

State Government Universities in Madhya Pradesh: A Webometric Study

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Abstract

Webometric is measuring the websites, webpages, parts of webpages, words in webpages, link structure and web search engine results. This study deals with webometric study of 24 State Government Universities of Madhya Pradesh (upto January 2025). It investigates domains distribution of websites, analyses 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, Revised link, 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). Website of University performs as bridge between information of particular University and its audience.

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 web¹. In 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)⁴, Jeysankar and ramesh babu (2009)⁵ and ramesh Babu, jeysankar and Nageswara rao (2009)⁶ and Ramesh babu, Jeysankar and Nageswara rao (2010)⁷ 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.

Table 1 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

Jeysankar, Ramesh Babu and Gopalkrishnan explained basic framework and development of webometrics from librmetrics, informetrics, bibliometrics, scientometrics and cybermetrics.⁸

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.⁹

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.¹⁰

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)¹¹ and found that The National Library China has the highest Domain & page authority of 67 and 73 respectively. Jayshanker Ramalingam (2019)¹² 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)¹³. 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).

Binu Mehrotra conducted “Web impact factor and link analysis of State Government Universities in Madhya Pradesh” (2024)¹⁴. This study reveals that Pt. Shukla University, Shadol secured 1st position in SLIF. Jawaharlal Nehru Krishi Universitu, Jabalpur got 1st position in ELWIF and National Law University ranked 1st in RLWIF.

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 Government 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 2025 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 -

Self link WIF =

$\frac{\text{Total no. of self link pages}}{\text{Total no. of web pages}}$

External link WIF =

$\frac{\text{Total no. of external link}}{\text{Total no. of webpages}}$

Revised WIF =

$\frac{\text{Total no. of back links}}{\text{Total no. of webpages}}$

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 (6.6) 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, Shahdol secured 1st position with 1.423 SLWIF. Jiwaji University, Gwalior obtained 2nd position with 0.191 SLWIF and Makhmalal Chaturvedi National University secured 3rd position with 0.126 SLWIF. Rajiv Gandhi Proudgyogiki Univ.Bhopal; Mahatma Gandhi Gramoday University,Chitrakoot; Devi Ahilya University, Indore and Mp Bhoj Open University, Bhopal rank 4th , 5th ,6th and 7th position respectively with 0.118 SLWIF, 0.112 SLWIF, 0.095 SLWIF and 0.094 SLWIF respectively. Whereas 8 Universities occupied last 7th position with 0.000 SLWIF.

Table 4 reveals the distribution of External Link web impact factors of State Government Universities of Madhya Pradesh. It is observed that Devi Ahilya University, Indore rank 1st with 1.423 EWIF, Chhindwara University, Chhindwara, Maharaja Chhatrasal Bundelkhand Univ. Chhatarpur and Jiwaji University, Gwalior secure 2nd, 3rd, 4th position with 0.021 EWIF, 0.020 EWIF and 0.016 EWIF respectively. Mp Bhoj Open University, Bhopal; Rajiv Gandhi Pradyogiki University, Bhopal, Pandit S.N. Shukla University, Shahdol secured 5th, 6th and 7th position respectively with 0.020 ELWIF, 0.016 ELWIF and 0.013 ELWIF. Whereas total 9 Universities occupied last 14th position with 0.000 ELWIF.

Table 5 Shows the rank distribution of State Government University in Madhya Pradesh according to Revised web impact factor (RWIF) Jiwaji University, Gwalior Rank 1st with 22.929 RWIF. Devi Ahilya University, Indore rank 2nd with 22.777 RLWIF. Madhya Pradesh Medical Science University, Jabalpur; Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya, Gwalior; Mp Bhoj Open University, Bhopal; Barkatullah University, Bhopal and Makhmal Chaturvedi National Univ. of Journalism And Communication obtained 3rd, 4th, 5th, 6th and 7th position respectively with 8.583; 3.061, 2.165; 1.889 and 1.087 RLWIF. Maharaja Chhatrasal Bundelkhand University, Chhatarpur and Pandit S.N. Shukla University, Shahdol shared 20th position with same RLWIF i.e. 0.014 each.

Whereas Raja Mansingh Tomar Music And Arts University, Gwalior got last 23rd position with 0.006 RLWIF.

Table 3
Self link Web Impact Factor of State Government Universities of Madhya Pradesh

Name of Universities	No. of Webpages (A)	No. of Self Link Webpages (B)	Self Link Web Impact Factor (B/A)	Ranked by SLWIF
Pandit S.N. Shukla University, Shahdol	1350	1922	1.423	1
Jiwaji University, Gwalior	1570	300	0.191	2
Makhmal Chaturvedi National University of Journalism And Communication	3310	418	0.126	3
Rajiv Gandhi Pradyogiki Univ. Bhopal	2250	267	0.118	4
Mahatma Gandhi Chitrakoot Gramoday University, Chitrakoot	4120	463	0.112	5
Devi Ahilya University, Indore	1800	172	0.095	6
Mp Bhoj Open University, Bhopal	1570	148	0.094	7
Dr Bhimrao Ambedkar University of Social Science, Mhow	1720	157	0.091	8
Maharaja Chhatrasal Bundelkhand University, Chhatarpur	1280	113	0.088	9
Atal Bihari Vajpayee Hindi University, Bhopal	1680	134	0.079	10
National Law Institute University, Bhopal	3880	291	0.075	11
Chhindwara University, Chhindwara	2000	134	0.067	12
Raja Mansingh Tomar Music And Arts University, Gwalior	8460	519	0.061	13
Barkatullah University, Bhopal	8470	258	0.030	14
Dharmashala National Law University, Jabalpur	5820	134	0.023	15
Rani Durgavati University, Jabalpur	9980	155	0.015	16
Sanchi University of Buddhist & Indic Studies, Sanchi	3660	1	0.000	17
Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior	1470	000	0.000	17

Jawaharlal Nehru Krishi Vishwavidyalaya ,Jabalpur	4910	000	0.000	17
Nanaji Deshmukh Pashu Chikitsa Vigyan University, Jabalpur	2970	000	0.000	17
Maharishi Panini Sanskrit Evam Vedic Vishwavidhyalya, Ujjain	9570	000	0.000	17
Madhya Pradesh Medical Science University, Jabalpur	2330	000	0.000	17
Awadesh Pratap Singh University, Rewa	3880	000	0.000	17
Vikram University, Ujjain	9190	000	0.000	17

Table 4
External Link Web Impact Factor of State Government Universities of Madhya Pradesh

Name of Universities	No. of Webpages (A)	No. of External Link Webpages (C)	External Link Web Impact Factor (C/A)	Ranked by ELWIF
Devi Ahilya University, Indore	1800	86	0.047	1
Chhindwara University, Chhindwara	2000	81	0.040	2
Maharaja Chhatrasal Bundelkhand University, Chhatarpur	1280	37	0.028	3
Jiwaji University, Gwalior	1570	34	0.021	4
Mp Bhoj Open University, Bhopal	1570	32	0.020	5
Rajiv Gandhi Proudhyogiki Vishwavidyalaya, Bhopal	2250	38	0.016	6
Pandit S.N. Shukla University, Shahdol	1350	18	0.013	7
Dr Bhimrao Ambedkar University of Social Science, Mhow	1720	13	0.007	8
Mahatma Gandhi Chitrakoot Gramoday University, Chitrakoot	4120	29	0.007	8
Barkatullah University, Bhopal	8470	52	0.006	9
Makhalal Chaturvedi National Univ. of Journalism And Communication	3310	18	0.005	10
Atal Bihari Vajpayee Hindi University, Bhopal	1680	06	0.003	11
Rani Durgavati University, Jabalpur	9980	29	0.002	12
National Law Institute University, Bhopal	3880	11	0.002	12
Dharmashala National Law Univ. Jabalpur	5820	08	0.001	13
Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior	1470	00	0.000	14
Jawaharlal Nehru Krishi Vishwavidyalaya ,Jabalpur	4910	00	0.000	14
Nanaji Deshmukh Pashu Chikitsa Vigyan University, Jabalpur	2970	00	0.000	14
Maharishi Panini Sanskrit Evam Vedic Vishwavidhyalya, Ujjain	9570	00	0.000	14
Sanchi University of Buddhist & Indic Studies, Sanchi	3660	00	0.000	14
Madhya Pradesh Medical Science University, Jabalpur	2330	00	0.000	14
Raja Mansingh Tomar Music And Arts University, Gwalior	8460	00	0.000	14
Awadesh Pratap Singh University, Rewa	3880	00	0.000	14
Vikram University, Ujjain	9190	00	0.000	14

Table 5
Revised Link Web Impact Factor of State Government Universities of Madhya Pradesh

Name of Universities	No. of Webpages (A)	No. of Revised Link Webpages (D)	Revised Link Web Impact Factor (D/A)	Ranked by RLWIF
Jiwaji University, Gwalior	1570	36000	22.929	1
Devi Ahilya University, Indore	1800	41000	22.777	2
Madhya Pradesh Medical Science University, Jabalpur	2330	20000	8.583	3
Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya, Gwalior	1470	4500	3.061	4
Mp Bhoj Open University, Bhopal	1570	3400	2.165	5
Barkatullah University, Bhopal	8470	16000	1.889	6
Makhalal Chaturvedi National Univ. of Journalism And Communication	3310	3600	1.087	7
Vikram University, Ujjain	9190	7833	0.852	8
Rani Durgavati University, Jabalpur	9980	8500	0.851	9
Chhindwara University, Chhindwara	2000	1400	0.7	10
Nanaji Deshmukh Pashu Chikitsa Vigyan University, Jabalpur	2970	2200	0.740	11
Jawaharlal Nehru Krishi Vishwavidyalaya ,Jabalpur	4910	2300	0.468	12
National LawInstitute Univ.,Bhopal	3880	1800	0.463	13
Awdesh Pratap Singh University, Rewa	3880	1400	0.360	14
Atal Bihari Vajpayee Hindi University, Bhopal	1680	410	0.244	15
Dharmashala National Law Univ. Jabalpur	5820	1100	0.189	16
Sanchi University of Buddhist And Indic Studies, Sanchi	3660	399	0.109	17
Rajiv Gandhi Proudयोगiki Univ. Bhopal	2250	65	0.028	18
Mahatma Gandhi Chitrakoot Gramoday University, Chitrakoot	4120	109	0.026	19
Maharaja Chhatrasal Bundelkhand University, Chhatarpur	1280	18	0.014	20
Pandit S.N. Shukla University, Shahdol	1350	19	0.014	
Maharishi Panini Sanskrit Evam Vedic Vishwavidhyalya, Ujjain	9570	129	0.013	21
Dr Bhimrao Ambedkar University of Social Science, Mhow	1720	1600	0.007	22
Raja Mansingh Tomar Music And Arts University, Gwalior	8460	52	0.006	23

12. Conclusion & Recommendations

websites of Universities play role as a means of communication between their audience and their services as well as achievements by keeping them abreast with the latest announcements, News, Notices, changes in policy, starting of new courses and all about new developments. Present study analysed Self Links WIF, External Links WIF and Revised Links WIF and rank all State Government Universites accordingly (higher to lower SLWIF, ELWIF and RLWIF).

It is strongly recommended that the websites of State Government Universities need to build good numbers of Self Links, External Links and Revised Links for making them more accessible and audible as well as building a high SLWIF, ELWIF and RWIF. This study could be extended by comparing Universities of State versus State and between the countries.

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