



Web Impact Factor And Link Analysis Of State Government Universities In Madhya Pradesh

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Abstract

Webometric is measuring the the websites, webpages, Parts of Webpages, words in webpages, link structure, web search engine results. This study examines 24 state Government Universities of Madhya Pradesh. Investigate Domains distribution of websites, analyse number of webpages and link pages and calculate the Self-link web impact factor, External link web impact factor and Revised web impact factor for state Government Universities in Madhya Pradesh and Rank the websites as per the WIF.

Key Words: State Government University, websites, Madhya Pradesh, website Analysis, Link Analysis, Internal link, External link, Backlink, Web Impact Factor.

1. Introduction

The digital revolution has laid a great impact on our education system. Smartphones, Tablets, Laptops, Computers are being used widely as a medium of generating and accessing information via the Internet. Today Online access of information, high use of Social Media and Virtual Meetings, Webinars are the latest trends in information usage patterns. World Wide Web has become the main source of information in research and academic activities and an excellent platform to test new methods of evaluating webometric activities.

A website is a set of related pages covering content such as text, image, video, audio etc. accessible via a network such as the internet through on internet address call Uniform Resource Locator (URL).

2. Webometric

The term webometrics is a coinage from modern English words, "web" and "metric". Webometric is the study of the quantitative aspects of the construction and use of information resources, structures and technologies on www drawing on bibliometrics and infometrics approaches. In 1996, Larson explained link structure analysis with the first pure infometrics analysis of the web.¹In 1997 Almind and Ingwersen have named quantitative studies of the web as webometrics.²

3. Methods of Webometrics

According to Bjerneborn (2004) Webometrics study³ covers the following main areas of construction side and usage side of the web :

- Web page content analysis ;
- Web link structure analysis (e.g.- Hyperlinks, Self-link, External link and In link) ;
- Web usage analysis (e.g.- exploiting log files for users searching and browsing behavior);
- Web Technology analysis (including search engine performance)

4. Web impact factor (WIF)

A web impact factor is a relatively new measure of the extent to which a site is linked to by other sites, and is analogous to a citation count in the print environment. Broadly, it is a measure of the extent to which it is linked to and recognized by other sites. Mukharji Bhaskar (2009)⁵, Jeysankar and ramesh babu (2009)⁶ and ramesh Babu, jeysankar and Nageswara rao (2009)⁷ and Ramesh babu, Jeysankar and Nageswara rao (2010)⁸ studied the WIF as the ratio of number of links to the total Number of web pages.

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 revised WIF, the ratio of in links to the target site, to the number of pages at the site.

5. State Government Universities in Madhya Pradesh

This study aims to examine 24 websites of State Government Universities in Madhya Pradesh on the basis of webometric parameters.

Table1 -depicts the year of establishment of 24 State Government Universities in Madhya Pradesh, Rani Durgawati University was the first State University established in 1956. In the last 14 years about 12 State Government Universities have been established which shows the growth of Higher Education in Madhya Pradesh. Whereas it is observed that no University came into existence during 1976-1985.

Table 1
Classification of State Universities of Madhya Pradesh
by year of their establishment

Year of establishment	No. of Universities	percentage
1956-1965	6	25
1966-1975	2	8.3
1976-1985	0	0.0
1986-1995	3	12.5
1996-2005	1	4.16
2006-2015	8	33.3
2016-2019	4	16.6
Total	24	100

6. Review of Related Literature

Jeyshankar, Ramesh Babu and Gopalkrishnan explained basic framework and development of webometrics from librametrics, informetrics, biblometrics, scientometrics and cybermetrics⁹

Thelwall et.al (2002) reports on the result of a survey of the size of 670 websites of higher education institutions in countries associated with European Union as estimated by Alta Vista. It has been found that there are still enormous National differences of up to three orders of magnitude.¹⁰

Samir Kumar Jalal, B.Sutradhar and Parthasarathi Mukhopadhyay study top 10 Indian and Asian universities for developing new ranking system for India using appropriate webometrics indicators. They reported that Indian Universities are having 2% backlinks and 25% webpages and wiser value with respect to top ten Asian Universities.¹¹

S.S. Shahrudin, RZW Chick and ISA Malik conducted a study on visibility in strategizing for web market in webometric university ranking in Malaysia (2019)¹² and found that The National Library China has the highest Domain & page authority of 67 and 73 respectively. Jayshanker Ramalingam (2019)¹³ conducted webometric analysis of 125 Deemed university websites in India. It is found that the size of the websites ranges between 1 and 8529kb, the internal link ranges between 1 and 560 links and External link ranges between 1 and 252 links. web impact factor for deemed universities websites ranges between 0.01 and 16.83. Relation between internal, External and back link has been calculated between 0.01 and 3.

Ashok Pal, Sanjoy kar & Sovan sardar conducted "A Webometric analysis of ICSSR sponsored research institution in India" (2020)¹⁴. This study reflects that institute of developments study Kolkata has the maximum no. of webpage's (71400). Institute of economic growth has the maximum no. of total links (177) & internal links (167). Institute for studies in industrial development has maximum no. of external links (36). Gujarat institute of development research holds the numero uno status on the basis of SWIF(0.6736) & IWIF(0.65551) Whereas Institute for studies in industrial development holds the first rank in EWIF(0.0404).

7. OBJECTIVES

The objective of the study are:

- ✓ To identify and classify the domain of State Government Universities websites in Madhya Pradesh.
- ✓ To find out the number of web pages, number of link pages, number of self link pages, and external link pages of State Government Universities websites in Madhya Pradesh.
- ✓ To measure the simple WIF, self link WIF, external WIF and revised WIF of Websites for Madhya Pradesh Universities..

8. Hypothesis

The following hypothesis are coined for this study:

- A majority of State Government Universities in MP have hosted websites on the internet.
- Higher the number of webpages, smaller the link pages and greater the WIF, smaller the number of webpages.

9. Scope and Limitations

This study makes a webometric analysis of State Government Universities in Madhya Pradesh. There are 24 State Universities in Madhya Pradesh. The study covers the website of State Government Universities in Madhya Pradesh listed under 12-B of UGC act 1956 Section 3 of UGC act and section 2(f) and 12(B) of UGC act upto February 2024 only.

10. Methodology

The present study has been carried out by using webometric methods. Data were collected from websites of 24 State Government Universities in Madhya Pradesh. The search engine Bing index checker has been used to collect the number of web pages of each website. Web optimization Tools were used to collect the number of Self link , External link and Backlink.

11. Web Impact Factor

WIF has been calculated by following formula -

$$\begin{aligned} \text{Self-link WIF} &= \frac{\text{Total no. of self link pages}}{\text{Total no. of web pages}} \\ \text{External-link WIF} &= \frac{\text{Total no. of external link}}{\text{Total no. of webpages}} \\ \text{Revised-WIF} &= \frac{\text{Total no. of back links}}{\text{Total no. of webpages}} \end{aligned}$$

Table 2 reveals that 7 types of 'domain extensions' were observed in this study. '.ac.in' has been widely used in websites of State Government Universities (54.1%) followed by .edu.in (16.6) and .org (12.5) Universities whereas only 4.1% Universities use .edu,.in and .net respectively.

Table 2 .Classification of State Government Universities Websites by Domain Extensions

Domain	No. of Universities	percentage
.ac.in	13	54.1.
.com	1	4.16
.org	3	12.5
.edu.in	4	16.6
.edu	1	4.1
.in	1	4.1
.net	1	4.1
Total	24	100

Table 3 shows the distribution of self-link impact factor of State Government Universities in Madhya Pradesh. It is observed that Pt.S.N. Shukla University secured 1st position with 0.687 WIF. Mahatma Gandhi Gramoday University, Chitrakoot and Atal Bihari Vajpayee Hindi University,Bhopal rank 2nd and 3rd with 0.342 WIF and 0.218 WIF respectively. Raja Mansingh Tomar Music And Arts University, Gwalior ;Nanaji Deshmukh Pashu Chikitsa Vigyan University, Jabalpur; Maharishi Panini Sanskrit evam Vedic Vishwavidhyalya, Ujjain; Makhahal Chaturvedi National University of Journalism and Communication and Awdesh Pratap Singh University, Rewa secured 4th, 5th, 6th, 7th & 8th position. Whereas 7 Universities shares last 17th

Position respectively with 0.000 WIF.

Table 4 reveals the distribution of external link web impact factors of State Government Universities of Madhya Pradesh. It is observed that Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur rank 1st with 0.109 EWIF, Devi Ahilya University Indore, Dr Bhimrao Ambedkar University of Social Science, Mhow and Nanaji Deshmukh Pashu Chikitsa Vigyan University, Jabalpur secure 2nd,3rd,4th position with 0.030,0.029 and 0.026 EWIF. Mahatma Gandhi Chitrakoot Gramoday University, Chitrakoot; Rajiv Gandhi Proudyogiki University, Bhopal; Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya, Gwalior & Awdesh Pratap Singh University, Rewa secure 5th,6th,7th and 8th position with 0.021;0.020;0.018 and 0.017 EWIF respectively. Whereas 7 Universities shares last position i.e. 16th with 0.000 EWIF.

Table 3.

Self-link web impact factor for State Government Universities of Madhya Pradesh

Name of Universities	No. of Webpages (A)	No. of Self-link Webpage (B)	Self-link Web Impact Factor (B/A)	Ranked by SLWIF
Pandit S.N. Shukla University, Shahdol	1950	1340	0.687	1
Mahatma Gandhi Chitrakoot Gramoday University, Chitrakoot	1330	456	0.342	2
Atal Bihari Vajpayee Hindi university, Bhopal	576	126	0.218	3
Raja Mansingh Tomar Music And Arts University, Gwalior	2170	392	0.180	4
Nanaji Deshmukh Pashu Chikitsa Vigyan University, Jabalpur	2210	331	0.149	5
Maharishi Panini Sanskrit evam Vedic Vishwavidhyalya, Ujjain	2190	320	0.146	6
Makhalal Chaturvedi National University of Journalism and Communication	2170	306	0.141	7
Awdesh Pratap Singh University, Rewa	2230	290	0.130	8
Jawaharlal Nehru Kkrishi Vishwavidyalaya, Jabalpur	2190	272	0.124	9

Jiwaji University, Gwalior	2200	255	0.115	10
National Law University ,Bhopal	2250	232	0.103	11
Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal	2180	226	0.103	11
Rajmata vijayaraje Scindia Krishivishwavidyalaya, Gwalior	2170	152	0.070	12
Dr Bhimrao Ambedkar University of Social Science, Mhowl	2160	150	0.069	13
Devi Ahilya University, Indore	2680	170	0.063	14
Dharmashala National Law University, Jabalpur	1950	116	0.059	15
Vikram University, Ujjain	2240	311	0.014	16
Maharaja Chhatrasal Bundelkhand University, Chhatarpur	531	000	0.000	17
Barkatullah University, Bhopal	2210	000	0.000	17
Sanchi University Of Buddhist And Indic Studies, Sanchi	2160	000	0.000	17
Madhya Pradesh Medical Science University, Jabalpur	1380	000	0.000	17
Rani Durgavati University, Jabalpur	2210	000	0.000	17
Mp Bhoj Open University, Bhopal	2180	000	0.000	17
Chhindwara University, Chhindwara	802	000	0.000	17

Table 4

External link web impact factor for State Government Universities of Madhya Pradesh

Name of Universities	No. of Webpages (A)	No. of External- link Webpage (C)	External link-Web Impact Factor (C/A)	Ranked by ELWIF
Jawaharlal nehru krishi Vishwavidyalaya ,Jabalpur	2190	63	0.109	1
Devi Ahilya University, Indore	2628	82	0.030	2
Dr Bhimrao Ambedkar University of Social Science, Mhow	2160	21	0.029	3
Nanaji Deshmukh Pashu Chikitsa Vigyan University, Jabalpur	2210	58	0.026	4
Mahatma Gandhi Chitrakoot Gramoday University, Chitrakoot	1330	29	0.021	5
Rajiv Gandhi Proudयोगiki Vishwavidyalaya, Bhopal	2180	44	0.020	6
Rajmata Vijayaraje Scindia Krishi Vishwa- Vidyalyaya, Gwalior	2170	40	0.018	7
National Law University, Bhopal	2250	39	0.017	8
Atal Bihari Vajpayee Hindi Vishwavidyalaya, Bhopal	576	8	0.013	9
Jiwaji University, Gwalior	2200	23	0.010	10
Makhanlal Chaturvedi National University of Journalism And Communication, Bhopal	2170	19	0.008	11
Pandit S.N. Shukla University, Shahdol	1950	16	0.008	11
Awdesh Pratap Singh University, Rewa	2230	14	0.006	12

Maharshi Panini Sanskrit Evam Vedic Vishwavidyalaya, Ujjainr	2190	09	0.004	13
Dharmashala National Law University, Jabalpur	1950	08	0.004	13
Vikram University, Ujjain	2240	07	0.003	14
Raja Mansingh Tomar Music And Arts University, Gwalior	2170	04	0.001	15
Rani Durgavati University, Jabalpur	2210	000	0.000	16
Barkatullah University Bhopal, Bhopal	2210	000	0.000	16
Sanchi University Of Buddhist And Indic Studies, Sanch	2160	000	0.000	16
Madhya Pradesh Medical Science University, Jabalpu	1380	000	0.000	16
Mp Bhoj Open University, Bhopal	2180	000	0.000	16
Maharaja Chhatrasal Bundelkhand University, Chhatarpur	531	000	0.000	16
Chhindwara University, Chhindwara	802	000	0.000	16

Table 5

Revised link web impact factor for State Government Universities of Madhya Pradesh

Name of Universities	No. of Webpages (A)	No. of Revised-link Webpage (D)	Revised-link web impact factor (D/A)	Ranked by RLWIF
National Law University, Bhopal	2250	2650	1.177	1
Dharmashala National Law University, Jabalpur	1950	784	0.402	2
Vikram University, Ujjain	2240	867	0.387	3
Sanchi University Of Buddhist And Indic Studies, Sanchi	2160	467	0.216	4
Nanaji Deshmukh Pashu Chikitsa Vigyan University, Jabalpur	2210	290	0.131	5
Chhindwara University, Chhindwara	802	65	0.081	6
Maharshi Panini Sanskrit Evam Vedic Vishwavidyalaya, Ujjai	2190	161	0.073	7
Mahatma Gandhi Chitrakoot Gramoday University, Chitrakoot	1330	64	0.048	8
Raja Mansingh Tomar Music And Arts University, Gwalior	2170	63	0.029	9
Madhya Pradesh Medical Science University, Jabalpu	1380	36	0.026	10
Rajiv Gandhi Proudयोगiki Vishwavidyalaya, Bhopal	2180	58	0.026	10
Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior	2170	47	0.021	11
Jawaharlal nehru krishi vishwavidyalaya, Jabalpur	2190	37	0.021	11
Jiwaji University, Gwalior	2200	36	0.016	12

Dr Bhimrao Ambedkar University of Social Science, Mhow	2160	32	0.014	13
Awdesh Pratap Singh University, Rewa	2230	26	0.011	14
Barkatullah University Bhopal, Bhopal	2210	18	0.008	15
Mp Bhoj Open University, Bhopa	2180	19	0.008	15
Atal Bihari Vajpayee Hindi Vishwavidyalaya, Bhopal	576	03	0.005	16
Pandit S.N. Shukla University, Shahdo	1950	11	0.005	16
Makhanlal Chaturvedi National University Of Journalism And Communication, Bhopa	2170	12	0.005	16
Maharaja Chhatrasal Bundelkhand University, Chhatarpur	531	02	0.003	17
Rani Durgavati University, Jabalpur	2210	08	0.003	17
Devi Ahilya University, Indore	2680	08	0.002	18

Table 5 Shows the rank distribution of State Government University in Madhya Pradesh according to revised web impact factor (RWIF), National Law University, Bhopal Rank 1st with 1.177 RWIF .Dharmashala National Law University,Jabalpur and Vikram University,Ujjain and Nanaji Deshmukh Pashu Chikitsa Vigyan University, Jabalpur rank 2nd, 3rd, 4th and 5th with 0.402;0.387,0.216, 0.131 and Chhindwara University, Chhindwara ; Maharshi Panini Sanskrit Evam Vedic Vishwavidyalaya,Ujjai & Mahatma Gandhi Gramoday University,Chitrakoo secure 6th,7th & 8th rank with 0.081RWIF; 0.073 RWIF & 0.048 RWIF .Whereas Devi Ahilya University,Indore secure last 18th rank with 0.002 RWIF.

12. Conclusion & Recommendations

The Universities websites can be used as a communicative bridge between institution's achievements and their services to their audiences by keeping them abreast with the latest news, announcements, changes in policy, starting of new courses and services. This study emphasized on the Internal links, External links and Back links as well as Web Impact Factor for each website of State Government Universities in Madhya Pradesh, It is recommended that the websites of State Government Universities need to build good numbers of Back links for having a higher In RWIF. This study could be extended by comparing Universities of state versus state and between the countries.

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