# Websites of Universities and their Libraries from Kerala and Tamilnadu: A Webometrics Study

**Dr. Nilesh Harishchandra Hande**

**Librarian**

**A. W. College, Otur, Tal-Junnar Dist-Pune, Maharashtra, India**

**Abstract:**

As mentioned in the title, this article is about a webometrics study of the websites of Universities and their Libraries from Kerala and Tamilnadu. This is a comparative study to show whether library websites are given importance or not. The criteria of the Cybermetrics lab of Spain are used for data collection. Based on these criteria, data is collected and analyzed as per the objective of this study.

**Keywords:**  Webometrics, Cybermetrics Lab, Websites of Indian Universities etc.

## Introduction

Education and development are two sides of the same coin. These factors play an important role in any nation's progress.  At the root of this phenomenon lies the quality of education. In the Indian context, there are several organizations to monitor the standard of education at various levels under both the State and the Central Governments. The University Grants Commission (UGC) and All India Council of Technical Education (AICTE) are the two apex bodies monitoring the standards of higher and technical education, respectively. The National Assessment and Accreditation Council (NAAC) is an Inter-University Centre under the UGC to maintain higher education standards in India. Arts, Science, Commerce, Home Science, Law colleges and universities come under the umbrella of the NAAC. On the other hand, Engineering and management education comes under the purview of the AICTE.  Similarly, the Indian Council for Medical Research (ICMR), Indian Council for Agricultural Research (ICRA), etc. take care of the quality of education in respective disciplines.

Each of these institutions use the quality parameters decided by the corresponding parent body's missions, norms etc.

Webometrics is concerned with the metric analysis of the World Wide Web (WWW). In the case of webometrics, hyperlink is the basic measure or idea just as citation is in the case of bibliometrics. Webometrics is a newly evolved field; therefore, a lot of Information Scientists have been involved in methods development and evaluation of existing methods in the new web environment. Below given is the figure, which is showing relationship among Bibliometrics, Informetrics, Scientometrics Webometrics and Cybermetrics.
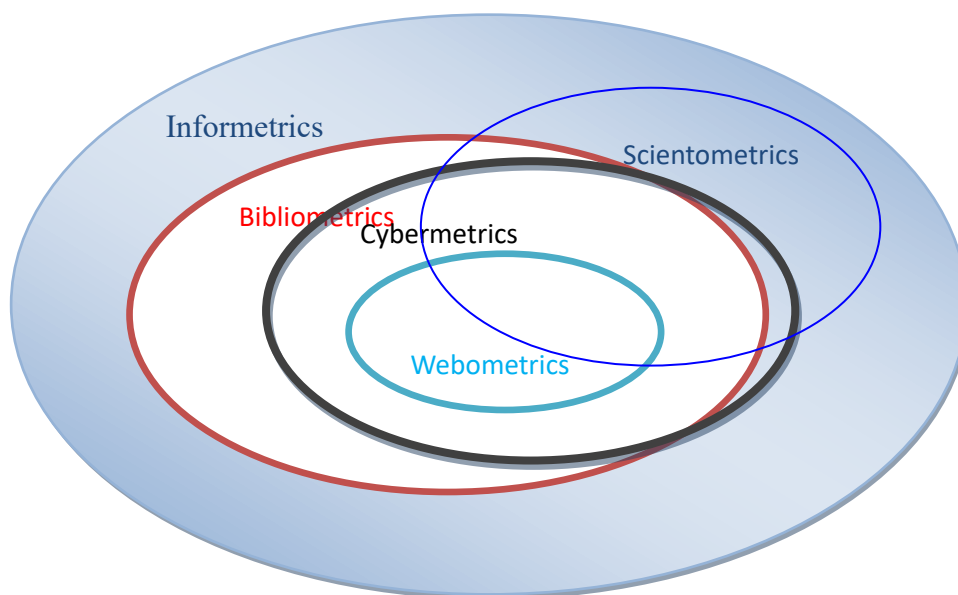
**Figure 01: Relationship among Bibliometrics, Informetrics, Scientometrics Webometrics and Cybermetrics (Björneborn and Ingwersen, 2004).**

## 2. Need and Significance of the Present Study

As compared to other media, web publication is less expensive. It can reach larger audiences in a short time. This means opportunities exist where good system architecture and diligent analysis can be applied for everyone's benefit. Nowadays, the website of any organization or institution is the main document to showcase their activity and to output the cultural or scholarly content generated at the organization. The Web has been extensively used in formal and informal collaboration and scholarly communication. Therefore, the webometric studies can help to observe and discover about how users react and use certain specific web documents.

Through this type of study, the researcher investigates whether adequate importance is given to the library & Information science/services-related content while developing a university website. Nowadays, the performances of higher education institutions or organizations are evaluated by doing a webometric analysis of their websites. In other words, it can be said that this type of study talks about the status of institutions compared to other organizations.

Therefore, through a webometrics study of the universities and their libraries, the researcher is going to rank them.

Another aim of the study is to indirectly promote the web presence of universities and their libraries., supporting the Open Access Initiatives (OAI) for maximizing the transfer of cultural heritage, Knowledge, and research output generated by the universities to the society. **The aim of this study is not to evaluate the websites, their usability, design, or popularity in terms of number of visitors, etc. It aims to assess the institutions and compare their quality by studying their websites.**

### 3. Methodology

This article is based on the methodology used by Cybermetrics Lab, located in Spain. This study aimed at establishing an academic ranking of these websites by measuring their Website Ranking (WR) in the context of Libraries. Data for universities and their libraries were collected at two different times. All the details concerning the changes are explained in detail under this point.

This study is based on four indicators i.e. Size (S), Visibility (V), Rich Files (RF) and Scholar (Sc). The definitions of the four indicators are shown in Table 11 **(Aguillo, 2006) (Aguillo, 2008).** Details of these four indicators are as shown in Table 01.

**Table 01: Definitions of the Four Indicators of Web Ranking (WR)**

| Sr.No. | Indicator | Definition | Weight |
|--------|-----------|------------|--------|
| 1 | Size (S) | The number of pages indexed by Google, Yahoo and Bing. | 25% |
| 2 | Visibility (V) | The number of inward links indexed by Yahoo. | 50% |
| 3 | Rich Files (RF) | The number of files in pdf, doc, ppt, and pps types indexed by Google, Yahoo and Bing. | 12.5% |
| 4 | Scholar (Sc) | The number of scholar documents indexed by Google Scholar. | 12.5% |

Values for the four indicators are received using search engines. There are standard query formats to get values for the indicators. These standard query formats are as follows…

**Table 02: Queries to obtain the values of WR indices**

**(Using Shivaji University, Kolhapur website as an example)**

| Indicator | Google Google.com: S, RF Scholar.google.com: Sc | Yahoo Yahoo.com: S, V, RF | Bing Bing.com: S, RF |
|---|---|---|---|
| S | site: unishivaji.ac.in | site: unishivaji.ac.in | site: unishivaji.ac.in |
| V | NA | linkdomain: unishivaji.ac.in -site: unishivaji.ac.in | NA |
| RF | site: unishivaji.ac.in filetype:doc or pdf or ppt or pps | site:unishivaji.ac.in filetype:doc or pdf or ppt or pps | site: unishivaji.ac.in filetype:doc or pdf or ppt or pps |
| Sc | scholar.google.com site: unishivaji.ac.in | NA | NA |

**WR =2 × Rank (S) + 4 × Rank (V) + 1 × Rank (RF) +1 × Rank (Sc)**

It is called Web Rank (WR), as the formula is based on ranks. For each University, there is a separate Web Rank, which is treated as a web score while arriving at the final rank for comparison.

**4. Objectives of the Study**

This study is based on the following five objectives.

   i. To identify and classify the domains of the Websites of the Universities.

   ii. To calculate the number of Web Pages (S) and External Link Pages (V) of the Websites of the universities and their Libraries.

   iii. To calculate the number of Rich Files (RF) and Scholar content (Sc) of the Websites of the Universities and their Libraries.

   iv. To rank the Universities as per the Web Rank (WR).

   v. To rank the Indian Universities in the context Web Rank of their Library page.

**5.  Hypotheses**

These objectives set clear goals to present study. There are still chances that the study may deviate from the objectives as it progresses. Hence, it is necessary to have a hypothesis which runs through the objectives. The present study is based on the following three Null ($H_{10}$, $H_{20}$ & $H_{30}$) and Alternative ($H_{1a}$, $H_{2a}$ & $H_{3a}$) Hypotheses.

- **Null Hypothesis 1** $H_{10}$: Domain of all universities are uniform or same.
  $H_{1a}$ = The domains of websites of universities are heterogeneous.

- **Null Hypothesis 2** $H_{20}$: Visibility or the Number of inlink pages is not related to Number of Web pages.
  $H_{2a}$ = Visibility or the Number of inlink pages is related or proportional to Number of Web pages.

- **Null Hypothesis 3** $H_{30}$: Visibility (V) is not related to the Website Rank (WR).
  $H_{3a}$ = The greater the Visibility (V) greater the Website Rank (WR).

**6. Scope and Limitation of Study**

This study makes a webometrics analysis of the Universities' websites from Kerala and Tamilnadu in the context of Libraries. The Indian Universities are divided into four type i.e. State universities, Central universities, Private universities, and Deemed universities. As per the website of UGC (http://www.ugc.ac.in) and Ministry of Higher Education, Govt. of India (http://education.nic.in/uhe/uhe-inst-UGC.asp), There were 569 universities in India and details of it are shown in Table 1. **From this 9 universities were not having a website and from 560 universities only 377 universities had separate pages for their Libraries.**

**Table 3: Details of Universities in India**

| Sr. No. | Type of University | Total No. of Universities | No. of Universities having a website | No. of University libraries having a separate website |
|---|---|---|---|---|
| 1 | Central Universities (CU) | 044 | 044 | 039 |
| 2 | State Universities (SU) | 285 | 277 | 189 |
| 3 | Deemed Universities (DU) | 130 | 130 | 093 |
| 4 | Private Universities (PU) | 110 | 109 | 056 |
| | **Total** | **569** | **560** | **377** |
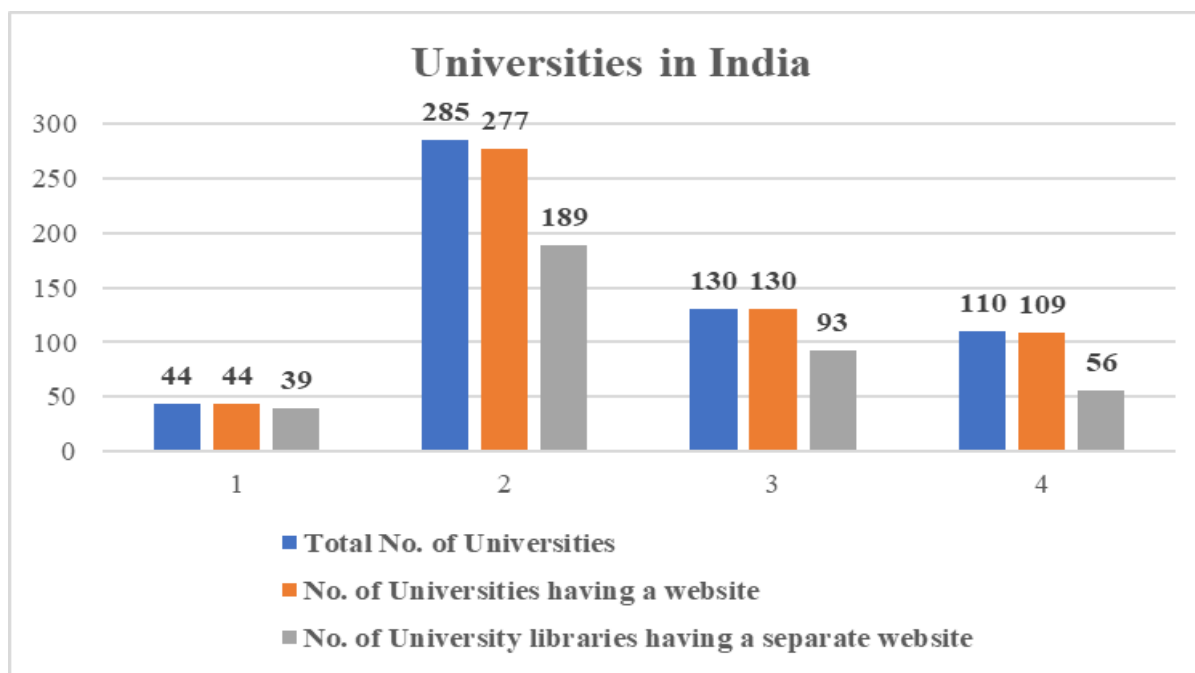


**Figure 02: Details of Universities in India**

The scope of this article is limited only to websites of Universities and their libraries from Kerala and Tamiladu. As per the data shown in Table 04, there are a total 69 universities in Kerala and Tamiladu. From the 69 Universities, 18 did not have a website. Therefore, the scope of this study is limited to 51 universities from Kerala and Tamilnadu.

**Table 04: Details of Universities in Kerala and Tamilnadu**

| Sr. | State | Deemed Uni. | Central Uni. | State Uni. | Private Uni. | Total |
|---|---|---|---|---|---|---|

| No. | | N | % | N | % | N | % | N | % | N | % |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | Kerala | 2 | **0.35** | 1 | **0.18** | 11 | **1.93** | 0 | **0** | 14 | **2.46** |
| **2** | Tamilnadu | 29 | **5.1** | 2 | **0.35** | 24 | **4.22** | 0 | **0** | 55 | **9.67** |
| | Total | 31 | **5.45** | 3 | **0.53** | 35 | **6.15** | 0 | **0** | 69 | **12.13** |

**Where** the column head **'N'** is the total number of each type of university and **'%'** is computed for each 'N' w.r.t. total number of under particular category.
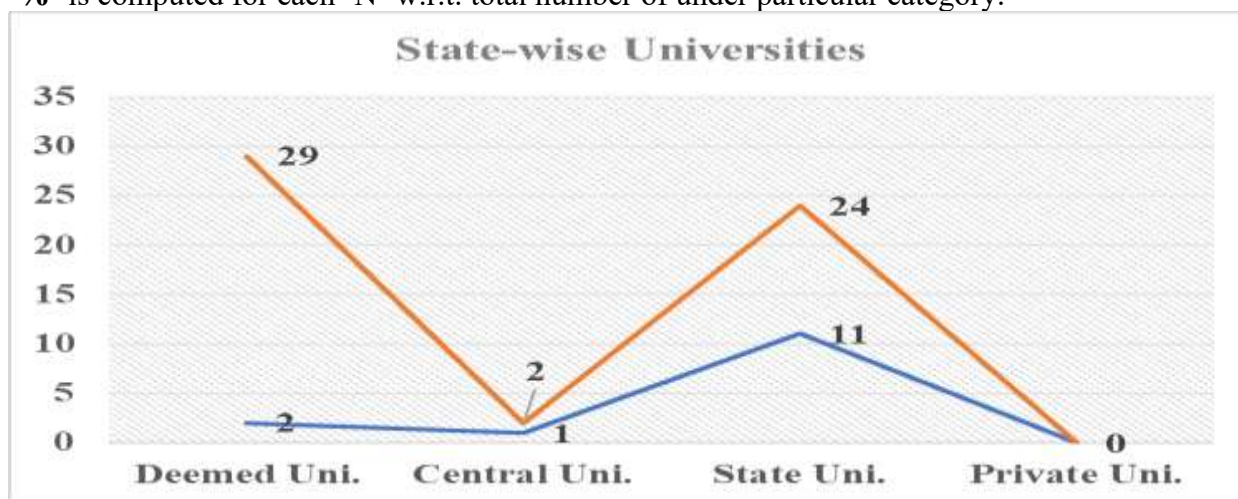


**Figure 03: Details of Universities in Kerala and Tamilnadu**

## 7. Analysis of Data

### 7.1 Categorization of the Domains of the Websites of the Indian Universities

All the website domains are categorized into 8 Domains. Ac.in is the highest used domain in the website, and .com, edu.in, .info, gov.in are the lowest used domains. Categorization of Universities' URLs as per their Domain are given in the Table 05 and fig.04 is the diagrammatical representation of the Table 05.

**Table 05: Categorization of Universities' URLs as per their Domain**

| Sr. No. | Domain Name | Deemed Uni. | Central Uni. | State Uni. | Private Uni. | Total |
|---|---|---|---|---|---|---|
| **1** | ac.in | 13 | 2 | 17 | 0 | 32 |
| **2** | .org | 2 | 0 | 2 | 0 | 4 |
| **3** | edu.in | 0 | 0 | 1 | 0 | 1 |

| 4 | .edu | 4 | 0 | 5 | 0 | 9 |
|---|------|---|---|---|---|---|
| 5 | .com | 1 | 0 | 0 | 0 | 1 |
| 6 | nic.in | 0 | 1 | 1 | 0 | 2 |
| 7 | .info | 0 | 0 | 1 | 0 | 1 |
| 8 | gov.in | 1 | 0 | 0 | 0 | 1 |
| **TOTAL** | | **21** | **3** | **27** | **0** | **51** |

**Where** the column head **'N'** is the total number of each type of university under each type of domain names. Further '%' percentage is computed for each 'N' w.r.t the total number of universities under a particular category.
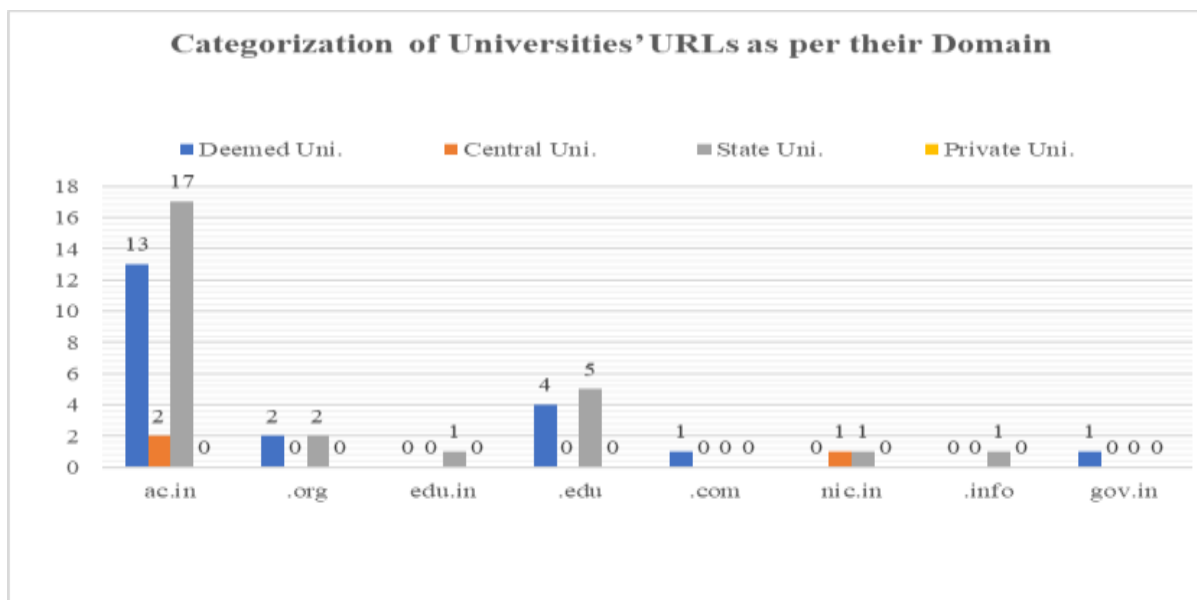


**Figure 04: Categorization of Universities' URLs as per their Domain**

**7.2 To calculate the number of Web Pages (S) and External Link Pages (V).**

The following Table 06 and Fig.05 show details of the Number of Web Pages (S) of the Websites of the Universities & their Libraries.

**Table 06: Number of Web Pages (S) of the Websites of the Universities & its Libraries**

| Sr. No. | Size | | | |
|---------|------|---|---|---|
| | Size (S)* | No. of Universities | No. of University Libraries | Rank (S) |
| 1 | 8 | 01 | 0 | 1 |
| 2 | 7 | 0 | 3 | 2 |

| | | | | |
|---|---|---|---|---|
| 3 | 6 | 0 | 3 | 3 |
| 4 | 5 | 0 | 7 | 4 |
| 5 | 4 | 34 | 10 | 5 |
| 6 | 3 | 16 | 11 | 6 |
| 7 | 2 | 0 | 9 | 7 |
| 8 | 1 | 0 | 6 | 8 |
| 9 | 0 | 0 | 2 | 9 |
| TOTAL | | 51 | 51 | |
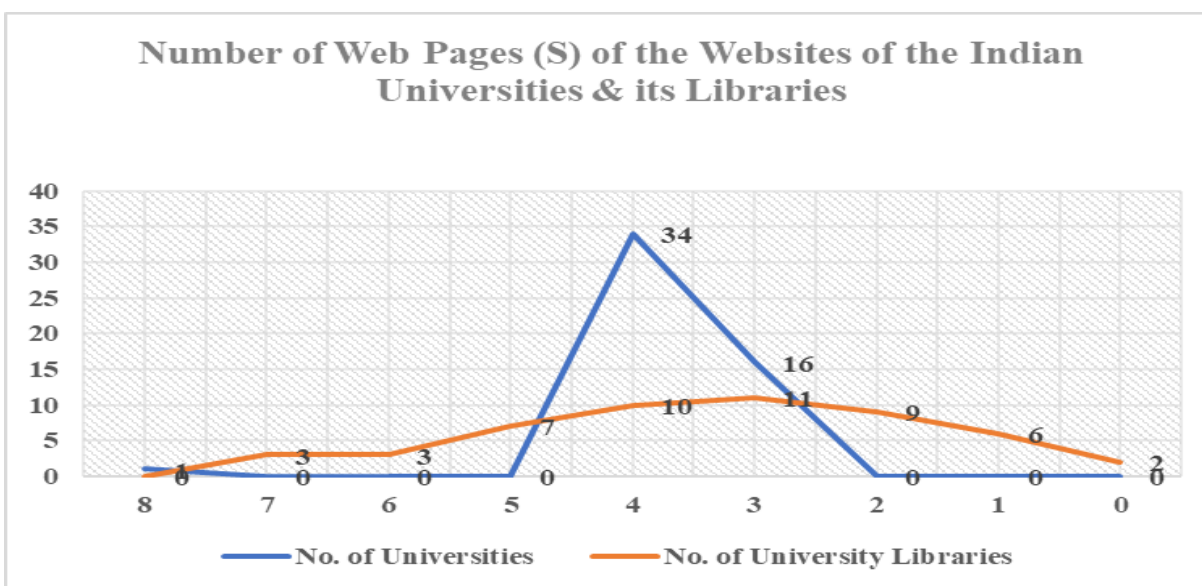


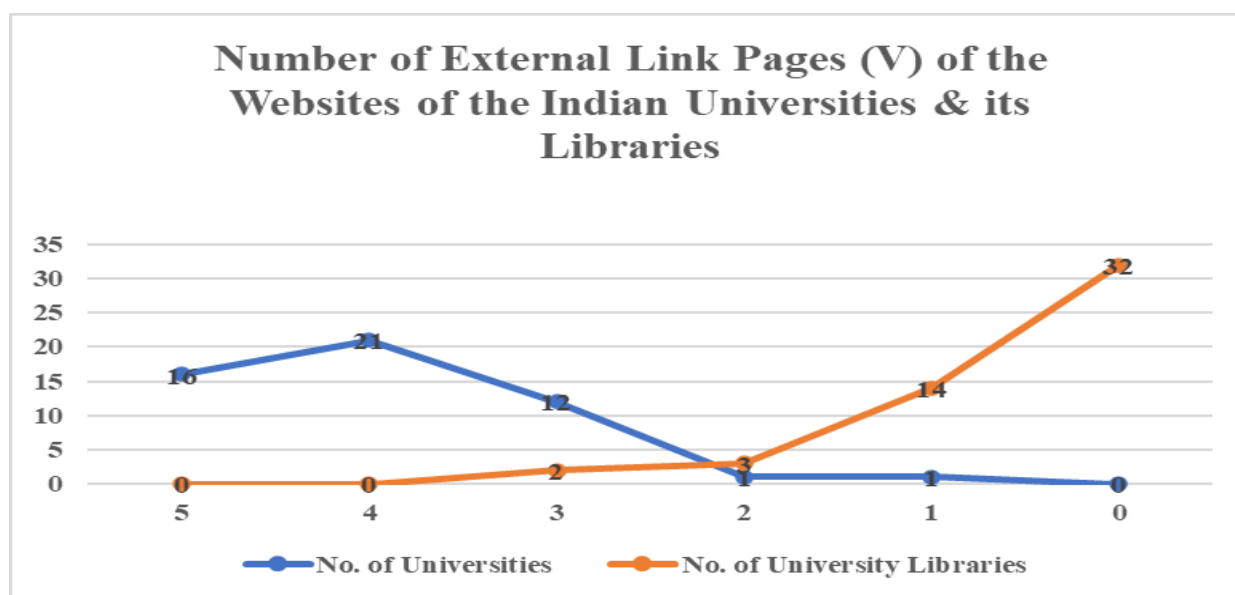**Figure 05: Number of Web Pages (S) of the Websites of the Universities & their Libraries**

The following Table 07 and Fig.06 show details of the Number of External Link Pages (V) of the Websites of the Universities & their Libraries.

**Table 07: Number of External Link Pages (V) of the Websites of the Universities & their Libraries**

| Sr. No. | Visibility | | | |
|---|---|---|---|---|
| | External Link Pages (V) * | No. of Universities | No. of University Libraries | Rank (V) |
| 1 | 5 | 16 | 0 | 1 |

| 2 | 4 | 21 | 0 | 2 |
|---|---|----|---|---|
| 3 | 3 | 12 | 2 | 3 |
| 4 | 2 | 1 | 3 | 4 |
| 5 | 1 | 1 | 14 | 5 |
| 6 | 0 | 0 | 32 | 6 |
| | TOTAL | 51 | 51 | |

\* The values of V shown here are already log-normalized variables.



**Figure 06: Number of External Link Pages (V) of the Websites of the Universities & its Libraries**

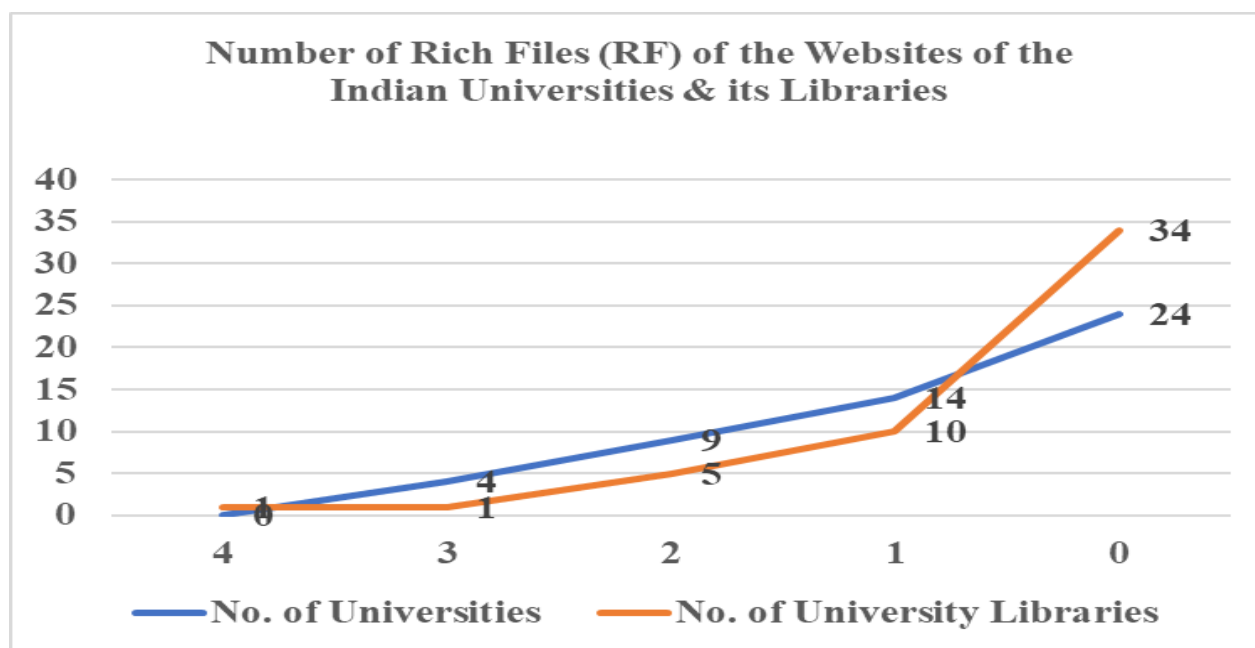**7.3 To calculate the number of Rich Files (RF) and Scholar Content (Sc) of the Websites.**

The following Table 08 and Fig. 07 show details of the Number of Rich Files (RF) of the Websites of the Universities & their Libraries.

**Table 08: Number of Rich Files (RF) of the Websites of the Universities & their Libraries**

| Sr. No. | Rich Files (RF) | | | |
|---------|------|--------------------|-----------------------------|------|
| | RF * | No. of Universities | No. of University Libraries | Rank |
| 1 | 4 | 0 | 1 | 1 |

| | | | | |
|---|---|---|---|---|
| 2 | 3 | 4 | 1 | 2 |
| 3 | 2 | 9 | 5 | 3 |
| 4 | 1 | 14 | 10 | 4 |
| | 0 | 24 | 34 | 5 |
| **TOTAL** | | 51 | 51 | |

\* The values of Rich Files (RF) shown here are already log normalized variables.
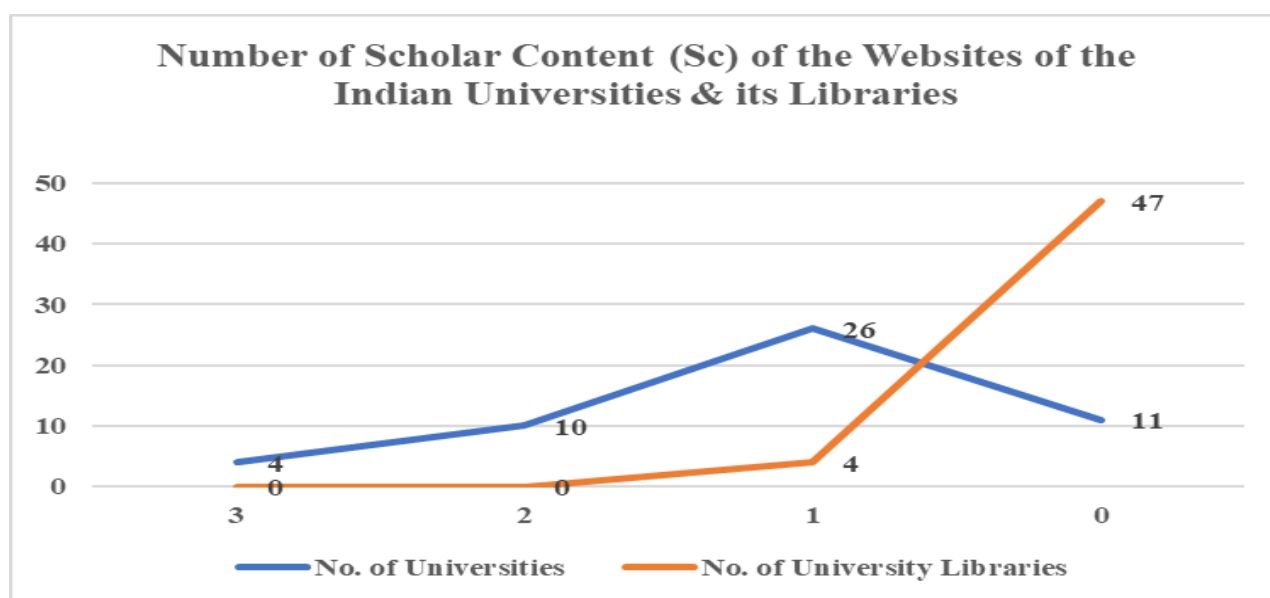


**Figure 07: Number of Rich Files (RF) of the Websites of the Universities & its Libraries**

The following Table 09 and Fig. 08 show details of the Number of Scholar Content (Sc) of the Websites of the Universities & their Libraries.

**Table 09: Number of Scholar Content (Sc) of the Websites of the Universities & its Libraries**

| Sr. No. | Scholar Content (Sc) | | | |
|---|---|---|---|---|
| | (Sc) * | No. of Universities | No. of University Libraries | Rank |
| 1 | 3 | 4 | 0 | 1 |
| 2 | 2 | 10 | 0 | 2 |
| 3 | 1 | 26 | 4 | 3 |

| 4 | 0 | 11 | 47 | 4 |
|---|---|----|----|---|
|   | **TOTAL** | **51** | **51** |   |



**Figure 08: Number of Scholar Content (Sc) of the Websites of the Universities & its Libraries**

**7.4 To rank the Universities as per the Web Rank (WR) of their website & library Page**

The following Table 10 shows details of the ranking of the Universities as per the Web Rank (WR) of their website and library Page.

**Table 10: Rank the Universities as per the Web Rank (WR) of their website & library Page**

| Sr. No | Uni. Type | Name of University | State | Uni. URL | Library URL | Uni. WR Score | WR of Uni. | Lib. WR score | WR of Lib |
|---|---|---|---|---|---|---|---|---|---|
| 1 | DU | Vellore Institute of Technology | Tamilnadu | www.vit.ac.in | http://www.vit.ac.in/Library/Exceptional_Library | 13 | 1 | 37 | 12 |

| | | | | .asp | | | | |
|---|---|---|---|---|---|---|---|---|
| 2 | SU | Kerala Agricultural University, Thrissur | Kerala | www.kau.edu | www.kaucentrallibrary.org | 20 | 2 | 23 | 2 |
| 3 | SU | Mahatma Gandhi University, Kottayam | Kerala | www.mguniversity.edu/ | http://www.mguniversity.edu/index.php?option=com_content&view=article&id=39&Itemid=8 | 20 | 3 | 37 | 12 |
| 4 | SU | Kannur University, Kannur | Kerala | www.kannuruniversity.ac.in | http://kannuruniversitylibrary.ac.in/ | 21 | 4 | 23 | 2 |
| 5 | SU | Anna University, Guindy | Tamilnadu | www.annauniv.edu/ | http://www.annauniv.edu/Library/index.html | 21 | 4 | 33 | 8 |
| 6 | SU | Cochin University of Science & Technology, Kochi | Kerala | www.cusat.ac.in/ | http://library.cusat.ac.in/new/ | 21 | 4 | 35 | 10 |
| 7 | DU | Amrita Vishwa Vidyapeetham, | Tamilnadu | www.amrita.edu/ | http://www.amrita.edu/campuses/blr/library/index.html | 21 | 4 | 35 | 10 |
| 8 | SU | Madras University, Chennai | Tamilnadu | www.unom.ac.in | http://www.unom.ac.in/uploads/library/mul/mul.html | 21 | 4 | 36 | 11 |
| 9 | DU | Karunya Institute of Technology and Sciences | Tamilnadu | www.karunya.edu | http://www.karunya.edu/library/index.html | 21 | 4 | 38 | 13 |
| 10 | SU | Madurai Kamraj University, Madurai | Tamilnadu | www.mkuniversity.org | http://www.mkulibrary.org/ | 22 | 5 | 27 | 3 |

| 11 | SU | Anna University of Technology, Tharamani | Tamilnadu | www.annauniv.edu/ | http://www.annauniv.edu/Library/index.html | 22 | 5 | 33 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| 12 | DU | Shanmugha Arts, Science, Technology & Research Academy (SASTRA) | Tamilnadu | www.sastra.edu | www.sastra.edu/index.php/about-us/mhrd.../1277-the-central-library | 22 | 5 | 39 | 14 |
| 13 | SU | Annamalai University, Annamalainagar | Tamilnadu | www.annamalaiuniversity.ac.in | http://www.annamalaiuniversity.ac.in/mainlib.php | 22 | 5 | 39 | 14 |
| 14 | SU | Kerala University, Thiruvananthapuram | Kerala | www.keralauniversity.edu/ | http://www.kulib.in/ | 24 | 6 | 28 | 4 |
| 15 | SU | Bharathiar University, Coimbatore | Tamilnadu | www.b-u.ac.in/ | http://www.b-u.ac.in/library/index.html | 24 | 6 | 30 | 6 |
| 16 | SU | Calicut University | Kerala | www.universityofcalicut.info/ | http://library.universityofcalicut.info/ | 24 | 6 | 32 | 7 |
| 17 | DU | Gandhigram Rural Institute | Tamilnadu | www.ruraluniv.ac.in | http://www.ruraluniv.ac.in/lib.html | 24 | 6 | 41 | 15 |
| 18 | DU | S.R.M Institute of Science and Technology | Tamilnadu | www.srmuniv.ac.in | http://www.srmuniv.ac.in/aboutus/library | 25 | 7 | 29 | 5 |
| 19 | DU | Chennai Mathematical Institute | Tamilnadu | www.cmi.ac.in | http://www.cmi.ac.in/library/ | 25 | 7 | 29 | 5 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20 | DU | Periyar Maniammai Institute of Science & Technology (PMIST) | Tamilnadu | www.pmu.edu | http://www.pmu.edu.sa/Resources_Services/LRC_Library.aspx | 25 | 7 | 39 | 14 |
| 21 | SU | Anna of Technology University, Tiruchirapalli | Tamilnadu | www.tau.edu.in | http://www.annauniv.edu/Library/ | 26 | 8 | 22 | 1 |
| 22 | SU | Tamilnadu Dr. Ambedkar Law University, Chennai | Tamilnadu | www.tndalu.ac.in/ | http://www.tndalu.ac.in/overview.html | 26 | 8 | 33 | 8 |
| 23 | SU | Tamilnadu Agricultural University, Combatore | Tamilnadu | www.tnau.ac.in/ | http://tnau.ac.in/library.html | 26 | 8 | 35 | 10 |
| 24 | SU | Alagappa University, | Tamilnadu | www.alagappauniversity.ac.in/ | http://www.alagappauniversity.ac.in/departments/aboutus.php?dept_id=23 | 26 | 8 | 37 | 12 |
| 25 | SU | Tamil University, Thanjavur | Tamilnadu | www.tamiluniversity.ac.in/ | http://www.tamiluniversity.ac.in/tu_english/library_books.php | 26 | 8 | 39 | 14 |
| 26 | SU | Tamilnadu Physical Education and Sports University | Tamilnadu | www.tnpesu.org/ | http://www.tnpesu.org/lib-profile.html | 26 | 8 | 43 | 16 |
| 27 | SU | Thiruvalluvar University | Tamilnadu | www.thiruvalluvaruniversity.ac.in/ | http://thiruvalluvaruniversity.ac.in/administration/library.php | 27 | 9 | 29 | 5 |

| 28 | SU | Tamil Nadu Open University, Directorate of Technical Education | Tamilnadu | www.tnou.ac.in | http://www.tnou.ac.in/Library.html | 27 | 9 | 34 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 29 | DU | Sathyabama Institute of Science and Technology | Tamilnadu | www.sathyabamauniversity.ac.in | http://www.sathyabamauniversity.ac.in/sitepagethree.php?mainref=4 | 27 | 9 | 37 | 12 |
| 30 | DU | Kalasalingam Academy of Research and Higher Education | Tamilnadu | www.kalasalingam.ac.in | http://kalasalingam.ac.in/klu/academics/library/ | 27 | 9 | 39 | 14 |
| 31 | DU | Indian Institute of Space Science and Technology | Kerala | www.iist.ac.in | http://www.iist.ac.in/facilities/library | 28 | 10 | 29 | 5 |
| 32 | SU | Periyar University, Salem | Tamilnadu | www.periyaruniversity.ac.in/ | http://www.periyaruniversity.ac.in/Library_Home/index.html | 28 | 10 | 33 | 8 |
| 33 | DU | Hindustan Institute of Technology and Science (HITS) | Tamilnadu | www.hindustanuniv.ac.in | http://122.183.214.170/library/ | 28 | 10 | 35 | 10 |
| 34 | DU | B.S. Abdul Rahman Institute of Science & Technology, | Tamilnadu | www.bsauniv.ac.in | http://bsauniv.ac.in/info.aspx?id=293 | 28 | 10 | 35 | 10 |
| 35 | SU | Dr. M.G.R. Medical University | Tamilnadu | www.tnmgrmu.ac.in/ | http://web.tnmgrmu.ac.in/index.php/library | 28 | 10 | 35 | 10 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 36 | DU | Vel's Institute of Science, Technology & Advanced Studies (VISTAS) | Tamilnadu | www.velsuniv.org | http://www.velsuniv.ac.in/library-facilities.asp | 28 | 10 | 37 | 12 |
| 37 | CU | Indian Maritime University, Chennai | Tamil Nadu | www.imu.tn.nic.in | http://www.nsdrc.com/library.html | 29 | 11 | 38 | 13 |
| 38 | SU | Mother Teresa Women's University, Kodaikanal | Tamilnadu | www.motherteresawomenuniv.ac.in/ | http://www.motherteresawomenuniv.ac.in/facilities/Library.html | 29 | 11 | 41 | 15 |
| 39 | SU | Manonmaniam Sundarnar University, Thirunelveli | Tamilnadu | www.msuniv.ac.in/ | http://www.msuniv.ac.in/MSULibrary/ | 29 | 11 | 43 | 16 |
| 40 | DU | Rajiv Gandhi National Institute of Youth Development | Tamilnadu | www.rgniyd.gov.in | http://www.rgniyd.gov.in/?q=content/library | 30 | 12 | 33 | 8 |
| 41 | SU | Kerala Veterinary & Animal Sciences University | Kerala | www.kvasu.ac.in/ | http://www.cvaslibrary.com/ | 31 | 13 | 33 | 8 |
| 42 | DU | Sri Chandrasekharendra Saraswathi Vishwa Mahavidyalaya | Tamilnadu | www.kanchiuniv.ac.in | http://www.kanchiuniv.ac.in/library/ | 32 | 14 | 41 | 15 |
| 43 | DU | St. Peter's Institute of Higher Education and Research | Tamilnadu | www.stpetersuniversity.org | http://www.stpetersuniversity.org/library.php | 33 | 15 | 33 | 8 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 44 | DU | M.G.R. Educational and Research Institute | Tamilnadu | www.drmgrdu.ac.in | http://www.drmgrdu.ac.in/library.htm | 33 | 15 | 41 | 15 |
| 45 | DU | Ponnaiyah Ramajayam Institute of Science & Technology | Tamilnadu | www.prist.ac.in | http://prist.ac.in/libraries-resources-centre/ | 34 | 16 | 30 | 6 |
| 46 | SU | Anna University of Technology, Madurai | Tamilnadu | autmdu.ac.in | http://www.annauniv.edu/Library/index.html | 34 | 16 | 33 | 8 |
| 47 | DU | Academy of Maritime Education and Training | Tamilnadu | www.ametuniv.ac.in/ | http://www.ametuniv.ac.in/Library.html | 34 | 16 | 35 | 10 |
| 48 | DU | Karpagam Academy of Higher Education | Tamilnadu | karpagamuniv.com | http://www.karpagamuniv.com/student_life/libraries.php | 34 | 16 | 39 | 14 |
| 49 | CU | Central University of Kerala | Kerala | www.cukerala.ac.in | http://www.cukerala.ac.in/university_library | 35 | 17 | 37 | 12 |
| 50 | CU | Central University of Tamil Nadu | Tamil Nadu | www.cutn.ac.in | http://www.cutn.ac.in/page_content.php?ml_id=Nw==&sl_id=MjA= | 35 | 17 | 37 | 12 |
| 51 | SU | Tamilnadu Veterinary & Animal Sciences University, Chennai | Tamilnadu | www.tanuvas.tn.nic.in/ | http://www.tanuvas.tn.nic.in/library_mvc.html | 37 | 18 | 41 | 15 |

## 8. Findings

The present study is aimed at understanding any type of correlation or association between the quality of a university and its library. It is necessary to note that the four parameters used by

Cybermetric Lab of Spain for ranking Universities worldwide are employed here. All the URLs of University websites were identified, gathered, and categorized or classified according to their domain name. Thus, websites with the same domain were grouped. From this process, the following findings were observed.

A total of 51 universities' web addresses were categorized into 08 Top Level Domains (TLD). The domain 'ac.in' was the highest used domain by universities. A total of 32 universities from 51 had used 'ac.in' as a domain name in their URLs. This was followed by 09, 04, 02 universities with '.edu', '.org', 'nic.in' domains respectively.

The highest value for the number of Web Pages (S) for universities was '8' and the lowest was '3'. The highest value for the number of Web Pages (S) for university libraries was '7' and the lowest was '0'.Vellore Institute of Technology from Tamilnadu had the highest value for Size (S) i.e., '8'. Therefore, the Vellore Institute of Technology was ranked 1$^{st}$ rank of Size (S).

The sixteen universities with the lowest score of Size, i.e., '3', and the two university libraries with the lowest score of Size, i.e., '0'. The highest value of Visibility (V) for universities was '5'and the lowest was 'One'. The highest value of Visibility (V) for university libraries was '3'and the lowest was 'Zero'. A total of 16 universities had the value of Visibility (V) as '5'.A total of 32 university libraries had a 'Zero' value for Visibility (V).

The highest value for the Rich Files (RF) for universities was '3', and the lowest was '0', and for university libraries was '4', and the lowest was '0'. The twenty-four universities with the lowest score of Rich Files (RF), i.e., '0', and the Thirty-Four university libraries with the lowest score of Size, i.e., '0'.The highest value of Rich Files (RF) was '3' and the lowest was 'Zero' for universities. The highest value of Rich Files (RF) was '4' and the lowest was 'Zero' for university libraries.

Twenty-four universities and thirty-four university libraries have the lowest score of Scholar content (Sc) i.e., '0'. The highest value of Scholar content (Sc) was '3' and the lowest was 'Zero' for universities. The highest value of Scholar content (Sc) was '1' and the lowest was 'Zero' for university libraries.

The rank of an individual university is based on its Web Rank score, and this score is calculated based on log-normal values of S, V, RF and Sc for the universities. Table 11 shows details of the Top 10 Universities based on the University Page. Deemed and State universities seem to have a high presence in the top 10 rank.

**Table 11: Details of the Top 10 Universities based on the University Page**

| Sr. No. | Types of Universities | Universities in the Top 10 | Total Number of Universities | % of universities in the top 10 Universities |
|---------|----------------------|---------------------------|------------------------------|----------------------------------------------|
| 1 | Central Universities | 0 | 3 | 0 |
| 2 | Deemed Universities | 03 | 31 | 10 |

| 3 | Private Universities | 0 | 0 | 0 |
| 4 | State Universities | 07 | 35 | 20 |

Table 12 shows detailed statistics of the top 10 universities based on web rank – this is the meaning of 'in the context Web Rank'- of their Libraries web pages. Deemed and state universities seem to have a high presence in the top 10 rank.

**Table 12: Details of the Top 10 based on the Universities' Library Page**

| Sr. No. | Types of Universities | Universities in the Top 10 based on the libraries' web ranking | Total Number of Universities | % of universities in the top 10 Universities |
|---|---|---|---|---|
| 1 | Central Universities | 0 | 3 | |
| 2 | Deemed Universities | 11 | 31 | 35 |
| 3 | Private Universities | 0 | 0 | |
| 4 | State Universities | 16 | 35 | 46 |

Table 13 shows a comparison of Table 11 and Table 12. Table 13 shows that the number of deemed and state universities in the top 10 ranks increased based on the library webpage.

**Table 13: Details of Tables 11 & 12**

| Sr. No. | Types of Universities (Total) Number in Brackets)) | Universities in the Top 100 | Universities in the Top 100 based on the libraries' web ranking |
|---|---|---|---|
| 1 | Central Universities (03) | 0 | 0 |
| 2 | Deemed Universities 31) | 03 | 11 |
| 3 | Private Universities (0) | 0 | 0 |
| 4 | State Universities (35) | 07 | 16 |
| **TOTAL** | **69** | **10** | **26** |

## 9. Conclusion

This study was conducted to know the status, appearance of the library, and its web page on the university website. As compared to technical universities, the web pages of traditional universities are poor, less informative. Some traditional universities (18) still do not have their

web pages. Some universities have given library-related information only in two to three sentences/paragraphs under the infrastructure and facility link.

There is a significant difference between the ranking of universities based on its web page and library page, as many more universities have good web pages but care is not taken while developing library pages. Therefore, content management and monitoring is important.

It is known that there are many metrics in operation throughout the world to assess the quality of universities by ranking. Cybermetrics Lab's process is too subtle and unique. There is no teacher quality etc. Therefore, no subjective issues or variables are involved. It is not easy to jack up the ranks artificially. It is hoped that universities take this procedure seriously and improve their quality of education, in general, and the quality of the website, in particular.

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