

## Credibility of University Websites in Tamil Nadu

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### ABSTRACT

The influence of information and communication technology (ICT) in developing countries makes more demand for web-based reliable information. Many user studies confirm that, being able to trust the information on a website is very important to them in deciding to visit a website. Application of ICT and web hosting in an academic environment has increased gradually in the recent decades. This paper aims to study and analyse the various aspects of the credibility of university websites in Tamil Nadu. A total of 43 universities in Tamil Nadu were considered which include 17 affiliated and 21 private universities. The analysis of the data represents the extent and the level of credibility possessed by the universities' websites in Tamil Nadu.

**Keywords:** Tamil Nadu, information and communication technology, university websites, credibility

### 1. INTRODUCTION

Websites help in accessing universe of knowledge across the globe, irrespective of their geographical location and anybody can publish anything in World Wide Web (WWW) from his desktop. With the help of WWW and related Internet technologies, any organisation or institution can make its presence on the Internet. For many institutions, websites are crucial to ensure sales and services. The Internet already has a profound influence on institutes of higher education, and this influence is projected to further grow. It is a debatable issue that whether all websites and web contents in the Internet are reliable, uptodate and standardised.

Print sources come across different stages of reviewing and filtering. Unlike most printed information sources, in web publishing, no one has to approve the content before hosting it on the Internet. This means that the quality of the information found on the net must be evaluated very carefully, because there is no surity whether the information provided is trustworthy or not. When a person opens a website, the first impression or judgment is probably made within a few seconds.

Whether the user will stay or move on to the next option is based on the credibility and aesthetics of the website, its ease of use, and navigation, etc. Credibility is limited to the believability or trustworthiness of information found in the WWW. If a website is not perceived as credible it is unlikely to be used. The term credibility means the extent to which the users trust the information content on a website. This paper aims to study and analyse the various aspects of the credibility of university websites in Tamil Nadu.

### 2. WEB CREDIBILITY

Credibility is a perceived quality that does not reside in an object, a person, or a piece of information. Therefore, in discussing the credibility of a computer product, one is always discussing the perception of credibility<sup>1</sup>. Many scholars agree that credibility perceptions result from evaluating multiple dimensions simultaneously. Although the literature varies on how many dimensions contribute to credibility evaluations, the vast majority of researchers identify two key components of credibility as trustworthiness and expertise. A person makes an assessment of both trustworthiness and expertise to

arrive at an overall credibility assessment. "Web credibility is about making your website in such a way that, it comes across as trustworthy and knowledgeable"<sup>2</sup>. In nutshell, web credibility is a perceived quality of a website by a user, whereas web evaluation is the process of web credibility.

### 3. UNIVERSITIES IN TAMIL NADU: A BRIEF NOTE

The first university, University of Madras, was established in 1857, which was the only university for composite Madras state. Madurai Kamaraj University was the second affiliated university established in 1966 in Tamil Nadu, only after 109 years. Subsequently, a number of universities have been established.

The impact of universal and globalisation of education brought more number of private universities established, especially in engineering, technology, and medicine disciplines. However, all the universities generally fall into the following three categories, based on their organisational structure (UGC)<sup>3</sup>:

- (i) Affiliating universities, having university departments, constituent and affiliated colleges, with single or multiple campuses;
- (ii) Unitary universities having university departments and constituent colleges, with single or multiple campuses;
- (iii) Private universities, mostly of the unitary type and having distributed campuses.

At present, conventional or affiliated universities form a significant segment of the university system in Tamil Nadu. As on September 2008, there were about 45 universities in Tamil Nadu<sup>4,5</sup> (*Appendix A*). Almost all the universities have their own websites. Every university is trying to project its facilities, courses, services of their libraries and constantly updating or improving the functionality of its website. While some universities have opened a portal for their libraries, some have provided a link to it in their website.

### 4. OBJECTIVES

The following are the objectives of this study:

- ✂ To examine the websites of the universities in Tamil Nadu.
- ✂ To collect the data with regard to the structure and contents of the universities in Tamil Nadu.
- ✂ To analyse the contents and structure of the websites under study.

- ✂ To compare the websites of various universities under study with the established guidelines.
- ✂ To offer suggestions for the design of an ideal website for a university.

### 5. HYPOTHESES

Hypotheses applied for the study were:

- ✂ A majority of the universities in Tamil Nadu has hosted websites on the Internet.
- ✂ The university websites are heterogeneous in the structure and contents.
- ✂ Most of the websites do not confirm to the established guidelines.

### 6. RELATED RESEARCH

Karp and Karp<sup>6</sup> offered guidelines about the web designing. Though not directly related to web credibility, adopting those guidelines will help to improve a website. The guidelines explain intelligent use of graphic elements and design that can add greatly to the attractiveness of a web page.

Fogg<sup>7</sup>, *et al.* gathered the comments people wrote about each site's credibility and analysed the comments to find out what features of a website get noticed when people evaluate credibility. The team found that the design look of the site was mentioned most frequently followed by comments about information structure, and information focus. In this study, 2,684 people evaluated the credibility of two live websites on a similar topic (health) and the authors shared participants comments in the top 18 areas that people noticed when evaluating websites' credibility. Fogg<sup>8</sup> also proposed a theory that users notice and interpret various websites elements to arrive at an overall credibility assessment.

Mangala Hirwade<sup>9</sup> evaluated the websites of Indian universities with special reference to their library's web pages. Two hundred and seventy three Indian universities were selected for this study. Out of these, 91 (59.87 per cent) have included information about their libraries in their websites. Major findings and suggestions were presented and directory of Indian university websites were created as a by-product of the study.

Jasek<sup>10</sup> offered a short set of simple-to-implement guidelines in his pamphlet "How to Design Library Websites to Maximise Usability" to help librarians to design usable library websites. The guidelines are based on a survey of literature on library website design and usability testing, results of usability reviews conducted by Elsevier for library customers, and established best practices in website usability.

## 7. METHODOLOGY

In the study, self-evaluative method<sup>9</sup> was adopted, which include the following:

- ✕ A review of state-of-the-art websites.
- ✕ Designing a check list<sup>11-13</sup>.
- ✕ Evaluation of the websites<sup>14,15</sup> and data collection.
- ✕ Analysis and interpretation of data.

## 8. ANALYSIS AND DISCUSSION

Out of 45 universities in Tamil Nadu websites of 43 university were considered, evaluated, and analysed. Two universities were excluded due to technical reasons. There is a phenomenal growth of universities in Tamil Nadu after 2000 (Table 1) due to the development of private universities. Nearly 19 self-financed engineering colleges have got university status after 2000 which is nearly 42 per cent in the overall growth of universities in Tamil Nadu.

Table 2 explains the types of management of universities in Tamil Nadu. In the last 150 years the growth of affiliating universities is perpetual and the growth of private universities is transient.

Table 3 reveals that seven types of 'URL extensions' were observed in this study. Out of 43 universities nearly half (49 per cent) of the universities have .ac.in as 'URL' extension followed by .org (18 per cent) and .edu (16 per cent). The study by Fogg, *et al.*, indicates the 'Design look' factor as one of the key factors for any web credibility study.

Table 4 reveals that all the websites have graphics or pictures (100 per cent), and in majority (84 per cent) of the websites background and text colour is matching. Unfortunately many do not provide information about the screen resolution, browser compatibility, etc. The above details are important since many websites do not fit into one page display.

**Table 1. Classification of websites by year of establishment or university status (private)**

Year of Establishment	No. of Universities	Percentage
Before 1950	2	4
Between 1951 and 2000	16	36
Between 2001 and 2005	15	33
After 2005 **	12	27
<b>Total</b>	<b>45</b>	<b>100</b>

**Table 2. Classification of universities by type of management**

Type of Management	No. of Universities	Percentage
Affiliating Universities	18	40
Unitary Universities	5	11
Private Universities	22	49
<b>Total **</b>	<b>45</b>	<b>100</b>

'Ease of Use', 'Structure of Website' and 'Navigation' plays a major role in the website credibility. Even large websites fails to meet the user needs due to lack of proper structure and navigation tools. Table 5 explains that most of the universities in Tamil Nadu have proper structure and logically arranged contents (93 per cent). But more than half of the university websites do not provide navigation tools like site map (33 per cent), search facility (35 per cent), etc. 'Reliability' factors are the basic factual data, which is expected from all the university websites. Table 6 explains that almost all the universities provide the contact details, history and copyright information. Only 40 per cent of the universities have the 'feedback' feature and 58 per cent 'information about faculty'. It is interesting to note that only three universities have the provision to make complaint through their website. Table 7 shows the variable in 'Validity' factor, which helps to assess the importance and the role of a website of an organisation. Majority (84 per cent) of the websites maintain the respective sites without any 'dead links' and are able to 'distinguish between link and line of

**Table 3. Classification of websites by URL extension**

URL extensions	Affiliated universities n=17	Unitary universities n=5	Private universities n=21	Total (Percentage) n=43
.ac.in	8	4	9	21 (48.8)
.com	0	0	4	4 (9.3)
.edu	1	0	6	7 (16.3)
.edu.in	1	0	0	1 (2.3)
.net	1	0	0	1 (2.3)
.org	5	1	2	8 (18.6)
.tn.nic.in	1	0	0	1 (2.3)
<b>Grand Total</b>	<b>17</b>	<b>5</b>	<b>21</b>	<b>43 (100)</b>

**Table 4. Classification of websites by design factor**

<b>Design factors</b>	<b>Affiliated universities n=17</b>	<b>Unitary universities n=5</b>	<b>Private universities n=21</b>	<b>Total (Percentage) n=43</b>
There are graphics in the site	17	5	21	43 (100)
There are animations in the site	5	2	11	18 (42)
The background and font colour is matching	14	3	19	36 (84)
No. of visitors is given	5	1	4	10 (23)
View resolution is suggested	1	0	4	5 (12)
Browser compatibility is suggested	1	0	3	4 (9)
The site's page format is followed in all the sub pages	15	3	21	39 (91)

**Table 5. Classification of websites by ease-of-use/navigation factor**

<b>Ease-of-use/navigation factors</b>	<b>Affiliated universities n=17</b>	<b>Unitary universities n=5</b>	<b>Private universities n=21</b>	<b>Total (Percentage) n=43</b>
Sitemap is given	6	1	7	14 (33)
Search facility available	4	1	10	15 (35)
Active, inactive links are clearly visible	7	2	16	25 (58)
It is easy to navigate logically according to the broader category	15	5	20	40 (93)
The site has picture gallery	9	1	11	21 (49)
It has thumbnail size or full size pictures	4	0	5	9 (21%)
Homepage link is available in all sub pages	17	2	20	39 (91)

**Table 6. Classification of websites by reliability factor**

<b>Reliability factors</b>	<b>Affiliated universities n=17</b>	<b>Unitary universities n=5</b>	<b>Private universities n=21</b>	<b>Total (Percentage) n=43</b>
History of the university is mentioned	17	5	20	42 (98)
Information about affiliation or accreditation is mentioned	8	2	21	31 (72)
There is a link to send the complaint	1	0	2	3 (7)
There is a link to send the feedback	6	3	8	17 (40)
HoD and other faculty information is provided with their qualifications	10	3	12	25 (58)
Photos of VC and other officers are given	10	3	18	31 (72)
Information about ISO Certification is provided	1	0	5	6 (14)
The site has copyright registration and the information about the same is given	9	3	19	31 (72)
Postal address is given	15	5	21	41 (95)
Telephone No. with STD code is given	15	5	21	41 (95)
Contact e-mail ID is given	13	5	20	38 (88)

statement' clearly. But the top most credibility criterion, 'when the site was updated' is rarely found among the universities in Tamil Nadu. Only six (14 per cent)

universities have the information about the same. Table 8 describes the variables in 'Expertise' factor. The basic objective of any website is to maximise the reach of

**Table 7. Classification of websites by validity factor**

Validity factors	Affiliating universities n=17	Unitary universities n=5	Private universities n=21	Total (Percentage) n=43
Association with other renowned institutions/organisations is mentioned	10	1	12	23 (53)
Information about students achievements or records is given	6	1	7	14 (33)
The site is maintained without any dead link	12	4	20	36 (84)
Able to distinguish between link and line of statement	12	4	20	36 (84)
There is information about, when the site was updated	3	2	1	6 (14)
Calendar of events are given	13	2	19	34 (79)
The site is maintained without any internal/external advertisement	15	5	20	40 (93)

expressed information to the maximum end user. Multiple languages or the regional language add value to the website, but it is odd to note only four universities (9 per cent) provide some information in the regional language. No private university has this additional feature. At the same time, most of the universities (95 per cent) appear in the first page of Search Engines like Google, Yahoo and Rediff. While majority of the universities have the information about the 'research activities', some of them provide the 'project titles' also.

Table 9 depicts the factors that will add value to a website and increase the 'customer satisfaction'. Links to UGC, AICTE, and State Higher Education-related websites and references will help the end user to get more clarity on policies and procedures. The study observed

that only 14 (33 per cent) universities have such links in their websites. Directory of various departments' telephone extensions will help the end users to reach the respective official quickly, which was found in most of the affiliating universities, whereas it is a very rare feature in the private and unitary universities. On the other hand 'course eligibility related information' is comparatively lesser in the affiliated universities.

Library-related factors are given in the Table 10. Most of the universities (79 per cent) provide the information about library with nearly 60 per cent of them with a separate page or homepage for library. Contact information about library, is rarely found; only 9 (21 per cent) universities provided the information and 11 (58 per cent) universities have separate 'library homepage'.

**Table 8. Classification of websites by expertise factor**

Expertise factors	Affiliated universities n=17	Unitary universities n=5	Private universities n=21	Total (Percentage) n=43
The site offers information in more than one language (e.g. English and Tamil)	3	1	0	4 (9)
Information about research activities is given	16	4	18	38 (88)
Research articles available in the site authored by students and faculties (IR)	0	0	1	1 (2)
The site was appeared on the first page of Google search engine results	15	5	21	41 (95)
Yahoo search engine results	16	5	20	41 (95)
Rediff search engine results	16	5	19	40 (93)
The site was the first item listed by Google search engine results	14	5	17	36 (84)
Yahoo search engine results	14	4	17	35 (81)
Rediff search engine results	15	5	17	37 (86)
URL matches the name or acronym of the institute	14	4	19	37 (86)
The site is large (e.g. not less than 5 pages)	17	5	21	43 (100)

**Table 9. Classification of websites by customer satisfaction factor**

Customer satisfaction factors	Affiliated universities n=17	Unitary universities n=5	Private universities n=21	Total (Percentage) n=43
External links also provided as a value adds (UGC, etc.)	7	2	5	14 (33)
Directory is given with mail ID or extension no. of concerned	11	0	7	18 (42)
The site requires login for students, faculties, parents or public	6	1	11	18 (42)
There is a flash news section	11	2	17	30 (70)
Course details are provided with duration/semester	17	5	21	43 (100)
Course details are provided with eligibility criteria	11	3	21	35 (81)
List of affiliated colleges is provided	17	NA	NA	17 (40)

**Table 10. Classification of websites by library information**

Library-related factors	Affiliated universities n=17	Unitary universities n=5	Private universities n=21	Total (Percentage) n=43
Information about the library is provided	12	4	18	34 (79)
Library's working hours details are provided	10	2	7	19 (44)
There is a separate home page for the library	10	4	11	25 (58)
Information about OPAC search is provided	7	3	10	20 (47)
Contact information about library is given	7	1	1	9 (21)

Table 11 describes the library collection-related details. Almost 70 per cent of the websites have the information about the 'Kind of Collection' and 67 per cent provide the 'No. of Books' available. 'List of Journals' is rarely provided among the private, unitary and affiliating universities. But majority of the universities provide the information about the 'Online or E-resources'. It was observed that only Gandhigram Rural University has mentioned about the 'Braille Books Collection'.

Table 12 provides the details about library services. Unfortunately the information about libraries is brief in most of the websites. Twenty three (53 per cent) universities have mentioned about lending, online and CD-Rom service followed by reference (49 per cent), reprography (40 per cent), and Internet browsing services. Specialised services like CAS, SDI, etc., have rare mention. Of course provision of such services in university environment is a rare phenomenon.

**Table 11. Classification of websites according to nature of library collection**

Library collection-related factors	Affiliated universities n=17	Unitary universities n=5	Private universities n=21	Total (Percentage) n=43
Information about library's kind of collection is available	10	4	16	30 (70)
Information about library's no. of book collection is available	10	2	17	29 (67)
List of journals subscribed is available in the website	6	1	1	8 (19)
Information about library's audio-visual collection is available	5	2	10	17 (40)
Information about Braille books collection is available	0	1	0	1 (2)
Information about library's online or e-resources is available	11	3	14	28 (65)
Information about library's digitised resources is available	1	1	1	3 (7)



**Table 12. Classification of websites by the provision of library services**

<b>Library services-related factors</b>	<b>Affiliated universities n=17</b>	<b>Unitary universities n=5</b>	<b>Private universities n=21</b>	<b>Total (percentage) n=43</b>
Lending	7	2	14	23 (53)
Reference	8	3	10	21 (49)
Reprography	9	1	7	17 (40)
Question bank (hard copy)	0	0	2	2 (5)
Question bank (Online)	2	0	0	2 (5)
Micro filming	2	0	1	3 (7)
Virtual/online library	8	3	12	23 (53)
CD Rom services	9	2	12	23 (53)
Internet services	6	2	7	15 (35)
Specialised services like CAS, SDI, etc.	4	0	5	9 (21)
Book bank	3	0	6	9 (21)
Institutional membership with external libraries	3	0	7	10 (23)
Library networks for resource sharing (Malibnet, Infilbnet)	7	1	7	15 (35)

Non-academic or facility-related information is given in the Table 13. Many students and parents expect the information on placement, hostel, transport, other non-curricular activities, sports, etc., from the respective websites. All private universities provide the placement-related information in a separate page or elsewhere in the website. It is not common among affiliated and unitary universities. Most of the universities provide details about alumni followed by extra curricular activities, and sports.

Website down load speed and size of the webpage is a major feature for any website. The data may not be accurate and only provide guidance to improve the download time of the website. Website optimisation (WSO)<sup>16</sup> is the process of reducing the size of a website and complexity to maximise website's performance. Webpage analyser 0.98 from Website Optimisation is a free website performance tool and webpage speed analysis to improve a website performance. One has to

**Table 13. Classification of websites by non-academic or administration-related information**

<b>Non-academic or administration-related factors</b>	<b>Affiliated universities n=17</b>	<b>Unitary universities n=5</b>	<b>Private universities n=21</b>	<b>Total (percentage) n=43</b>
There is a separate link for placement cell	4	1	16	21 (49)
Information related to placement cell found elsewhere without separate link	5	1	5	11 (26)
Statistics about placement	2	0	6	8 (19)
List of recruited companies is given	2	1	18	21 (49)
Information about transport facility is given	0	1	10	11 (26)
Information about hostel facility is given	5	1	19	25 (58)
Information about bank is given	6	0	9	15 (35)
Information about canteen/cafeteria is given	6	0	12	18 (42)
Information about alumni is given	6	2	18	26 (60)
Information about students advisory bureau is provided	9	1	5	15 (35)
Information about extra curricular activities like NCC, NSS is provided	11	1	13	25 (58)
Information about sports is provided	7	1	15	23 (53)

enter a URL to calculate page size, composition, and download time. The script calculates the size of individual elements and sums up each type of webpage component. Based on the page characteristics the script then offers advice on how to improve page load time. The script incorporates the latest best practices from website optimisation secrets, web pagesize guidelines and trends, and website optimisation techniques into its recommendations.

The web optimisation's Web Page Speed Report has the connection rate starting from 1.44 Mbps to 14.4 K. For this study, 56 K connection rate was taken as the sample to represent the other connection rates. According to the web credibility users' studies done in the past, the optimal download time for a homepage is 10 s. So for better download results, it is suggested to design 45 kb to 55 kb sized homepage. Table 14 depicts that there is a correlation between the website sizes and download time taken; typically 4-5 kb is downloaded in one second. Only Bharathidasan University falls in less 10 s category. Four universities falls under > 50 s category. Many homepages

of universities in Tamil Nadu have pictures, which occupies nearly 70-96 per cent of the overall website size. By reducing the picture size a significant size reduction can be achieved.

Table 15 reveals the webpage size and download speed details of websites of unitary universities. Tamil Nadu Open University's website is the topper (very small) among them, but the size seems to be naïve, which could be due to different design method (Frame based). So the optimisation tool would have captured the data from the mirroring site, which means it is only a small and simple website. On the other hand, Gandhigram Rural University takes nearly 90 s to download, which is undesirable according to the guidelines of users' studies. It is apparent from the Table 16 that, none of the private universities falls under < 10 s category (optimal), nine universities falls under less than 50 s, five universities falls under > 50 s and remaining all falls </> 100 s category. Due to some technical reasons, the web optimisation tool could not retrieve data from Sri Ramachandra Medical College and Research Institute.

**Table 14. Classification of websites by webpage size and download speed**

Name of the university	Total size of the website	Total size of the images	Percentage of Images in total size	Download time at 56K connection/s
Bharathidasan University, Tiruchirapalli	29368	23858	81	6.85
Anna University, Coimbatore	70133	33223	47	18.78
Manonmaniam Sundaranar University, Tirunelveli	80199	60783	76	20.98
Alagappa University, Karaikkudi	121549	68457	56	28.02
Mother Teresa Woman's University, Kodaikanal	134411	9141	7	27.99
Periyar University , Salem	164932	150436	91	33.67
Anna University, Tiruchirappalli	169308	137306	81	43.14
The Tamil Nadu Dr Ambedkar Law University Chennai	171251	168057	98	34.91
Tamil Nadu Agricultural University, Coimbatore	173145	149996	87	37.51
Tamil Nadu Physical Education and Sports Univesity, Chennai	184711	170134	92	38.41
Dr M.G.R. Medical University, Chennai	197950	160349	81	42.25
Tamil Nadu Veterinary and Animal Science University, Chennai	198988	134394	68	57.26
Thiruvalluvar University, Vellore	216877	207320	96	47.42
Anna University, Chennai	218929	128531	59	48.83
University of Madras, Chennai	236755	168489	71	52.98
Madurai Kamaraj University, Madurai	250590	194421	78	54.54
Bharathiar University , Coimbatore	326030	16805	5	67.38



**Table 15. Classification of websites by webpage size and download speed of unitary universities**

Name of the university	Total size of the website	Total size of the images	Percentage of images in total size	Download time at 56 K connection/s
Tamil Nadu Open University	1203	0	0	0.44
Tamil Virtual University	63981	54714	86	16.55
Chennai Mathematical Institute	84246	55140	65	18.79
Annamalai University	304766	284250	93	67.14
Gandhigram Rural University	431571	399695	93	90.21

**Table 16. Classification of websites by webpage size and download speed of private universities**

Name of the university	Total size of the website	Total size of the images	Percentage of images in total size	Download time at 56 K connection/s
Karunya University	105630	76216	72	30.05
Periyar Maniammai University	122903	105649	86	29.49
SRM University	149718	28603	19	34.44
Meenakshi Academy of Higher Education and Research	167981	80152	48	36.88
Hindustan University	170693	165554	97	38.62
Avinashilingam University for Women, Coimbatore	171275	115605	67	38.53
Sri Chandrasekharendra Saraswathi Viswa Mahavidyalaya	175282	142150	81	37.93
Kalasalingam Academy	198724	100726	51	43.61
Bharath University	200725	77861	39	44.8
Sathyabama Institute of Science and Technology	296996	18591	6	62.79
Saveetha Institute of Medical and Technical Sciences	302108	258830	86	75.81
Amrita Vishwa Vidyapeetham	374718	287300	77	84.88
Vinayaka Mission's Research Foundation	425615	207324	49	93.82
Vels University	449883	135795	30	96.06
PRIST University	541831	198353	37	117.19
Shanmugha Arts, Science, Technology and Research Academy	592398	490023	83	122.06
AMET University (Academy of Maritime)	654579	588683	90	137.46
St. Peter's University	818269	491488	60	167.28
Vellore Institute of Technology	915296	862178	94	193.02
Dr M.G.R. Educational and Research Institute	1196581	118692	10	250.48
Sri Ramachandra Medical College and Research Institute	Data not available	Data not available	NA	Data not available

## 11. SUGGESTIONS

- (i) A majority of the university websites in Tamil Nadu are not updated regularly. Hence, it is mandatory to update these regularly with date of last updation and frequency of updation. This will add more credibility to the site.
- (ii) Home page is the virtual front door for any website, therefore the first impression makes the difference. Many user-studies confirmed that, one page display of home page without scrolling has more credibility. The goal can be achieved if a website is designed based on the percentage of total screen size. Offcourse, this is applicable only if it is a simple site.
- (iii) The arrangement of web objects and links are very important. It is preferred to place them in the logical order.
- (iv) Unlike printed information resources, the space is not managed properly in the web. To achieve this effectively, it is very important to utilise the space effectively.
- (v) The moderate use of photos, animations, marques, etc., will not only decrease the size of websites but also improve the ease-of-use.
- (vi) By placing the objects/links in the right place, where these are expected to be placed, will reduce duplication of links or objects. This will reduce size and can improve effective utilisation of space.
- (vii) Instead of each individual links, it can be grouped under broad categories. This will also improve the aesthetics of the site and ease-of-use.
- (viii) Normally a website will have many pages. Since it is not possible to browse all of these, a sitemap and internal search engine will be an value added to the website, which will increase its credibility also.
- (ix) Language can be option based, which will add more clarity and ease-of-use. End user can be allowed to choose his/her language. This will increase the credibility.
- (x) It is better to place the important links at the top of the page, because when the page gets loaded the person will look at the top of the page first.
- (xi) The centralised navigation will reduce the dynamic nature of a website. It is always desired to navigate to another page without coming back to home page.
- (xii) All websites are accessed using computers, which itself has calendar and clock. Therefore, inclusion of such features is unwanted. These can be reduced as

much as possible as they unnecessarily occupies space and increases the download time.

## 12. CONCLUSION

In Tamil Nadu, though all the universities have their websites, they lack a standard design and structure. The growing use of Internet among the general public including students, staff, etc., has revolutionised the process of university publicity and dissemination of information pertaining to university activities, services, rules and regulations, admissions, various sections, staff, etc. Library webpages of universities in Tamil Nadu not only serve as excellent media for publishing the library activities, programmes, resources and services but also help to bring to the notice of the user all the significant information which they must know in developing and using their libraries. The information provided in the webpages of universities in Tamil Nadu and their library pages need to be evaluated periodically using established criteria like web design, accessibility, arrangement, etc. This will help the universities to improve their websites according to the users needs.

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## List of Universities in Tamil Nadu

S. No	Name of the universities	Type	Year of establishment	Year of university status	URL
1	Alagappa University	A	1985	—	<a href="http://www.alagappauniversity.ac.in">www.alagappauniversity.ac.in</a>
2	AMET University (Academy of Maritime)	P	1993	2007	<a href="http://www.ametuniv.ac.in/">www.ametuniv.ac.in/</a>
3	Amrita Vishwa Vidyapeetham	P	1994	2003	<a href="http://www.amrita.edu/">www.amrita.edu/</a>
4	Anna University, Chennai	A	1978	—	<a href="http://www.annauniv.edu">www.annauniv.edu</a>
5	Anna University, Coimbatore	A	2007	—	<a href="http://www.annauniv.ac.in">www.annauniv.ac.in</a>
6	Anna University, Tiruchirappalli	A	2007	—	<a href="http://www.tau.edu.in">www.tau.edu.in</a>
7	Anna University, Tirunelveli **	A	2007	—	<a href="http://www.annauniv.edu.in">www.annauniv.edu.in</a> <i>site available but not accessible</i>
8	Annamalai University	U	1920	1929	<a href="http://www.annamalaiuniversity.ac.in">www.annamalaiuniversity.ac.in</a>
9	Avinashilingam University for Women, Coimbatore	P	1957	1988	<a href="http://www.avinashilingam.edu">www.avinashilingam.edu</a>
10	Bharath University	P	1984	2002	<a href="http://www.bharathuniv.com">www.bharathuniv.com</a>
11	Bharathiar University	A	1982	—	<a href="http://www.b-u.ac.in">www.b-u.ac.in</a>
12	Bharathidasan University	A	1982	—	<a href="http://www.bdu.ac.in">www.bdu.ac.in</a>
13	Chennai Mathematical Institute	U	1989	2006	<a href="http://www.cmi.ac.in">www.cmi.ac.in</a>
14	Dr MGR Medical University	A	1988	—	<a href="http://www.tnmmu.ac.in">www.tnmmu.ac.in</a>
15	Dr MGR University	P	1988	2003	<a href="http://www.drmgrdu.ac.in">www.drmgrdu.ac.in</a>
16	Gandhigram Rural University	U	1956	1976	<a href="http://www.ruraluniv.ac.in">www.ruraluniv.ac.in</a>
17	Hindustan University	P	1966	2008	<a href="http://www.hindustancollege.com/hindustan_university.html">www.hindustancollege.com/hindustan_university.html</a>
18	Kalasalingam University	P	1984	2006	<a href="http://www.kalasalingam.ac.in">www.kalasalingam.ac.in</a>
19	Karpagam University **	P	1989	2008	<a href="http://www.karpagamuniversity.ac.in">www.karpagamuniversity.ac.in</a>
20	Karunya University	P	1986	2004	<a href="http://www.karunya.edu">www.karunya.edu</a>
21	Madurai Kamaraj University	A	1966	—	<a href="http://www.mkuniversity.org">www.mkuniversity.org</a>
22	Manonmaniam Sundaranar University	A	1990	—	<a href="http://www.msuniversitytvil.net">www.msuniversitytvil.net</a>
23	Meenakshi University	P	1983	2004	<a href="http://www.maher.ac.in">www.maher.ac.in</a>
24	Mother Teresa University	A	1984	—	<a href="http://www.motherteresawomenuniv.ac.in">www.motherteresawomenuniv.ac.in</a>
25	Periyar Maniammai University	P	1988	2007	<a href="http://www.pmu.edu/pmuniv/index.html">www.pmu.edu/pmuniv/index.html</a>
26	Periyar University	A	1997	—	<a href="http://www.periyaruniversity.ac.in">www.periyaruniversity.ac.in</a>
27	PRIST University	P	1985	2008	<a href="http://www.prist.ac.in">www.prist.ac.in</a>
28	Sathyabama University	P	1992	2008	<a href="http://www.sathyabamauniv.ac.in">www.sathyabamauniv.ac.in</a>
29	Saveetha University	P	1984	2001	<a href="http://www.saveetha.com/">www.saveetha.com/</a>
30	SASTRA University	P	1987	2001	<a href="http://www.sastra.edu">www.sastra.edu</a>
31	Sri Chandrasekharendra Saraswathi Viswa Mahavidyalaya	P	1988	2005	<a href="http://www.kanchiuniv.ac.in">www.kanchiuniv.ac.in</a>
32	Sri Ramachandra University	P	1993	1993	<a href="http://www.srmc.edu">www.srmc.edu</a>
33	SRM University	P	1985	1994	<a href="http://www.srmuniv.ac.in">www.srmuniv.ac.in</a>
34	St. Peter's University	P	1985	2002	<a href="http://www.stpetersuniversity.org">www.stpetersuniversity.org</a>

35	Tamil Nadu Agricultural University	A	1971	–	<a href="http://www.tnau.ac.in">www.tnau.ac.in</a>
36	Tamil Nadu Open University	U	2002	–	<a href="http://www.tnou.ac.in">www.tnou.ac.in</a>
37	Tamil Nadu Physical Education and Sports University	A	2004	–	<a href="http://www.tnpesu.org">www.tnpesu.org</a>
38	Tamil Nadu Veterinary and Animal Science University	A	1989	–	<a href="http://www.tanuvass.tn.nic.in">www.tanuvass.tn.nic.in</a>
39	Tamil Virtual University	U	2001	–	<a href="http://www.tamilvu.org">www.tamilvu.org</a>
40	The Tamil Nadu Dr. Ambedkar Law University	A	1997	–	<a href="http://www.tndalu.org">www.tndalu.org</a>
41	Thiruvalluvar University	A	2002	–	<a href="http://www.tnuni.org">www.tnuni.org</a>
42	University of Madras	A	1857	–	<a href="http://www.unom.ac.in">www.unom.ac.in</a>
43	VIT University	P	1992	2008	<a href="http://www.vit.ac.in">www.vit.ac.in</a>
44	Vels University	P	1982	2001	<a href="http://www.velsuniv.org">www.velsuniv.org</a>
45	Vinayaka Missions University	P	1984	2001	<a href="http://www.vinayakamission.com">www.vinayakamission.com</a>