsharma Open University (PSSOU), Bilaspur	http://pssou.ac.in/	PSSOU	State	ac.in
13	Uttarakhand Open University, Haldwani (UOU) (Nainital)	http://www.uou.ac.in/	UOU	State	ac.in
14	Krishna KantaHandiqui State Open University (KKHSOU), Guwahati	http://www.kkhsou.in/web_new/index.php	KKHSOU	State	.in

(Source: http://www.indiaeduinfo.com/openuniversity.htm)

6. Data Analysis and Findings

✓ *Calculation of Web Impact Factors (WIF)*

The following table illustrates three types of WIF distribution of the selected Open University websites with their webpage and link details.

**Table 2: WIFs of Selected Open University Websites**

Name of the Open University	Number of Web Pages and Links				3 Types of Web Impact Factors		
	Total No. of Webpage (A)	Total No. of Inlinks (B)	Total No. of External Links (C)	Total No. of Links (D)	Simple WIF (D/A)	Internal-link WIF (B/A)	External-link WIF (C/A)
IGNOU	75200	87	17	104	0.0013	0.0011	2.2606
BRAOU	523	79	18	97	0.1854	0.1510	0.0344
VMOU	14900	60	34	94	0.0063	0.0040	0.0022
NOU	5380	51	4	55	0.0102	0.0089	7.4349
YCMOU	822	172	10	182	0.2214	0.2092	0.0121
MPBOU	5390	35	3	38	0.0070	0.0064	5.5658
BAOU	4020	67	4	71	0.0176	0.0166	9.9502
KSOU	641	82	1	83	0.1294	0.1279	0.0015
NSOU	8020	316	8	324	0.0403	0.0394	9.9750
UPRTOU	2920	154	24	178	0.0609	0.0527	0.0082
TNOU	2220	95	16	111	0.0500	0.0427	0.0072
PSSOU	2130	31	3	34	0.0159	0.0145	0.0014
UOU	20200	106	23	129	0.0063	0.0052	0.0011
KKHSOU	9410	331	22	353	0.0375	0.0351	0.0023

Table 2 clearly denotes that according to the Simple Web Impact Factor (SWIF) ranking Yashwantrao Chavan Maharashtra Open University (YCMOU), Nashik holds the numero uno

status with SWIF of 0.2214, while Dr. B.R. Ambedkar Open University (BRAOU), Hyderabad and Karnataka State Open University (KSOU), Mysore hold the 2nd and 3rd positions respectively with SWIFs of 0.1854 and 0.1294. According to Internal –link Web Impact Factor (IWIF) the previous three universities hold the same 1st, 2nd and 3rd ranks with IWIFs of 0.2092, 0.1510 and 0.1279 respectively. In case of External-link Web Impact Factor (EWIF) Netaji Subhas Open University (NSOU), Kolkata holds the rank one position with EWIF of 9.9750. Dr. BabasahebAmbedkar Open University (BAOU), Ahmedabad and Nalanda Open University (NOU) Patna hold the 2nd and 3rd positions with EWIFs of 9.9502 and 7.4349 respectively.

✓ *Distribution of Domain Name Extensions*

Domain name is a very important issue for any website. A domain suffix or 'top-level domain (TLD) is intended to define the type of website and it impacts on webpage visibility and SEO score. From the above table (Table-1) and the following figure (Figure-1) it can be concluded that Open University websites were grouped under five domain extensions as reflected in their URLs. Most of the websites have .ac.in (64.29%) extension, followedby.com (14.29%), .in (7.14%), .gov.in (7.14%) and .edu.in (7.14%).
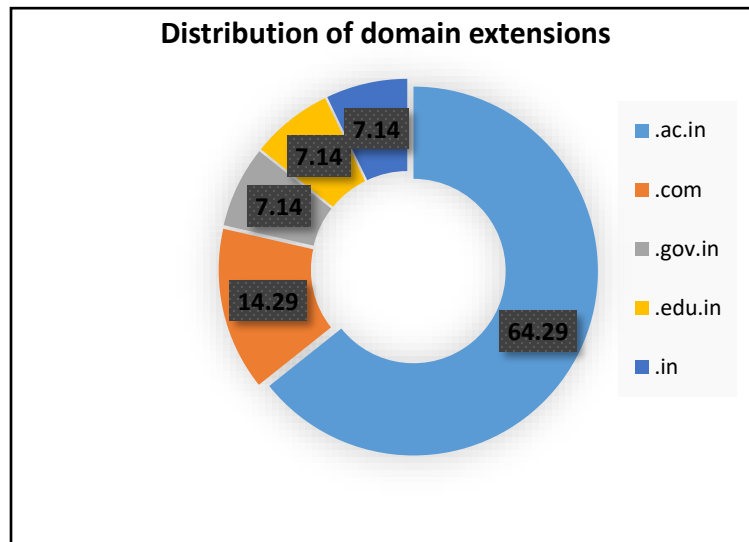
**Figure 1: Distribution of domain extensions**

✓ *Results from SEO Analyzer*

Web traffic is known as the collective number of visitors to a website. Search Engine Optimization increases the web traffic by making the website more visible to search engines (Sarkar, Pal & Kar, 2018). Table 3 depicts page size, load time and backlinks of the Indian Open

University websites. In the figure 2 the Speed Score and SEO Score of the websites have been depicted.

Table 3: Page Size, Load Time and Back Links of the Websites

Open University	Page Size	Load Time	Back Links
IGNOU	1.2 MB	4.58 Sec	1265605
BRAOU	3.7 MB	2.49 Sec	231
VMOU	3.9 MB	62.41 Sec	9400
NOU	148.2 KB	1.03 Sec	9933
YCMOU	2.8 MB	1.87 Sec	1645
MPBOU	103.5 KB	57.39 Sec	14415
BAOU	3.1 MB	7.13 Sec	7550
KSOU	1.6 MB	7.21 Sec	90
NSOU	3.9 MB	7.23 Sec	5888
UPRTOU	627.2 KB	9.59 Sec	3910
TNOU	557.3 KB	30.19 Sec	181550
PSSOU	303.7 KB	4.84 Sec	7165
UOU	2.1 MB	6.94 Sec	4547
KKHSOU	4.5 MB	6.31 Sec	721468
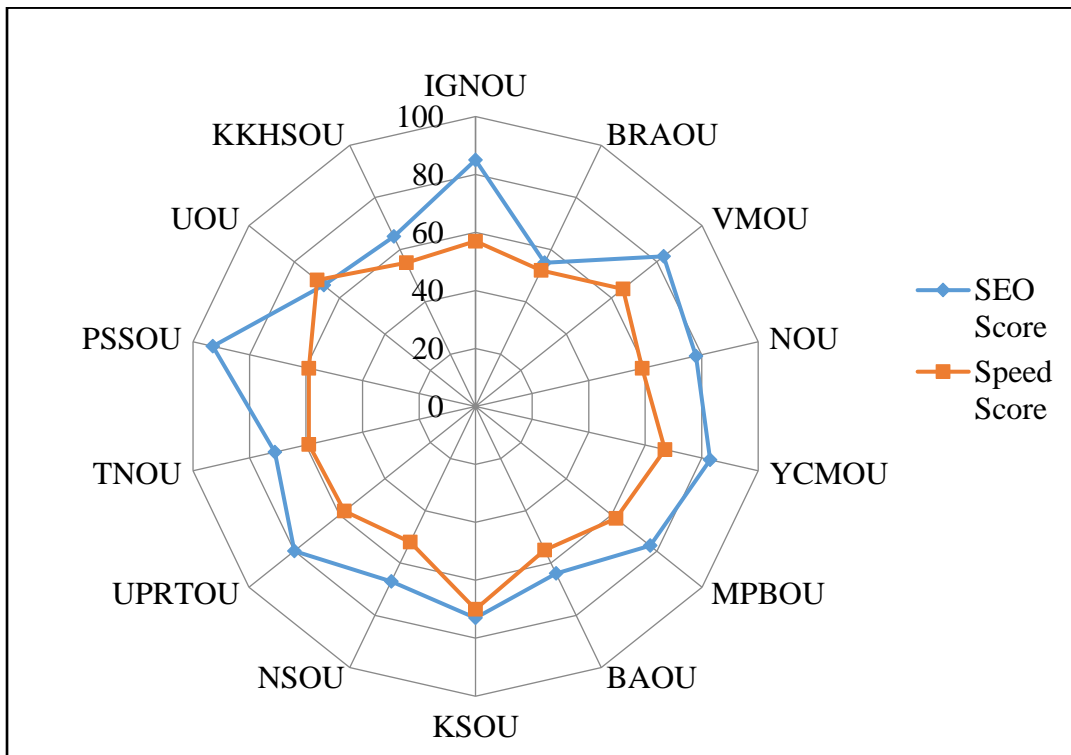
Figure-2: SEO Analysis Scores

✓ *Popularity Rank of Websites*

Website popularity ranking is another important indicator which helps to better promotion of a website. Ranking of a website is based on a combined measure of page views and unique site users. Popularity ranking of selected state and central Open University websites is portrayed through table 4.

Table 4: Popularity Ranking of the Websites

Open University	Global Rank	Ranking in India
IGNOU	4,439	349
BRAOU	110,010	7,465
VMOU	35,900	2,385
NOU	43,917	2,990
YCMOU	191,138	10,598
MPBOU	169,568	10,403
BAOU	117,292	10,829
KSOU	4517	270
NSOU	66,869	6,388
UPRTOU	124,872	6,753
TNOU	191,706	13,345
PSSOU	212,220	15,667
UOU	87,410	5,410
KKHSOU	27,781	1,889

The above table clearly points out that among the websites IGNOU holds the best global rank i.e. 4439 and it has the 2nd best Indian rank also i.e. 349. This Open University is followed by KSOU in the global ranking i.e. 4517. KSOU holds the best Indian rank i.e.270.

✓ *Domain and Page Authority*

Page Authority (PA) is a score that predicts how well a specific page will rank on search engine result pages (SERP). Page Authority scores range from 1 to 100, with higher scores corresponding to a greater ability to rank. Whereas Page Authority measures the predictive ranking strength of a single page, Domain Authority measures the strength of entire domains or subdomains (Page authority, n.d.). Domain Authority (DA) is a search engine ranking score that predicts how well a website will rank on search engine result pages (SERPs). A Domain Authority score ranges from 1 to 100, with higher scores corresponding to a greater ability to rank (Domain authority, n.d.). These were developed by Moz, a software as a service (SaaS) company based in USA.
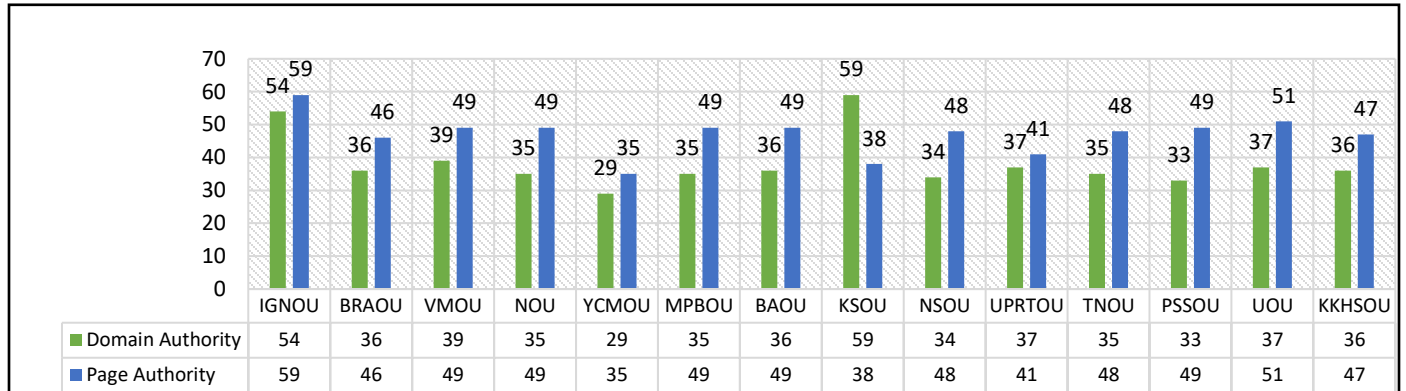
Figure-3: Distribution of Domain and Page Authority

It is seen from the figure 3 that the website of KSOU having domain authority of 59 ranks highest while that of YCMOU ranks lowest by obtaining 29 out of a total of 100 points. In the case of page authority, the website of IGNOU ranks first with page authority score of 59 followed by the UOU having score of 51. Again the least score (35) is obtained by the YCMOU in page authority.

7. Conclusion

Throughout this webometric study, websites of selected Indian Open Universities have got an overall reflection. Calculating three types of web impact factors it has been found that among the selected Open Universities Yashwantrao Chavan Maharashtra Open University (YCMOU), Nashik holds the numero uno status in Simple and Internal-link WIFs with SWIF 0.2214 and IWIF 0.2092. In case of External-link Web Impact Factor (EWIF) Netaji Subhas Open University (NSOU), Kolkata holds the rank one position with EWIF of 9.9750. Open University websites can be grouped under five domain extensions as reflected in their URLs. Most of the websites have .ac.in (64.29%) extension, followedby.com (14.29%), .in (7.14%), .gov.in (7.14%) and .edu.in (7.14%). Among the websites IGNOU holds the best global rank i.e. 4439 and it has the 2nd best Indian rank also i.e. 349. This Open University is followed by KSOU in the global ranking i.e. 4517. KSOU holds the best Indian rank i.e.270. IGNOU has the maximum number of backlinks i.e. 1265605 suggesting its capability to attract a remarkable number of visitors. The website of KSOU having domain authority of 59, ranks highest while that of YCMOU ranks lowest by obtaining 29 out of a total of 100 points. In the case of page authority, the website of IGNOU ranks first with page authority score of 59 followed by the UOU having score of 51. Again the least score (35) is obtained by the YCMOU in page authority.

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