4.1 Introduction

Measuring website quality has been a major concern since the inception of web. Moreover, with the advancement of web technology, the dimensions to evaluate quality kept on changing. As such it becomes difficult to analyse and focus on the critical dimensions which should be paid more attention relative to others. Additionally, comparing similar websites on quality fronts need some quantitative approaches. In such a scenario, the necessity to develop a quality system model for web environment arose which could be pursued quantitatively.

The criteria for evaluating website quality to sufficiently assess the quality of a website require assimilation of critical factors in hierarchy of their importance. Since, with the advancement of web technology the website quality metrics has also changed, the evaluation metrics framework need to be developed as a hierarchical tree in order of their criticality. The selection of a website in terms of quality is a complex multi-criteria decision problem. The problem may be solved using systematic and logical approach to assess priority based on the inputs of internal and external customers of website.

Evaluation is a generic term which is mostly conceptual. The criteria or parameters vary from person to person. The same item is evaluated by different researchers with different parameters and gives diversified output. There is no fixed or internationally accepted criterion for evaluation a website and specially academic or library website. As the time passes new points evolve and those are also incorporated during evaluation. The evaluation of a website is not much different from evaluating a book or a journal, as the evaluation deals with mostly the contents. Though it is obvious that evaluating factors applicable to website are bit more complex with inclusion of some technical aspects.
However, evaluating the website rather academic and library websites is not a very age old issue. The internet has evolved to be a great source of information in both current and archived category. The internet is mainly a huge network of interlinked websites and the information is available in the form of webpage with the links for navigation. So, during evaluation of websites both content and service needs to be taken into consideration for a successful and reliable output. Now a days the websites became the first impression point of any organization, because it gives an overview of the organization from anywhere of the world without visiting the building practically. The information given in any academic website governs the popularity of the particular institute. The university websites mostly provide information regarding their academic programs, student activities, amenities to attract students and in turn promoting them. Education in recent times, one of the most promising industries with exponential growth both in government and private sector and students and stakeholders mostly depend on the information available in the websites may it be admission, recruitment, scholarship, results etc.

The concept of evaluating websites mostly started in nineties as most of the literature found published during and after that period. The library websites might have some additional attributes as they have to contribute in service sector also along with disseminating information. One of the major factors for evaluating a website is the intention behind accessing it, whether it is accessed for fetching information or for leisure. Another point of view might come in the form of evaluator that who is accessing it, whether it’s an information seeker, technical expert or an education professional. The World Wide Web can be a great place to accomplish research on many topics. But putting documents or pages on the web is easy, cheap or free, unregulated, and unmonitored. Therein lays the rationale for evaluating carefully whatever found on the Web. The burden is on the readers, to establish the validity, authorship, timeliness, and integrity of what they find.

4.2 Why Evaluation

The information found on the World Wide Web has added a new dimension to selecting resources. Anyone can create a website. No one evaluated the quality or accuracy of the information found on the web before coming across it.
It is important to keep in mind that just because information is published in a book or journal, or appears in a movie or on the Web, does not mean that it is true. One must take the time to evaluate the accuracy of the information. On the web, anyone can, with no supervision or review at all, put up a web page. There is no systematic monitoring of much of what appears, except, of course, for articles published in the online forms of otherwise reputable scholarly journals and books. Biases, hidden agendas, distorted perspectives, commercial promotions, inaccuracies, and so on are not monitored.

So, following points can be considered while accessing an informational site:

- There is no standard format for web sites and documents. Web pages exhibit fewer clues regarding their origins and authoritativeness than print sources. Important information, such as dates, author(s), and references are not always easy to locate. While a reader can easily note this information in a book or periodical article, the web user must often search through several pages, if the information is provided at all.

- Internet sources are also not stable. Web documents can be changed easily. And once changed, the original is gone forever unless a specific effort is made to preserve it. In fact, many Web documents are intentionally designed to change as necessary, and with automatic changes as with manual changes, the original disappears.

- Web resources use hypertext links and need not be organized in any linear fashion. One can easily be led astray and distracted from the topic at hand. But, of course, one can also be led to additional information of value.

- The changing nature of the web and web documents create major problems with the stability of information and with links between different units of information. Dead or broken links on the Web are common and others just disappear or are not updated.

### 4.3 Need of Library Website Evaluation

Since the beginning of the 1990s, libraries started to design websites and provide services on the internet. Today the quantity of the information published on the internet, especially information present on the World Wide Web, is significantly greater than the information available on other forms of media. On account of the importance of university libraries in education and research and the significance of the websites of
these libraries, university libraries can suitably satisfy the needs of their users by being equipped with advanced information technologies.

Traditionally, students setting out to write research papers could trust that the library materials they used were not unduly biased. An academic library's print, non-print and electronic resources have been edited and checked for accuracy by scholarly organizations and publishers, then carefully evaluated by professional librarians for inclusion into the library's collection.

In a traditional library, the librarians work as a medium between users and the library resources and have duties, such as, assembling, organizing, and publication of information. However in a virtual environment, the librarians try to fulfil these duties completely and keep their role as a medium between the user and the resources. Websites of university libraries not only facilitate the identification and access to the printed and digital resources, but also help educate the users in application of the acquired information. These websites also act as windows to the outside world and play an important role in providing informatics services.

Moreover, Some Web sites are created by subject experts; for example, the University of Maryland Libraries home page and its associated pages are authored by librarians who are experts in the field of information. However, the vast majority of Web sites are created by non-experts. So, Researchers need to develop critical thinking skills in evaluating information, whether it comes from pre-filtered library materials or unfiltered Web sources.

Evaluations of library websites are essential due to the following:

- The web pages of libraries have many designs and varieties, but it is necessary for these websites to follow a certain framework in their design based on their users, which increases the need for the evaluation of these websites. Ignoring the design standards and not paying attention to updating library websites can lead to problems, such as, problems in searching and indexing, disrupting communication between the users and the library, decreasing the number of library's customers, wasting the time and energy of the users, and not realizing the expected information literacy.

- As university libraries and their websites play a significant role in providing the users with the necessary services, suitable methods of evaluation of these websites is
of great importance. In reality the goal behind the evaluation of university library websites is to guide them towards providing the users with accurate, correct, and authentic information. In other words, the website of a library is the symbol of the library and its services that is available to the entire world, which increases the need for correct evaluation of these websites.

Apart from these, evaluation of library websites are also necessary for Academic need, Publicity of the library Resources and services, Maintaining minimum standard and also for accountability, i.e. relation between information provider, website designer and the infrastructure of the organization.

4.4 Evaluation Parameters

From the pilot survey and literature search, it is pertinent that most of the authors (individuals and organizations) have tried to enlist the evaluating factors into 5-6 broad parameters. The basic factors are clustered in these parameters along with few additional special factors, suggested by them. Though there is no standardization of grouping of factors in a single parameter, yet the points are more or less clubbed in a similar manner. The sub grouping differs from author to author, organization to organization. But for the present study the evaluating points have been categorized into 6 parameters with additional special points that later amalgamated with the core parameters.

The evaluating factors, suggested by different authors/ organizations, have been summarized in tabular format under two broad categories viz. Common & Specific Parameters. Though most of the factors have been explained in the form of questions or sentences with or without subheading, but the concept have been centralized or clustered for better understanding and representation. The terms used are similar with two or more factors amalgamated while evaluated. The parameters are accepted from librarians’ aspect and the websites have been examined from service point of view.

Table 4.1. Parameters proposed by different Authors

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<tr>
<th>Sources</th>
<th>Parameters</th>
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79
<table>
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<tr>
<th>Source</th>
<th>Authority</th>
<th>Appearance</th>
<th>Objective</th>
<th>Coverage</th>
<th>Content</th>
<th>Accuracy</th>
<th>Currency</th>
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<tr>
<td>EETAP Research Library (1999)</td>
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<td>UC Berkeley Library (2012)</td>
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<td>Reference, Searchability,</td>
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<td>University of Maryland (2014)</td>
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<td>Internal search engine</td>
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<tr>
<td>University of St. Augustine for health sciences (2015)</td>
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<td>Dalhousie University Library (2015)</td>
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<td>√</td>
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<td>√</td>
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<tr>
<td>Kent State University Library (2015)</td>
<td>√ √ √ √ √</td>
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<td>Virginia Tech University Library (2015)</td>
<td>√ √ √ √ √</td>
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<td>Unique information</td>
</tr>
</tbody>
</table>

Parameters, in most cases, are common in content; though may vary by terminology. However, in some sources few are identified as specific. Identical parameters collected from different sources are discussed here in brief. Specific parameters are discussed at the end of the chapter with respective sources.
4.2.1. Common Parameters:

i. Authority:

Authority means the credibility and expertise of the producer of information on the web site. The purpose of knowing about the author or the publisher is to put the purveyor of the information in context. Knowing more about the organization or the author will help the researcher make better decisions regarding the information provided.

Information from government agencies, trade and professional associations, and major universities/research centers are considered reliable. The domain of the website also determines the category of the site. The domain of “edu” is limited to education based sites; “org” is used by organizations and includes not-for-profits that often have a reason, “gov” refers to government agencies; “com” is used for commercial or corporation sites. (EETAP Research Library, 1999)

Web pages are created with a purpose in mind by some person or agency or entity. There should be someone (person or agency) who claims accountability and responsibility for the content. The user should search the name of the author, or the name of the organization, institution, agency, or whatever who is responsible for the page. (UC Berkely Library, 2012)

A well-regarded sponsoring organization or an expert author. (Webpage content may not list an individual author.) (Lakeland Library Research Guides, 2012)

Anyone can create a Web site. It is important to find out the author's identity and his or her qualifications or expertise in order to determine the credibility and reliability of the information. (University of Maryland, 2014)

The user should read the “About Us” or other similar section, check the publisher (next to the copyright date at the bottom of the page), and take note of any bylines on individual pages. It should be made sure that the people and organizations affiliated with the site are reliable, knowledgeable, and not hiding a bias or ulterior motive. (University of St. Augustine for Health Sciences, 2015)

Authority reveals that the person, institution or agency responsible for a site has the qualifications and knowledge to do so. It should be clear who developed the site. Contact information should be clearly provided: e-mail address, snail mail address,
phone number, and fax number. The author should state credentials, or personal background that gives them authority to present information. (Dalhousie University Library, 2015)

Authority refers to (i) expertise or experience of the author with topic and (ii) their credentials and institutional affiliation. Does the URL suggest a reputable affiliation with regard to the topic—personal or official site; type of Internet domain. (Kent State University Library, 2015)

It's often hard to determine a web page's authorship. Unlike traditional print resources, Web resources rarely have editors or fact-checkers. There are no standards for information on the web which would ensure that all information there is accurate and useful. (Virginia Tech University Library, 2015)

To determine the authorship of a website, examine the page closely for information about the author and to see if anyone else has contributed to the site. A good website should provide a way to contact the producers of the site. Identify the type of Webpage i.e. educational, professional, and personal, advocacy, advertising, etc. Determine where they are getting their information. (United Nations, 2015)

**ii. Objective:**

A second important consideration on evaluating the content of a web site is to determine the audience for the page or site. Some sites are for academics or researchers whereas some sites are for the general public. (EETAP Research Library, 1999).

The evaluator need to be aware of the entire range of human possibilities of intentions behind web pages. In general, published information is considered more reliable than what is on the web. But many reputable agencies and publishers make great stuff available by "publishing" it on the web. This applies to governments, institutions and societies, publishing houses etc. (UC Berkeley Library, 2012)

Some sites provide links to information detailing the purpose in creating the Web site. The purpose of other sites might not be obvious at first. Take the time to thoroughly explore a Web site to determine if the information is mostly subjective, objective, or mixed. (University of Maryland, 2014)
The user may determine the audience of the web site by reading its “About Us” section, mission statement or purpose statement, layout (graphics, animation, banner advertising, etc.), and tone. Is the information presented in an unbiased manner, or does the writing indicate an extreme or passionate position? (University of St. Augustine for Health Sciences, 2015)

The purpose of the information presented in the site should be clear. Some sites are meant to inform, persuade, state an opinion, entertain, or parody something or someone. Evaluating a web site for purpose. (Dalhousie University Library, 2015)

Objectivity means whether the purpose and intention of the site clear, including any bias or particular viewpoint. Determining the audience of the page is also an important factor. (Kent State University Library, 2015)

Frequently the goals of the sponsors/authors aren't clearly stated. Often the web serves as a virtual soapbox where people express their opinions. The content of the page may be influenced by the advertiser. (Virginia Tech University Library, 2015)

To determine the objectivity of a website, check if advertising and informational content are being supplied by the same person or organization. Keep in mind that many websites with excellent information are sponsored by commercial entities or take advertisements to finance the website. (United Nations, 2015)

### iii. Coverage:

Coverage or Context is the setting in which the information is embedded. Coverage refers to the depth or breadth of the information provided. Bias is indicated by misleading statements, or outrageous, unsupported claims. Evidence of inaccuracy may include hasty preparation of the article or the web page and inconsistent quality. Spelling, grammar, and text errors may indicate sloppy preparation and information. The links from one site to others is an excellent indicator of the point of view of the site. (EETAP Research Library, 1999)

It is difficult to assess the extent of coverage since depth in a site, through the use of links, can be infinite. One author may claim comprehensive coverage of a topic while another may cover just one aspect of a topic. (Dalhousie University Library, 2015)
Web coverage often differs from print/scholarly coverage. Frequently it's difficult to determine the extent of coverage. Sometimes web information is just-for-fun or outright silliness. (Virginia Tech University Library, 2015)

To determine if the information is adequately covered on a website, compare the information with information found on other websites. Also compare the information on the website with information available in print sources such as books, journals, reports, etc. (if available). (United Nations, 2015)

iv. **Accuracy:**

The key to accuracy is in being able to verify the data. Citations and original data are valuable tools for the researcher in being able to double check the accuracy of the content. The same tools used for evaluating the accuracy of hard-copy documents should be applied to the web. (EETAP Research Library, 1999)

There are few standards to verify the accuracy of information on the web. It is the responsibility of the reader to assess the information presented. Evaluating a web site for accuracy. (Dalhousie University Library, 2015)

Anyone can publish anything on the Web. Unlike traditional print/scholarly resources, Web resources rarely have editors or fact-checkers. Currently, no Web standards exist to ensure accuracy. (Virginia Tech University Library, 2015)

To determine how reliable and free from error the information contained on a website, is important to look at who is hosting the site. A good website should state its purpose and intended audience. It is always a good idea to check with other web resources, journals or magazines that publish website reviews to see if the site has received a stamp of approval, and if so, by whom. (United Nations, 2015)

v. **Currency:**

For articles or free standing documents that are placed on-line, there is often a publication date, especially on items from universities or scientific institutions. When dates are not indicated, a “sense” of the currency of the document can sometimes be garnered by looking at the dates of publications or data cited.

Government data are often two to three years behind the date. In other words, the most current data may be dated two or more years ago. This does not mean the data are not
“good” or “valid.” There is an inherent lag between the gathering of the data and the preparation of the data into reports and published documents.

Many academic journals have long review periods and a backlog of articles to publish so some studies are delayed and then may appear older if the date is taken alone. The findings, however, may still be the most current. Therefore, it is important to consider the meaning of the research and compare the data and findings to other studies to determine if this is current information. (EETAP Research Library, 1999)

Currency and authority of information are judged by a web site’s copyright and updating date and assures the end users about the current and significant state of posted information. (Qutub & Mahmood, 2009)

The currency or regularity of updating information is vital for some types information and less so for others. For example, Web sites that provide historical information, such as the annual reports, Govt. proceedings, do not have to be updated as often as sites that provide news stories or stock market information. (University of Maryland, 2014)

Accurate information is up-to-date information. The bottom of each page may be checked for a copyright date or “Last Updated” note. Currency is particularly important in medicine and health sciences. (University of St. Augustine for health sciences, 2015)

Currency of the site refers to: how current the information presented is, and how often the site is updated or maintained. It is important to know when it was last updated, and if all of the links are current. (Dalhousie University Library, 2015)

Publication or revision dates are not always provided. Pages with broken links may not be updated regularly. If a date is provided, it may have various meanings, like first written, first placed on the Web or last updated. (Virginia Tech University Library, 2015)

To determine the currency of a website, find out when the page was last updated. Also look to see if there are broken links on the site, it could be an indication of an abandoned page. (United Nations, 2015).

vi. Appearance:

Navigation is vital for users to route their search within a web site. This can be achieved by proper titles, a location map and returning options to the homepage from any page of the web site. (Qutub & Mahmood, 2009)
Design, organization and ease of use are important considerations. Web sites can provide useful sources of information; but if they are slow to load and/or difficult to navigate, search or read, then their contribution or usefulness will be diminished.

It is important to keep in mind that just because information is published in a book or journal, or appears in a movie or on the Web, does not mean that it is true. One must take the time to evaluate the accuracy of the information. Researchers need to develop critical thinking skills in evaluating information, whether it comes from pre-filtered library materials or unfiltered Web sources. (University of Maryland, 2014)

4.2.2. Specific Parameters:

All the authors and organizations discussed about the common parameters suing different related terminology, whereas some of the authors also mentioned some special factors. The common parameters are also not discussed in a structured way. Besides those common factors, some specific or unique factors are also to be tested. They are:

a. Details about Library Resources/Services:

The Library is a service oriented organization. The quality of a library is determined by its services and resources. The information regarding its collection and serviced offered are the main key of attraction for the users and factor of evaluation of a library website.

Technical services such as acquisition, classification, cataloguing and circulation often come into view on library web sites. Provision of these services is the main purpose of any library web site so it is important to know which are offered and to what extent. Sometimes these descriptions also include related forms and online services like reservation, material renewal, fine calculation, purchase suggestions, “ask a librarian”, requests for photocopy forms and so on.

b. Use of Web Tools:

Web site aids or tools define all links that can help users to make better use of the web site and to find relevant information in a quick and simple manner. This section includes feedback link, index, FAQs etc. Unfortunately, very few web sites included these services. The modern day users are sophisticated and habituated of using web 2.0 tools for better and faster access. The factors like mobile OPAC, RSS, Blog, Social Networking Links and Android Apps are some of the facilities
c. **Use of the link by other reputed websites:**

One of the factors regarding reliability or reputation of a website is the reverse direction link i.e. how many websites link to this webpage. The searchability of a website by search engines also determines the reliability and authenticity of a website.

d. **Language of the webpage:**

The language of the website is also a major factor of concern for the evaluators. The library users need correct, error free information presented in a simple and user acceptable manner. The way of presenting the information is also means a lot for successful representation of library profile. It is also observed that in many countries, even developing countries libraries develop their web sites in their national language and English is often used as a parallel language.

e. **Internal search engine:**

Internal search engine is a facility to browse within the website for a particular keyword. As there is no standard practice for the design of a website, so users may get confused to locate their required piece of information. An internal search engine or a sitemap helps to find the pinpointed item within that site and guide to the page where the data is located or published.

f. **Navigation and Speed:**

The speed of loading the webpage is also a major item of concern for evaluation of website. The website should be designed in a way that there should not be any wild background, distracting image, high-end graphics which lowers the speed of loading the landing page also consumes lots of bandwidth or data on the part of the user. However, the distracting images or dazzling background may also irritate the users which in turn minimize the effective use of the website. However, the navigation of the website must be planned properly in such a way that the user can reach the location related to his requirement with minimum clicks.

g. **Value Added Services:**

Generally these “value-added” services are not part of a library’s main functions but they are becoming essential to compete with the “boom” of personalized services offered by many other web services. New arrival lists of printed or electronic
collections, job vacancies in the library, news alerts about any additions to collections etc. through newsletters or e-mail services, a calendar of upcoming events set up by the library, book vendor links for online book purchases are all examples of such services.

4.5 Summing Up:

Though the authors did not always pointed out a single parameter to accommodate all related questions or factors to be tested, the overall idea remains similar. The parameters have been explained in the form of questions to be asked or tested.

However, the library website design and analysis is somewhat different from regular website analysis. The library sector is mainly a service oriented profession and the website also intends to do so. The chief aim of the library site is to attract the users towards itself by offering sophisticated services both on & off the library building. The website also need to be specially designed and structured as the physical building where the resources and sections are arranged in way just the facilitate the users services with least effort & time of the staff and user both. The most important thing is that some of the library services can only be provided with a sophisticated website link like ‘WebOPAC’, Mobile App & ‘Ask-a-librarian’. The traditional services like Current awareness service & Selective Dissemination of Information may be represented by Blog and RSS etc. The library website may be treated as a mirror of the physical library which acts as promoting the library and thereby facilitating library marketing.