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Analysis of Digital Metrics in Academic Libraries: A Case Study of Deemed Universities in Chennai

Dr. Alen Jeba Dhas D*
*Librarian, Sri Sivasubramaniya Nadar College of Engineering, Chennai, Tamil Nadu, India
ORCiD: https://orcid.org/0009-0005-0116-9670, Email: alenjd@gmail.com
C. Indraji[1]
[1]Research Scholar, Department of Library Science, Hindustan Institute of Technology and Science, Chennai Tamil Nadu, India
https://orcid.org/0009-0001-9808-3785, Email: indragee18@gmail.com
Satishkumar Naikar[2]
[2]Badruka School of Management, Hyderabad, Telangana, India
ORCiD: https://orcid.org/0000-0002-7621-5388, Email: satish.naikar1432@gmail.com

Abstract:

The current study is an analysis of digital metrics based on the websites of deemed universities available in Chennai. There were several tools used to identify the websites about the objectives framed to complete this study. Google Page Speed Insights (PSI), and Web Impact Factor (WIF) of the selected websites of deemed universities in Chennai. It is mentioned in this study that, four websites of deemed to be universities were selected for this study and the performance of these websites is further acceptable. SRMIST, Chennai has the highest WIF of any of the institutions, while SNU, and VELTECH Chennai have the highest Google Page Ranking scores.

Keywords: Digital Metrics, Library website, WIF, Link Analysis, google page rank

INTRODUCTION

Websites of any Institutions become the mirror of their facilities and the other infrastructures to its users, students, faculty and other people who see the Institutions remotely. So, the quality of website is an inevitable one. To advertise their features and other advantages, every institution makes their websites in a unique way. Digital metrics is a quantitative study of web-related phenomena that draws on methodologies, like examines the websites, web pages, and the link structures between them to evaluate the presence and performance of organizations, particularly in the academic sector. This includes web-based content which the Institutions provide to its users like Web OPAC, Remote access of online resources, digital repositories, etc. It is understood that the service is mainly linked to the libraries of the Institutions. The researcher had an attempt to do an analysis of digital resources available on the websites of Institutions using digital metrics tools.

The present study is limited to the private deemed to be Universities available in Chennai area only. Web domain, Google page rank, External link and Internal links were used to do analyze the websites.

DIGITALMETRIC ANALYSIS

Digitalmetric

Digital metric is otherwise called webometrics. Almind et al., (1997) the term "webometrics" was first introduced to describe the quantitative analysis of information resources, structures, and technologies on the web. By using bibliometric and informatics techniques, webometrics examines how these elements are constructed and utilized. (Bjornebom & Ingwersen, 2004). It was further explained by Verma and Brahma that the said aforementioned additional fields of webometrics research - The definition

encompasses various aspects, including web content analysis, web link structure analysis, web usage analysis, and web technology analysis—such as evaluating search engine performance. It addresses both the creation and utilization of web resources. The three important elements of the web-link network analysis are as follows:

Web Impact Factor (WIF)

The concept was first introduced by Ingwersen (1998). It is a tool used to evaluate websites' quality or dependability, particularly when rating with other networks. The highest impact factor will be measured as the more recognized the website is. The web impact factor is calculated by taking the number of hyperlinks received from other websites, dividing it by the total number of web pages on the site and the number of clicks received from its users.

External and Internal Link

External links are the hyperlinks in a website that navigates the reader to link to a different domain. Internal links are the hyperlinks in a website that navigates the reader within the domain which boosts the metrics of the website because it enables the reader to remain for a longer period by navigating through primary domain in a safe way.

REVIEW OF LITERATURE

Ferian Fauzi Abdulloh et al. (2024) done research on accessibility analysis of higher education rankings on webometrics using WCAG 2.0. The current study is an analysis of digital metrics in selected academic libraries of Deemed to be Universities in Chennai

Mog Rajesh et al. (2023) done a study on website analysis of organizations by collecting data on domain authority, page authority, and both internal and external links, and came to the value of the organization that should keep the website without any mistakes. The current study is an analysis of digital metrics on the websites of universities available at Chennai.

Chakraborty et al. (2023) Investigate of the webometric analysis, of the ten NITs library websites were taken towards reference. It was found that the.ac.in URL extension is present on each of the ten NIT websites under study. On its website, NIT Nagpur has the most pages, but NIT Kuruk shetra has the most linked web pages. After assessment, it was discovered that, out of the 10 NIT websites that were evaluated NIT Kuruk shetra had the upper most Simple Web Impact Factor, Self-Link WIF, External Link WIF, and Revised WIF, securing it the top rank.

Dhar and Gyan (2022) Analyze a webometric study conducted by the International Library Association found that out seven out of eight websites. The websites lack important information such as customer service, currencies, and a frequently asked question section, and their domain authority and page authority are below 50.

Hadagali (2021) The study found that IIT Gandhinagar had the highest External Link Web Impact Factor (ELWIF), while IIT Mandi led in other aspects. However, IIT Palakkad ranked first in terms of damage links. These findings were based on an evaluation of the IIT libraries' websites, using metrics like simple WIF, Self-Link WIF, External Link WIF, Backlinks, and Broken links, along with tools such as the Google search engine and Web Link Analyzer

These studies highlight the growing importance of web-based resources in LIS research, while also identifying challenges related to the persistence and accessibility of web citations. As the use of web-based information continues to expand, it is crucial for researchers and practitioners to address these issues to ensure the reliability and integrity of scholarly communication in the area of Library and Information Science.

PURPOSE OF THE STUDY

The present study aims to identify the quality of websites of deemed to be universities available at Chennai using digital metrics tools. However, a variety of studies have been conducted already in this area, but the current study emphasizes the websites of technical universities available in Chennai.

SCOPE OF THE STUDY

The present work is related to the websites of selected private deemed to be universities at Chennai, as listed in Table 1. A total of 4 universities were taken for he study and its websites were analysed with the digital metrics tools.

OBJECTIVES

1. To analyze the web domain of the websites of deemed to be Universities in Chennai
2. To check the usage statistics of websites of deemed to be Universities in Chennai
3. To identify the web performance of deemed to be Universities in Chennai
4. To know the interlinking pattern and global ranking of the websites of deemed to be Universities in Chennai
5. To determine the ranking of the websites of deemed to be Universities in Chennai

METHODOLOGY

Digital metric analysis is a new concept in webometric analysis. A lot of literature is already available related to webometric analysis. Considering the above, the factors like Google Page Rank, External Link, and Internal Links were used to calculate the web impact factors, total number of visitors, and the performance of the websites were used to analyze the websites of deemed to be universities available in Chennai. The current study consists of 4 selected deemed to be universities available in Chennai only. The data were collected from the universities on multiple occasions.

The webpage analyzing tool 'Page Rank' by Google was used to analyze the websites in the current study. The websites with at least 4 out of 10 were considered for the study.

Table 1: List of deemed universities in chennai with web pages

Sl. No.	Name of the University	Year of Establishment	Website
1	SRMIST	1985	https://www.srmist.edu.in/
2	SNU	1918	https://www.snuchennai.edu.in/
3	VELTECH	1997	https://www.veltech.edu.in/
4	HITS	1985	https://hindustanuniv.ac.in/

INSTRUMENTS, DATA COLLECTION AND ANALYSIS

Deemed Universities in Chennai and library websites

Table 2 explains the list of private universities (deemed to be) available in Chennai which have library websites. It is identified that the study has been conducted among 4 universities only. They are SRMIST, SNU, VelTech, and HITS.

Table 2: Universities Having Library Website

Sl. No.	Universities	URL of the Library websites
1	SRMIST	https://www.srmist.edu.in/library/
2	SNU	https://library.snuchennai.edu.in:8081/
3	VELTECH	https://www.veltech.edu.in/central-library/
4	HITS	https://hindustanuniv.ac.in/facilities/library/

Universities with their web domains

In this section elaborates the web domains of the universities available in Chennai. The following table 3 will explain the domain details of the 4 universities taken for the study. It is clearly seen from the table that all the domains except HITS is edu.in. and HITS alone ac.in.

Table 3: Domain Name of the Websites

Sl. No.	Name of the University	Domain name
1	SRMIST	srmist.edu.in
2	SNU	snuchennai.edu.in
3	VELTECH	veltech.edu.in
4	HITS	hindustanuniv.ac.in

Google Page Rank of Websites

It is clearly seen from table IV that all the websites of universities scored 3 out of 10 as per Google Page Rank analysis.

Table 4: Google Page Rank of TN Medical Institutes Library Websites

Sl. No.	Name of the University	Google Page Rank Out of 10
1	SRMIST	3
2	SNU	3
3	VELTECH	3
4	HITS	3

Link Analysis of Websites

All the websites will have two types of links. One is external and the other is internal. External links are the direct hyperlinks that users will hit them directly. Internal links are the hidden links available internally in a direct hyperlink. Table 5 shows the result of analysis. The formulas used are given below

$$\text{WIF} = \frac{\text{Total no of link}}{\text{Total no of pages}}$$

$$\text{IWIF} = \frac{\text{Total no of internal link}}{\text{Total no of link}}$$

$$\text{EWIF} = \frac{\text{Total no of external link}}{\text{Total no of link}}$$

As the result SRMIST scores the highest number of web pages, that is 826. Followed by SNU: 426, VELTECH: 340 and HITS scored 235 web pages.

Table 5: Link analysis of websites

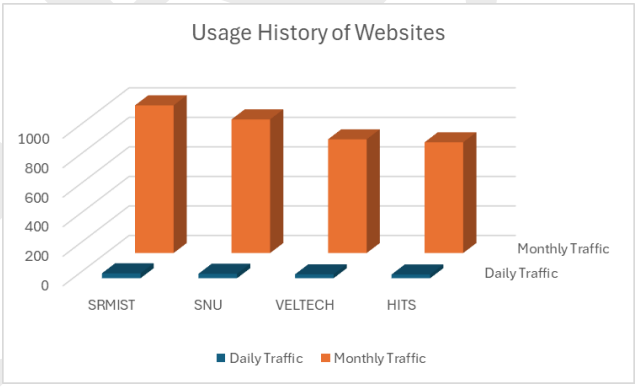
Sl. No.	Name of the University	Total No of pages	Internal Link	External Link	Total Link	IWIF	EWIF	WIF
1	SRMIST	826	451	114	565	0.546	0.138	0.684
2	SNU	426	225	102	327	0.528	0.239	0.767
3	VELTECH	340	270	39	309	0.794	0.114	0.908
4	HITS	235	195	17	212	0.829	0.072	0.940
TOTAL			1141	272	1413			

Usage History of Website Visitors Per Day and Month

It is clearly seen from table 6 that SRMIST has got the highest score for more website visitors. The score is 33 daily and 1000 monthly. Followed by SNU's daily traffic is 30 and monthly traffic 1000. VELTECH University's daily traffic is 26 and monthly traffic is 770. Finally, HITS's daily traffic is 25 and monthly traffic 750.

Table 6: Daily Visitors TN Medical Institutes Library Websites

Sl. No.	TN Medical Institutes	Daily Traffic	Monthly Traffic
1	SRMIST	33	1000
2	SNU	30	905
3	VELTECH	26	770
4	HITS	25	750



Major Findings and Discussion

All the four universities have library websites to disseminate digital information to the community of users.

As per the analysis except one of the universities, all the three are having their websites in the domine of "edu.in". The other is with the domine of "ac.in".

By the result of Google Page Rank all the four universities scored the value of 3 out of 10.

SRMIST has the highest number of external links (114) as well as the highest number of internal links (451).

In the result of usage history of websites, SRMIST has got the highest score for more website visitors. The score is 33 daily and 1000 monthly. Followed by SNU's daily traffic is 30 and monthly traffic 1000.

VELTECH University's daily traffic is 26 and monthly traffic is 770. Finally, HITS's daily traffic is 25 and monthly traffic 750.

The technical professionals of library may use and adopt digital metric tools for the improvement of their web portals. The analysis of this study empowers the professionals like Librarian, System Administrators, Web Developers to better understanding on websites to develop innovative ideas in future research.

Conclusion

A university's website plays a critical role in exploring the features of each sector. So, the quality of websites is crucial for the developers. The current study examines very well about each website, and it creates new avenues in the study of new developments.

The future studies may be a digital metric analysis with the new technologies like Artificial Intelligence, Cloud Computing, Internet of Things, Big Data Analytics, Virtual Reality, Augmented Reality, Book Delivery Drowns, Robotic Technologies, Digital Interfaces on print technologies and so on.

It is clear from the current study that the existing automation and web development to be developed with new technologies to serve the needs of current users in a satisfactory manner.

References

1. Ferian et al. (2024), "Accessibility Analysis of Higher Education Rankings on Webometrics Using WCAG 2.0," in 7th International Conference on Informatics and Computational Sciences (ICICoS, pp. 342–346. doi: 10.1109/ICICoS62600.2024.10636874.
2. Almatrafi, A.M., & Alharbi, Z.H. (2023). The Impact of Web Analytics Tools on the Performance of Small and Medium Enterprises. *Engineering, Technology & Applied Science Research*.
3. Chakraborty, I., & Thakuria, A. (2023). Relative Evaluation of the Quantitative Aspects of the Websites of the Top Ten Oldest National Institute of Technology (NITs) in India through the Application of Webometric Parameters. Journal of Information and Knowledge, 321-327.
4. Mog, Rajesh & Gayan, Mithu. (2023). Evaluation of National Library Association in India: a Webometric approach.IASLIC Bullatin 68,2:2023, June,p118-128.
5. Mr. J. Jaganbabu & Mr. T. Jothi (2023) Utilization of online resources by A Deemed University Research Scholars Chennai: An Analysis South Indian Journal of Library and Information Science, Issn 2395-3195, Oct-Dec 2023 Vol.10, Issue 1.
6. Brahma, K, Verma M. K,, & Sinha, M. K. (2019). An evaluation of selected universities' library website of North-East India: A webometric analysis. Library of Progress-Library Science, Information Technology computer, 39(2).
7. Mr. T. Jothi & Dr. J. Dominic (2024) Utilization of Open Electronic Resources Among Medical College Libraries in Kanchipuram District. A Study, "Humanities and Social Science Studies journal" Vol. 13 No. 1, pp. 176-181.
8. XIE Ren-qiang, ZHANG Wen-de. (2019) "Influence Evaluation of Provincial Library Websites Based on Link Analysis". Journal of Beijing University of Posts and Telecommunications (Social Sciences Edition) 21(6): 20-29.
9. Brahma, K & Verma, M. K. (2017). Webometric analysis of selected library consortium websites of India: An evaluative study [Paper presentation]. 11th International CALIBER (pp. 328-341) Tamil Nadu, India: INFLIBNET.
10. WANG Jing-fen. (2017) "The Mainstream Research of Domestic Smart Library and Its Trend." Library Research 47 (1): 5-9

11. YE HuanHui. (2017) "A Link Analysis-based Research on the Library Website Impact Evaluation of Higher Vocational College". Library Science Research & Work (9):57-60
12. Kous, K., Pušnik, M., Heričko, M., & Polančič, G. (2020). Usability evaluation of a library website with different end user groups. Journal of Librarianship and Information Science, 52(1), 75 90.
13. https://doi.org/10.1177/0961000618773133
14. Al-Qallaf, C. L., & Ridha, A. (2018). A Comprehensive Analysis of Academic Library Websites: Design, Navigation, Content, Services, and Web 2.0 Tools. The International Information & Library Review, 51(2), 93–106. https://doi.org/10.1080/10572317.2018.1467166
15. Niveditha, B., & Kumbar, M. (2020). Web citation analysis of Library and Information Science and Communication and Media Studies journals: A comparative study. COLLNET Journal of Scientometrics and Information Management, 14(2), 335–348. https://doi.org/10.1080/09737766.2021.1915721
16. Savitha, K. S. Content analysis of deemed University library websites of Karnataka State: A study. Int. J. of Dig. Libr. Servi., 2016, 6(1), 87-93. http://www.ijodls.in/uploads/3/6/0/3/3603729/767.pdf (Accessed on June 16, 2021).
17. Balaji, P. & Kumar, V. Use of web technology in providing information services by south Indian technological universities as displayed on library websites. Libra. Hi Tech., 29(3), 470-495. doi: 10.1108/07378831111174431
18. Rahman, A. & Batcha, M. S. Content analysis of library websites of select colleges of Delhi University: A study. DESIDOC J. of Lib. & Inf. Tech., 2020, 40(4), 247-252. doi: 10.14429/djlit.40.4.15454
19. Pant, A. Usability evaluation of an academic library website. The Electron. Libr., 2015, 33(5), 896-915. doi: 10.1108/EL-04-2014-0067
20. Tella, A. & Oladepo, O. J. A comparative analysis of available features and Web 2.0 tools on selected Nigerian and South African university library websites. The Electron. Libr., 2016. 34(3). 504-521. doi: 10.1108/EL-10-2014-0182