Asian Journal of Information Science and Technology
ISSN: 2231-6108 Vol. 8 No. 3, 2018 pp. 10-14
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Status of State Health Sciences Universities of India in the Era of ICT: A Webometric Analysis

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Abstract - **'Web technology' and its applications are matters of great concern in this highly innovative environment and shaping this world in such a way where every new possibility is having a chance of new creativity and innovation. The main objective of this paper is to present the findings of a webometric analysis of websites of state health sciences universities of India. This study was conducted in September 2018 using Alexa Traffic Rank, Google Page Rank and Google search engine for rich files of respective websites of 18 state health sciences universities of India. The results of the study indicated that as per the Alexa Traffic Ranking, Dr. N.T.R. University of Health Sciences and Sri Venkateswara Institute of Medical Sciences universities of Andhra Pradesh State were on the top. Ayush and Health Sciences University of Chhattisgarh State leads the list of universities in Google Page ranking system. The Nizam's Institute of Medical Sciences of Telengana State was placed on 1st rank for rich files. The present study would provide information to eliminate the barriers to improve websites of state health sciences universities in India to make these websites more effective to fulfill the needs of users.**

Keywords: **Webometric, University Ranking, Health Sciences Universities, Alexa Ranking, Google Page Rank, Rich Files, Websites, India**

I. INTRODUCTION

'Web technology' and its applications are matters of great concern in this highly innovative environment and shaping this world in such a way where every new possibility is having a chance of new creativity and innovation. Web technology is an important part of Information and Communication Technology which helps to computer systems to communicate with each other and provide a way to access the hosted information on the respective websites. Thus, it is important to assess what kind of information is hosted on the website of an organization and how the web technology helpful to provide the right kinds of information to the right information seeker at the right place. Further, it is important to know that how an organization should choose the web technologies to make its presence more effective globally. The present study is conducted to present the webometric analysis of state health sciences universities of India so that necessary information be provided to eliminate barriers to improve the websites.

II. REVIEW OF LITERATURE

Patel and Parmar (2015) investigated web-based information about the All India Institute of Medical Science of India using various webometric methods of websites evaluation. The study ranked the seven All India Institutes of Medical Sciences using Google Page Rank, Alexa Rank, and Traffic Distribution Rank. Tafaroji, Tahamtan, Roudbari, and Sedghi (2014) conducted a study on 43 medical universities of Iran. The purpose of the study was to present the findings of a webometric analysis of websites of medical universities of Iran. The study was conducted in September 2012 using Majestic SEO, Google, Yahoo and Bing search engines. The findings of the study indicated that Tehran University Medical Sciences was ranked as the first and Jiroft University of Medical Sciences had the lowest rank in the study. Findings indicated a significant relationship between the webometric rank and the university rank in Iranian Ministry of Health. This study further indicated that the use of rich files can give a better and more reliable view of university rankings. Shukla and Poluru (2012) conducted a study to analyze the presence of 173 Indian universities on the Internet. This study indicated that critical factors viz. institutional repositories development, open accessibility, academic and research profile, collaboration with other universities and online communities to be helpful for improving the visibility of universities on the Internet. Kothainayaki and Gopalakrishnan (2011) conducted a webometric analysis of agricultural universities in India. The main objective of the study was to evaluate Agricultural Universities in India through webometrics method. Google PageRank, Alexa Traffic Rank, and rich files were used for evaluation. A total of 54 Agricultural Universities were evaluated in which 44 State Agricultural Universities (SAUs), 1 Central University, 5 Deemed Universities, and 4 Central Universities with agriculture faculty were included. Jalal, Biswas, and Mokhopadhyay (2010) conducted a webometrics study using Web Impact Factor. The study revealed the effectiveness and importance of web impact factor of Indian universities' websites and further evaluated the web impact factor to depict how the links based metrics are build up and are functional.

III. THE SCOPE OF THE STUDY

As the present study examines and explores through webometric study, hence, the websites of State Health Sciences Universities (SHUs) in India were taken into consideration. Total 18 SHUs were included in the present study, which were duly approved by the University Grants

Commission, New Delhi as on September 27, 2018 (University Grants Commission, 2018). Table I shows the list of SHUs included in the study along with their web addresses used for webometric analysis for the current study.

TABLE I STATE-WISE DISTRIBUTION OF HEALTH SCIENCES UNIVERSITIES OF INDIA AND THEIR WEBSITE ADDRESSES

State	University	URL
State Health Sciences Universities (SHUs)		
Andhra Pradesh	Dr. N.T.R. University of Health Sciences	http://www.ntruhs.ap.nic.in
	Sri Venkateswara Institute of Medical Sciences	http://svimstpt.ap.nic.in/
Assam	Srimanta Sankaradeva University of Health Sciences	http://ssuhs.in
Chhattisgarh	Ayush and Health Sciences University	http://cghealthuniv.com/
Haryana	Pt. Bhagwat Dayal Sharma University of Health Sciences	http://www.uhsr.ac.in
Karnatka	Rajiv Gandhi University of Health Science	http://www.rguhs.ac.in
Kerala	Kerala University of Health Sciences	http://www.kuhs.ac.in
Maharashtra	Maharashtra University of Health Sciences	http://www. muhs.ac.in
Orissa	Veer Surendra Sai Institute of Medical Science and Research	http://www.vimsar.ac.in/
Punjab	Baba Farid University of Health Sciences	http://www.bfuhs.ac.in
Rajasthan	Rajasthan University of Health Sciences	http://www.ruhsraj.org
Tamilnadu	Tamilnadu Dr. M.G.R. Medical University	http://www.tnmgrmu.edu.in
Telengana	Kaloji Narayan Rao University of Health Sciences	https://knruhs.in/public_org/
	Nizam's Institute of Medical Sciences	https://www.nims.edu.in/
Uttar Pradesh	Uttar Pradesh University of Medical Sciences	http://www.upums.ac.in/
	King George's Medical University	http://www.kgmu.org
Uttarakhand	Hemwati Nandan Bahuguna Medical Education University	www.hnbumu.ac.in/
West Bengal	The West Bengal University of Health Sciences	http//www.wbuhs.ac.in

IV. OBJECTIVES OF THE STUDY

The objectives of the study are

1. To identify and classify the web domain of State Health Sciences Universities of India.
2. To find out Alexa Rank of the State Health Sciences Universities of India.
3. To find out Google Page Rank of the State Health Sciences Universities of India.
4. To find out the rank of the rich files.

V. METHODOLOGY

The present study took place in September 2018 and the investigators used Alexa Traffic Rank, Google Page Rank and Google search engine for rich files to investigate the websites of 18 state health sciences universities of India. Alexa Traffic Rank was calculated using the website of Alexa i.e. www.alexa.com. This ranking system basically audits and makes public the frequency of visits on various websites. It is calculated on the basis of traffic recorded on a particular website by users in a day and in the last three months. Further, in this system, the site is treated heavily visited by the users, if the rank is least in number. Google Page Rank was calculated using website https://checkpagerank.net/. The 'page rank' is a trademark and process patented of Google. The rich files of the state health sciences universities in India were calculated from the Google search engine and further tabulated. The examples of the search for rich files are site: www.ntruhs.ap.nic.in filetype: pdf; www.ntruhs.ap.nic.in filetype: ppt; www.ntruhs.ap.nic.in filetype: doc.

Table II shows the Alexa Traffic Ranks of State Health Sciences Universities of India. The results depict that both the Universities of Andhra Pradesh State viz. Dr. N.T.R. University of Health Sciences and Sri Venkateswara Institute of Medical Sciences ranked 1st, followed by Baba Farid University of Health Sciences of Punjab State, which occupied the 2nd position and Maharashtra University of Health Sciences of Maharashtra State occupied the 3rd position. Rajasthan University of Health Sciences of Rajasthan State stands 4th, Rajiv Gandhi University of Health Sciences of Karnatka State is on 5th position, Kaloji Narayan Rao University of Health Sciences of Telengana is on 6th position, Pt. Bhagwat Dayal Sharma University of Health Sciences of Haryana State is on 7th position and Kerala University of Health Sciences of Kerala State is placed on 8th position. The West Bengal University of Health Sciences of West Bengal State and King George's Medical University of Uttar Pradesh State occupied the 9th and 10th positions respectively.

TABLE II WEBSITES AND ALEXA TRAFFIC RANKS OF STATE HEALTH SCIENCES UNIVERSITIES OF INDIA

State	University	Alexa Traffic Rank (as on 30.09.2018)	Rank
State Health Sciences Universities (SHUs)			
Andhra Pradesh	Dr. N.T.R. University of Health Sciences	2962	1
	Sri Venkateswara Institute of Medical Sciences	2962	1
Punjab	Baba Farid University of Health Sciences	7247	2
Maharashtra	Maharashtra University of Health Sciences	8482	3
Rajasthan	Rajasthan University of Health Sciences	9042	4
Karnataka	Rajiv Gandhi University of Health Science	9168	5
Telengana	Kaloji Narayan Rao University of Health Sciences	10285	6
Haryana	Pt. Bhagwat Dayal Sharma University of Health Sciences	15694	7
Kerala	Kerala University of Health Sciences	19276	8
West Bengal	The West Bengal University of Health Sciences	19402	9
Uttar Pradesh	King George's Medical University	21004	10
Assam	Srimanta Sankaradeva University of Health Sciences	33292	11
Uttarakhand	Hemwati Nandan Bahuguna Medical Education University	39511	12
Telengana	Nizam's Institute of Medical Sciences	43086	13
Chhattisgarh	Ayush and Health Sciences University	56518	14
Uttar Pradesh	Uttar Pradesh University of Medical Sciences	87519	15
Tamil Nadu	Tamil Nadu Dr. M.G.R. Medical University	173451	16
Orissa	Veer Surendra Sai Institute of Medical Science and Research	Not enough traffic data	17

TABLE III WEBSITES AND GOOGLE PAGE RANKS OF STATE HEALTH SCIENCES UNIVERSITIES OF INDIA

State	University	Google Page Rank (out of 10)	Rank
State Health Sciences Universities (SHUs)			
Chhattisgarh	Ayush and Health Sciences University	GPR: 4 cPR Score: 4.1 External Backlinks: 1,00,755	1
Haryana	Pt. Bhagwat Dayal Sharma University of Health Sciences	GPR: 4 cPR Score: 3.8 External Backlinks: 6,924	2
Andhra Pradesh	Sri Venkateswara Institute of Medical Sciences	GPR: 4 cPR Score: 3.8 External Backlinks: 2,477	3
Karnataka	Rajiv Gandhi University of Health Science	GPR: 3 cPR Score: 3.6 External Backlinks: 66,553	4
Uttar Pradesh	King George's Medical University	GPR: 3 cPR Score: 3.5 External Backlinks: 2,388,586	5
Assam	Srimanta Sankaradeva University of Health Sciences	GPR: 3 cPR Score: 3.4 External Backlinks: 7,210	6
Rajasthan	Rajasthan University of Health Sciences	GPR: 3 cPR Score: 3.1 External Backlinks: 36,300	7
Maharashtra	Maharashtra University of Health Sciences	GPR: 3 cPR Score: 3.1 External Backlinks: 32,119	8
Kerala	Kerala University of Health Sciences	GPR: 3 cPR Score: 3.1 External Backlinks: 9,852	9
Uttar Pradesh	Uttar Pradesh University of Medical Sciences	GPR: 3 cPR Score: 3.1 External Backlinks: 571	10
Telengana	Kaloji Narayan Rao University of Health Sciences	GPR: 3 cPR Score: 3.0 External Backlinks: 1253	11
Orissa	Veer Surendra Sai Institute of Medical Science and Research	GPR: 3 cPR Score: 3.0 External Backlinks: 318	12
Tamil Nadu	Tamil Nadu Dr. M.G.R. Medical University	GPR: 2 cPR Score: 1.9 External Backlinks: 27	13
Punjab	Baba Farid University of Health Sciences	GPR: 0 cPR Score: 0.0 External Backlinks: 27,965	14
Andhra Pradesh	Dr. N.T.R. University of Health Sciences	GPR: 0 cPR Score: 0.0 External Backlinks: 10,112	15
	Nizam's Institute of Medical Sciences	GPR: 0 0.0 External Backlinks: 3470	16
West Bengal	The West Bengal University of Health Sciences	GPR: 0 cPR Score: 0.0 External Backlinks: 3,161	17
Uttarakhand	Hemwati Nandan Bahuguna Medical Education University	GPR: 0 cPR Score: 0.0 External Backlinks: 1,563	18

Table III shows the ranks of state health sciences universities as per the Google Page Rank method. In this table, the universities are ranked on the basis of Google Page Rank (GPR), cPR Score and external backlinks. First, the GPR is considered and if the GPR similar with another university then cPR Score is taken into account (higher the cPR Score higher the rank), and furthermore, if cPR Score is similar then the external backlinks of the university were considered (higher the external backlinks higher the rank). Accordingly, ranks of the SHUs were declared and tabulated in the table. Ayush and Health Sciences University of Chhattisgarh State stood 1st in this category, followed by Pt. Bhagwat Dayal Sharma University of Health Sciences of Haryana State and Sri Venkateswara Institute of Medical Sciences of Andhra Pradesh State were on 2nd and 3rd positions respectively. Rajiv Gandhi University of Health Science of Karnataka State is on 4th position, King George's Medical University of Uttar Pradesh State is on 5th position, Srimanta Sankaradeva University of Health Sciences of Assam State is on 6th position, Rajasthan University of Health Sciences of Rajasthan State is on 7th position and Maharashtra University of Health Sciences of Maharashtra State is placed on 8th position. Kerala University of Health Sciences of Kerala State and Uttar Pradesh University of Medical Sciences of Uttar Pradesh State occupied the 9th and 10th positions respectively.

TABLE IV NUMBER OF RICH FILES OF STATE HEALTH SCIENCES UNIVERSITIES OF INDIA

State	University	.pdf	.doc	.ppt	Total	Rank
State Health Sciences Universities (SHUs)						
Telengana	Nizam's Institute of Medical Sciences	199000	74400	90800	364200	1
Karnataka	Rajiv Gandhi University of Health Science	142000	17300	12500	171800	2
Kerala	Kerala University of Health Sciences	57400	5250	2330	64980	3
Maharashtra	Maharashtra University of Health Sciences	47300	2810	2340	52450	4
Tamilnadu	Tamilnadu Dr. M.G.R. Medical University	12700	11800	10400	34900	5
Punjab	Baba Farid University of Health Sciences	8810	5090	3690	17590	6
Uttar Pradesh	King George's Medical University	7650	6410	3210	17270	7
Andhra Pradesh	Dr. N.T.R. University of Health Sciences	7380	4320	778	12478	8
Haryana	Pt. Bhagwat Dayal Sharma University of Health Sciences	3600	2770	1860	8230	9
Rajasthan	Rajasthan University of Health Sciences	3420	3060	8	6488	10
Andhra Pradesh	Sri Venkateswara Institute of Medical Sciences	4100	1550	808	6458	11
Telengana	Kaloji Narayan Rao University of Health Sciences	3120	2240	7	5367	12
Uttarakhand	Hemwati Nandan Bahuguna Medical Education University	2040	1670	1500	5210	13
Assam	Srimanta Sankaradeva University of Health Sciences	2000	1750	1190	4840	14
Chhattisgarh	Ayush and Health Sciences University	1480	681	9	2170	15
Uttar Pradesh	Uttar Pradesh University of Medical Sciences	815	6	7	828	16
West Bengal	The West Bengal University of Health Sciences	266	203	22	491	17
Orissa	Veer Surendra Sai Institute of Medical Science and Research	130	82	59	271	18

Table IV shows the ranking of SHUs on the basis of rich files. In this category, three types of rich files were considered for ranking of universities. They are .doc (Document Files), .pdf (Portable Document Format files) and .ppt (PowerPoint Presentation Files). For this study, .pdf, .ppt and .doc files are searched and tabulated. The total number of rich files for each of the SHUs in India is shown in table 4. Nizam's Institute of Medical Sciences of Telengana State leads the list of Indian SHUs. Rajiv Gandhi University of Health Science of Karnatka State secured the 2nd position in this category, followed by Kerala University of Health Sciences of Kerala State which occupied the 3rd position. Maharashtra University of Health Sciences of Maharashtra State came 4th and Tamilnadu Dr. M.G.R. Medical University of Tamilnadu State in the 5th place. Baba Farid University of Health Sciences of Punjab State holds 6th position, King George's Medical University of Uttar Pradesh State, Dr. N.T.R. University of Health Sciences of Andhra Pradesh State, Pt. Bhagwat Dayal Sharma University of Health Sciences of Haryana State, Rajasthan University of Health Sciences of Rajasthan State are on 7th, 8th, 9th and 10th positions respectively.

VI. CONCLUSION

The present study was limited to websites of SHUs and can further be extended with web contents also. There are a wide scope and possibilities for future research on these areas. The findings of this study indicated that SHUs are though using web technologies in this era of Information and Communication Technology yet their web presence is very limited. Only a few SHUs are giving much thrust on

these factors and it is suggested that SHUs should improve their websites so that more visibility and presence be there. SHUs should add more valuable content on their websites so that more users gave the attention and for more effective usefulness.

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