

# Evaluation of Websites for the Universities in Tamil Nadu: An Analytical Study

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**Abstract** - India is a computer-literate and Internet-savvy country. In general, the academic community in the country has pioneered the establishment and use of the Internet. Additionally, Tamil Nadu universities have been the leading institutions in the country in creating Web sites. As a result of these developments, academic institutions have been in a more privileged position to set up Web sites than other types of institutions. Their presence on the Web implies the desire of academic institutions in Tamil Nadu to provide better and more services to their students, faculty and Public. Although much of the resources have been committed to create and maintain academic institutions Web sites, there has been so little effort in evaluating the sites. The present evaluation paradigm is developed and designed against the background of general evaluation criteria of Web sites. These criteria are accuracy, authority, currency, relevancy, and stability of information. Since there is a lack of effort to examine the quality of information, a number of general criteria such as author's qualifications, objectivity, and coverage should be further used in evaluating information content provided by academic institution Web sites.

**Keywords:** Websites, Universities, Web Access, Navigation, Homepage Link, Accessibility

## I. INTRODUCTION

The growth of scientific technology is increasing day by day in the world. At the same time the information source and information needs also grow, because communication of information is a big tool for this growth. In the process of change, more and more academic institutions have created Web sites on the Web (Shemberg, 2000). Although academic institutions have extensive experience in providing computer-based information services, a great deal of effort has been invested in transforming useful information and services into Web access. Improvements on the design and layout of the Web sites have been made progressively. Text-based pages have been replaced by those with hypermedia design (David, 2000). In addition, many Web sites offer enhanced opportunities for communication, both in terms of interactivity, depth and breadth, and currency of the information resources available (Silva and Maja Zumber 2004).

The present evaluation paradigm is developed and designed against the background of general evaluation criteria of Web sites. These criteria are accuracy, authority, currency, relevancy, and stability of information. Since there is a lack

of effort to examine the quality of information, a number of general criteria such as author's qualifications, objectivity, and coverage should be further used in evaluating information content provided by academic institutions Web sites.

*A. Scope of Study:* For this study, a total of Forty Three University Web sites of public and private institutions of higher learning in Tamil Nadu are selected for evaluation. Institutions of higher learning which have not created library Web sites are not included in this study. Since the technology of the World Wide Web is not static, the possibilities for presenting new information can happen at any time. Therefore, the analyses of the content and design of the Web sites studied are based on the status of those sites at the time the survey is carried out.

Specific research questions to be addressed were

1. Do university websites meet usability criteria?
2. Do university websites meet accessibility criteria?
3. Do university websites provide access to services and material for remote users?
4. Do university websites provide any additional features to attract visitors?

## II. OBJECTIVES OF THE STUDY

This study aims to assess current university web pages in order to discover if they are meeting the requirements of their higher studies users. The objectives are;

1. To conduct a review of the relevant literature in order to establish appropriate criteria for use in evaluation
2. To design an appropriate and effective instrument for gathering data
3. To examine the websites of the universities in Tamil Nadu.
4. To collect the data with regard to the structure and contents of the universities in Tamil Nadu.
5. To analyze the contents and structure of the websites under study.
6. To compare the websites of various universities under study with the established guidelines.
7. To offer suggestions for the design of an ideal website for a university.

### III. DATA COLLECTION

The sample of 45 websites was assessed between 15th Feb to 28<sup>th</sup> Feb 2019. Evaluations began at the parent authority homepage. Links were followed to locate the Local Studies pages. All sites were accessed through the default settings of Internet Explorer, using a broadband connection of 100MB/s. All sites were viewed on a 15" wide screen monitor, set at a resolution of 1280 x 800.

### IV. ANALYSIS AND DISCUSSION

This chapter presents the analysis of data gathered through the evaluation of a sample of university websites in Tamil Nadu. The results were analyzed using the features of Microsoft Excel. Descriptive statistics were used to produce percentages, frequency tables etc. All the graphs depicted in this section were also produced using Microsoft Excel.

#### A. Location

TABLE I LOCATION TO LINKS PAGES

Location	No. of university websites	Percentage
Library Homepage	25	58
Authority Homepage	3	7
Multiple Location	5	12
Hidden Links	10	23
Total	43	100

It is found that 58% (25) of the 48 websites included for analysis included a clearly labeled link on their homepage; 7% (3) a link to the local studies page was only accessible through the local authority homepage; 12% (5) contained links in multiple locations; 23% (10) had 'hidden' links.

#### B. Aesthetic Appeal

TABLE II AESTHETIC APPEAL

Aesthetic Appeal	No of University	Percentage
Good balance of colour, text, graphic and space	19	44
Dense blocks of text, little or no use of colour or graphics	Nil	Nil
Distracting media too many colour etc.	24	56
Total	43	100

It is found that 44% (19) of the sample of 43 used good balance, 56% (24) didn't and none of the websites used distracting media or too many colors.

#### C. Layout

1. *General Layout:* It is observed that 79% (34) of the sample of 43 websites were found to have a clear logical hierarchy, with the most important at the top of the page etc. Conversely, 21% (9) were found to have an unclear or illogical layout.

TABLE III GENERAL LAYOUT

Layout	No of University websites	Percentage
Clear logical hierarchy	34	79
Unclear or illogical layout	9	21
	43	100

2. *Scrolling:* This section was used to record the type and level of scrolling required viewing the material on each page. It was found that 51% (22) required only minimum vertical scrolling, i.e. less than two screens of material on each page. Vertical scrolling of more than two screens worth of material was required by 49 % (21) of the sample. None of the websites evaluated required any horizontal scrolling at the settings used for the study.

TABLE IV SCROLLING

Scrolling	No of University websites	Percentage
Vertical scrolling(less than two screen)	22	51
Vertical scrolling(more than two screen)	21	49
Total	43	100

3. *Nonessential Pages:* The above table V noted whether the higher studies website included any pages containing little content of less than five lines of text, as these require users to click through several pages with little reward and are often found to be frustrating (Reid 2003). It was found that 7% (3) included more than three such pages, 40% (17) included less than three, while 53% (28) did not include any.

TABLE V NONESSENTIAL PAGES

Non-essential pages	No of University websites	Percentage
Pages(more than three)	3	7
Pages(less than three)	17	40
None	23	53
Total	43	100

#### D. Readability

In this criteria examined the general readability of the website. 74% (32) of the 48 sites analyzed were found to have no difficulties, i.e. the text is written in clear simple language with adequate spaces between the words, graphics do not interfere with the text and the page is scannable through the use of headings, bullet points etc. On the other hand 26% (11) were found to present some difficulties in this area.

TABLE VI READABILITY

Readability	No of University	Percentage
Difficulty	11	26
No difficulty	32	74
Total	43	100

E. Navigation: 'Ease of Use', 'Structure of Website' and 'Navigation' play 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 VII WEBSITES BY EASE OF USE/NAVIGATION FACTOR

Ease of use/navigation factors	Affiliated universities n=22	Private universities n=21	Total (Percentage) n=43
Sitemap is given	7	7	14 (33)
Search facility available	5	10	15 (35)
Active, inactive links are clearly visible	9	16	25 (58)
It is easy to navigate logically according to the broader category	20	20	40 (93)
The site has picture gallery	10	11	21 (49)
It has thumbnail size or full size pictures	4	5	9 (21)
Homepage link is available in all sub pages	19	20	39 (91)

The table VII explains that most of the universities in Tamil Nadu have proper structure and logically arranged contents (93 percent). But more than half of the university websites do not provide navigation tools like site map (33 percent), search facility (35 percent), etc. 'Reliability' factors are the basic factual data, which is expected from all the university websites.

1. Navigation Aids: The number of navigation aids, such as site maps, navigation bars, breadcrumbs, you are here indicators etc, used to help users move around the websites was also recorded. It was found that 65% (28) of the sample used more than three navigation aids, while 35% (15) used less than three different aids.

TABLE VIII NAVIGATION AIDS

Navigation	No of University	Percentage
More than three aids	28	65
Less than three aids	15	35
Total	43	100

2. Search Facility: This section was used to record whether or not a search facility is provided for the library or local studies library website or for the parent local authority website. The results showed that 15% (7) enabled searching to be restricted to the library web pages, 83% (40) only allowed searching of the parent website. A further 2% (1) did not provide a search facility.

TABLE IX SEARCH FACILITY

Search Facility	No. of University	Percentage
Library/ section	6	14
Parent authority site	36	84
Not searchable	1	2
	43	100

F. Consistency

In this criteria were used to measure how many websites in the sample ensured that design features such as the

placement of navigation aids, page titles etc. were consistent across all pages, reducing the need for users to 'learn' how to use each page. The majority of the sample 77% (33) maintained consistent design elements across all pages, 19% (8) contain some pages with inconsistencies, while frequent inconsistencies were encountered across the pages of 4% (2) of the sample.

TABLE X CONSISTENCY OF DESIGN ELEMENTS

Consistency	No. of University websites	Percentage
All consistent design	33	77
Some consistencies	8	19
Frequently inconstistence	2	4
Total	43	100

G. Currency

This criterion was used to establish whether university local studies web pages inform their users of when the site was last modified, and/or when the content was written. Just one of the websites assessed provided information on when content was added, while only 26% (11) of the sample of 43 websites displayed the date of when the site was last updated. The remaining 72% (31) did not provide any date information.

TABLE XI DISPLAY OF A DATE STAMP

Currency	No. of University	Percentage
Date of last update	11	26
Date when content added	1	2
No date	31	72
Total	43	100

H. Maintenance

It was recorded as well-maintained all the links on the website were working and no out of date information was displayed. It was found that the majority of the sample 74% (32) was well maintained, while 26% (11) of the sites

contained a few (less than five) broken links and/or some outdated content. None of the sites assessed contained many broken links or a lot of out-dated content.

TABLE XII MAINTENANCE OF CONTENT

Maintenance	No. of University websites	Percentage
All content up to date	32	74
Some out dated content broken links	11	26
Many broken links/out dated content	Nil	Nil
Total	43	100

1. *Responsibility for maintenance*: It was found that 12% (5) websites provided the name and contact details of the individual or group responsible, 44% (19) provided the facility to report errors without supplying any further details, while 44% (19) did not include this facility on their site.

TABLE XIII RESPONSIBILITY FOR MAINTENANCE

Responsibility of Maintenance	No. of University websites	Percentage
Named	5	12
Reportable	19	44
None	19	44
Total	43	100

### 1. Accessibility

It is investigated the evaluated by looking at the accessibility of text, images, and links separately. It was also recorded whether facilities were provided for the user to adjust the website to their individual needs.

1. *Text*: The majority of the websites in the sample displayed text in a fully accessible format, with 81% (35) using a Back Old man font of size 12-14, and colors, which contrasted with the background. However the remaining 19% (8) did not display text in an accessible form in their default setting.

2. *Images/Media*: It is noted whether images and other media were accompanied by a text alternative. Alternative text was supplied for, all images in 51% (22) of the websites and for most but not all of the images on 44% (19) of websites. 5% (2) of the sample did not supply any alternative.

3. *Links*: This section was used to record how identifiable and accessible the hyperlinks on each page are. It was found that 35% (15) of the pages presented links in a fully accessible format, i.e. they are clearly labeled, and use a different color text and change color when accessed. 60% (26) of the pages used links that were partially accessible, i.e. they were identifiable but failed to change color when accessed. The links presented on 5% (2) of sites were difficult to differentiate from surrounding text and/or badly labeled.

4. *Adjustability*: The existence of facilities to help the user adjust the settings of the site to their individual needs was also recorded. 28% (12) of the sites evaluated contain facilities on screen to adjust the size of the text and/or switch to text only display etc; 49% (21) provide a link to an accessibility page providing instructions on how to change the display etc. while 23% (10) of the websites were only adjustable through adjusting browser settings. The overall results for accessibility, depicting full, partial and non-accessibility are summarized in Table XIV.

TABLE XIV SUMMARY OF ACCESSIBILITY

Accessibility	Full	Partial	None
Text	81% (35)	19% (8)	Nil
Images	51% (22)	44% (19)	5% (2)
Links	35% (15)	60% (26)	5% (2)
Adjustability	28% (12)	49% (21)	23% (10)

## V. FINDINGS OF THE STUDY

1. University websites meet most accessibility criteria, but need to address the issue of links that don't change color when accessed. Additionally designers could consider including buttons on the page to enable users to adjust features such as text size.
2. The majority of University websites do provide at least a basic level of library information to allow users to plan a visit. More comprehensive coverage however would assist visitors further and encourage more users to visit by allowing them to fully appreciate the services on offer.
3. Access to services and materials for remote users could be improved by placing a link to library catalogues and databases on the local studies pages, providing guidance material in an accessible format, and by making more digital collections available. Links to useful external websites should be included as this is a feature appreciated by users that may encourage them to re-visit.
4. The majority of University websites does not provide interactive content or additional features, and have not embraced the potential of Web 2.0, but could adopt features such as blogs, RSS feeds and discussion boards to forge closer links with and between users.
5. Most usability criteria were met, but problems relating to the use of dense blocks were encountered.
6. Most websites were found to be presented in an accessible format, but problems relating to links not changing color are discussed.

## VI. 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 revolutionized the process of university publicity and dissemination of information

pertaining to university activities, services, rules and regulations, admissions, various sections, staff, etc. 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 user's needs.

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