

# Study of Usability of Indian Websites

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**Abstract**— The aim of this research paper was to compare websites of Indian on the “Usability factor” using both automated tool and manually. Usability is one of the major factors that determine the successfulness of a website. It is important therefore to have certain measurement methods to assess the usability of websites. The methods could be used to help website designers make their websites more usable. Two automated tools first one as Web page analyzer which calculates different parameters such as no of HTML pages, no of Images. And second one HTML Toolbox which checks Download time ,Browser compatibility and HTML check & repair are used. Here I categorized websites according to shopping site, Education site, Government site, Company websites. Experimental Results shown in the paper gives Usability levels of websites.

**Keywords**—Usability, Web Page Analyzer, Qualidator, Websites, Usability Level, HTML.

## I. INTRODUCTION

The World Wide Web is used to access huge quantity of information available through the Internet. Different application showing different characteristics and backgrounds. Users visit Web sites, and also return back to previously accessed sites, if they easily find useful information, organized and presented according to a well-structured layout. Acceptability of Web applications by users strictly relies on their usability. Usability is one relevant factor of the quality of Web applications. If usability is more then quality of that website application is more. Recently, it has been receiving great attention, being recognized as a fundamental property for the success of Web applications. Defining methods for ensuring usability is therefore one of the current goals of the Web page research. Also, much attention on usability is currently paid by Industry, which is recognizing the importance of adopting usability methods during the development process, for verifying the usability of Web applications before and after their deployment [1].

Usability is defined in ISO 9241-11 as the “extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use “[2]. Here we are considering context of use as web page. So we are dealing with web page usability also usability can be defined as “how well and how easily a user, without formal training, can interact with an information system of a website” (Benbunan-Fich, 2001). Bernard *et al.* (1981) suggested that a “truly usable system must be compatible not only with the characteristics of human perception and action, but, most critically, with users’

cognitive skills in communication, understanding, memory, and problem solving .problems in getting usability results are basically due to lack of usability of the usability evaluation methods. Usability evaluation method itself will determine the accuracy of the evaluation. By using different evaluation methods, different results may be obtained for the usability of the same system. The quality of a website can be assessed in different ways.

Educational Website users are mainly concerned with the Information that they need. Information may be syllabus of particular subject or result. The question to be addressed is Can I find such information with minimum effort ? i.e website should be more usable.

Company sites differ from Educational and portal sites in that they provide information to the public about the company rather than transacting business or providing other services. For corporate sites font size, font color will be important parameters.

Portal sites are mainly concerned with the services hence for such sites loading time of web page is important parameter that should be considered.

Hotel sites are becoming a very popular method for booking hotel rooms. Travelers can book rooms from home by using online security to protect their privacy and financial information and by using several online travel agents to compare prices and facilities at different hotels. Hotel sites mostly focus on services that they provide.

## II. RELATED WORK

Suleiman H. Mustafa and Loai F. Al-Zoua’bi both worked on “Usability of the Academic Websites of Jordan’s Universities An Evaluation Study”. They concluded that Jordanian universities websites are educational organizations that aim to provide the information and services to its stakeholders in efficient ways. For this purpose they used automated tool as web analyzer and HTML Toolbox. It has been pointed out that some parameters of evaluation have satisfied when compared with the acceptable threshold values[3].

Thiam Kian Chiew and Siti Salwa Salim summarized many website usability issues and groups the issues into a set of 24 usability guidelines. The guidelines can be used to evaluate usability of websites as well as help Web designers and developers to build more usable websites. It uses the usability guidelines to build an evaluation tool, which can assist webmasters to improve their websites. The tool, namely WEBUSE, allows visitors to a website to perform evaluation on the website. Based on the responses provided by those

visitors, webmasters will know the good and bad usability aspects of their websites from the perspective of the visitors[4].

Maristella Matera, Francesca Rizzo, Giovanni Toffetti arughi Worked on “Web Usability: Principles and Evaluation Methods”. In this paper Evaluation methods and Web Usability principles are stated. For each evaluation method, the main features, as well as the emerging advantages and drawbacks are illustrated, so as to support the choice of an evaluation plan that best fits the goals to be pursued and the available resources. The design and evaluation of a real application is also described for exemplifying the introduced concepts and methods[5].

Jonathan w Palmer worked on “Web site Usability, Design and performance metrics”. The three studies reported in this paper represent an alternate, more generalized approach testing Usability and Design. The research contributes a set of constructs and specific metric measurement techniques that can help the continuing process of improving website design and testing[6].

Punam Bedi and Hema Banati worked on “Assessing User Trust to Improve Web Usability”. The dynamic calculation of trust, based on the features of the website, can be of significance in continuously assessing the trust level and hence usability of the site[15].

Kirakowski evaluated the user satisfaction with usability of 5 websites based on a questionnaire method. The authors developed a new questionnaire for the evaluation. The questionnaire showed that the evaluation of user satisfaction contributes to the successful development of websites[16].

Website Usability Testing Center at Wisconsin-Stout University to evaluate the usability of their University’s website. The researchers used qualitative testing criteria such as navigation times through subject evaluations to assess the usability of the site [17].

### III. MANUAL WORK

After an study of related resources [7, 8, 9, 10, 11] eighteen website usability evaluation parameter were identified as given below.

#### A. Usability Evaluation Parameter

##### 1. Name and Logo of organization

Name and logo of organization should be in proper place and with proper font size and color because it is the identity of organization. Mostly where it's easy to find, and that usually means the upper-left of the screen.

##### 2. Site search of website

In each website there should be site search option and make sure it's prominent. Usability guidelines tend to prefer the upper-right corner of the page. Keep the button simple and clear.

##### 3. Font size and color of Text

Font size readability decreases frustration that helps to no site abandonment. Also, make sure line spacing is adequate. Color of text is dependent on application where it is using.

##### 4. Load time of web page

If a site takes more time to load, most people will just leave. If we have broadband then that makes our patience even thinner.

##### 5. Contact us on web page

Contact us increases the satisfactory of the person surfing on web page.

##### 6. Link of Logo on web page

People expect logos to link to home-pages, and when they don't, confusion follows.

##### 7. Links of web pages

The underlined, blue link is a staple of the web. A little artistic license is ok, but consider at least making your links either blue or underlined. Links should stand out, and you should use them sparingly enough that they don't disrupt your content.

##### 8. Major heading

Most people don't read online, they skim. Use headings (major and minor) to set content apart and keep it organized. Headings should be clear, and for SEO benefit, using heading tags (<H1>, <H2>, etc.).

##### 9. Web advertising

Advertising on web page should be minimum otherwise user may deflect to other web page.

##### 10. Scroll left and right

Mostly scrolling should be provided this increases the readability .

##### 11. Organization of information

Information should be properly organized so that user will be happy that required content is found.

##### 12. Number of button link

Psychologists like to argue about how many pieces of information we can process, but if you start to get past 7-or-so menu items, think hard about whether you need them. If you've got 3 layers of flyaway Javascript menus, do yourself a favor and start over .

##### 13. Open new browser window

In case of links for each link click there should be separate browser window.

##### 14. Registration Information

Registration information should be proper there should not be many fields otherwise user will think it will take more time so there is chances of leaving that web page.

##### 15. URL Should be meaningful and clear

You don't have to re-engineer an entire site just to get new URLs, but do what you can to make them descriptive and friendly.

##### 16. FAQ or HELP option

Frequently asked question and help should be provided so that user should feel comfortable in using web site.

##### 17. Navigation aids

Provide sufficient navigational aids to help users moves around in the website. This includes providing links at the bottom of a page to allow users to go to the top of the page if the page is long.

##### 18. Orphan page

The website should contain no orphan page.

Above 18 points are manual Usability evaluation parameter that needs to be take care for good design of website.

## B. List of Websites compared

Table 1 List of Websites

CATEGORIES OF WEBSITE	URL OF WEBSITE
Education Site	http://su.digitaluniversity.ac/
	http://www.unipune.ac.in/
	http://www.mu.ac.in/
	http://www.witsolapur.org/
Shopping Site	http://www.infibeam.com/
	http://www.indiaplaza.in/
	http://www.ebay.in/
	http://www.futurebazaar.com
Corporate Site	http://www.iocl.com/
	http://icicibank.com/
	www.statebankofindia.com
	www.licindia.com
Portal Site	http://india.gov.in/
	http://www.bsnl.co.in/
	http://www.indiapost.gov.in/
	www.jobssitesindia.com
Hotel Site	http://www.tajhotels.com/
	http://www.theleela.com/
	http://www.orchidhotel.com/
	http://www.allstays.com/
Movie Site	http://imovies4you.com/
	http://www.imdb.com/
	http://www.watchmoviesindia.com/
	http://www.indiansites.in/entertainment/movies/
Social Networking Site	http://digg.com/
	http://www.stumbleupon.com/
	http://www.del.icio.us.com/
	http://technorati.com/
Downloading Site	http://www.metacafe.com/
	http://www.zapak.com/
	http://downloadhindisongs.blogspot.com/
	http://www.bharatmovies.com/

Above table shows the categorization of Indian Websites according to their use. Totally there are 8 such different categories. With respect to that Study is made.

In following table 2 Usability measures are given which represents satisfaction of no of Users in % in corresponding field.

We did survey of websites that are categorized in Table 1. Here 82 users had given their opinion about above evaluation parameter. For each parameter in Indian websites % of users are given those are satisfied.

For ex. First entry in column1 and row1 shows that 80% users are satisfied with parameter as name and logo of organization in education sites.

Table 2 Survey In %

	Indian Website							
	1	2	3	4	5	6	7	8
Name and Logo of organization	80	93	95	92	85	60	92	90
Site search of website	60	95	90	50	80	85	80	92
Font size and color of Text	85	88	85	65	88	88	88	88
Load time of web page	92	85	90	55	85	75	81	86
Contact us on web page	60	93	86	85	90	80	80	82
Link of Logo on web page	85	98	97	75	95	58	79	83
Links of web pages	87	88	90	65	80	65	87	81
Major Heading	93	91	90	85	75	90	86	83
Web advertising	95	95	87	67	85	60	83	84
Scroll left and right	58	60	80	70	60	65	92	88
Number of button link	66	75	75	65	65	80	94	80
Open new browser window	40	80	60	85	70	70	82	90
Registration Information	45	99	65	95	85	75	83	96
URL Should be meaningful	87	96	98	68	78	80	88	91
FAQ or HELP option	96	98	85	82	80	75	90	80
Navigation Aids	60	75	70	68	66	65	89	85
Orphan page	89	85	85	70	95	88	85	90
Organization of information	81	98	95	89	85	90	83	88
Total % of Usability	76	88	85	74	80	75	86	89

Below Table 3 analysis shows that shopping sites, Company Site, Hotel site, Social Networking Site, Downloading Site in Indian websites are more usable than other sites. 88% users are

satisfied with shopping site. While portal sites in Indian websites have less usability therefore only 74% users are satisfied. Most affecting factor in portal sites is there loading time of webpage.

**Table 3 Usability Level**

Categories of website	Usability % value	Level
Education Site	76	Moderate
Shopping Site	88	Good
Company Site	85	Good
Portal Site	74	Low
Hotel Site	80	Good
Movie Site	75	Moderate
Social Networking Site	86	Good
Downloading Site	89	Good

Pie chart for above Table analysis is given below[12].

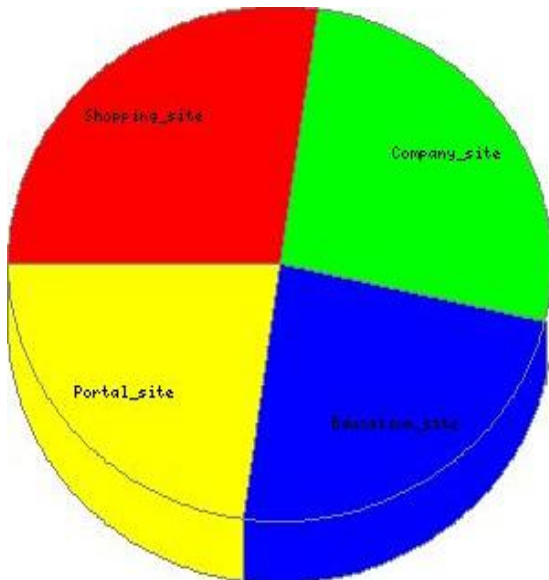


FIG 1. PIE CHART

#### IV. AUTOMATED TOOL

For analysis purpose Qualidator and Web page Analyzer as Automated Tools are used

##### A. Qualidator Tool

The quality of a website defines the success on the internet. The Qualidator [13] reviews the pages of a Website with about 60-70 automated tests, on the core aspects of usability, accessibility, SEO (Search Engines Optimization) and quality (technical quality).Qualidator Gives the Usability In % Value.In following Table for every listed websites Usability is given in %.

##### B. Web Page Analyzer

Website Optimization, LLC is a web performance and Internet marketing firm dedicated to increasing optimization of existing web sites.

Web Page Analyzer is a free web-based tool provided by Website Optimization [14]. It can calculate page size (Html page size, total image size, and total image number), composition, and download time for website. In following table for each website Load Time is given in sec for 1.44Mbps as connection rate.

**Table 4. Usability % in Indian websites Using Tool**

Web Site Name	Values	
	Load Time In sec (1.44Mbps)	Usability of website In %
<a href="http://www.infibeam.com/">http://www.infibeam.com/</a>	30.80	68.05
<a href="http://www.indiaplaza.in/">http://www.indiaplaza.in/</a>	19.42	67.80
<a href="http://www.ebay.in/">http://www.ebay.in/</a>	10.46	71.78
<a href="http://www.futurebazaar.com.">http://www.futurebazaar.com.</a>	28.94	72.66
<a href="http://india.gov.in/">http://india.gov.in/</a>	18.74	82.97
<a href="http://www.bsnl.co.in/">http://www.bsnl.co.in/</a>	20.95	57.10
<a href="http://www.indiapost.gov.in/">http://www.indiapost.gov.in/</a>	7.94	68.21
<a href="http://www.jobsitesindia.com">www.jobsitesindia.com</a>	2.08	71.37
<a href="http://www.iocl.com/">http://www.iocl.com/</a>	20.75	72.18
<a href="http://icicibank.com/">http://icicibank.com/</a>	18.35	65.56
<a href="http://www.statebankofindia.com">www.statebankofindia.com</a>	8.71	67.00
<a href="http://www.licindia.com">www.licindia.com</a>	10.23	65.00
<a href="http://su.digitaluniversity.ac/">http://su.digitaluniversity.ac/</a>	4.31	62.83
<a href="http://www.unipune.ac.in/">http://www.unipune.ac.in/</a>	12.48	71.07
<a href="http://www.mu.ac.in/">http://www.mu.ac.in/</a>	1.25	62.47
<a href="http://www.witsolapur.org/">http://www.witsolapur.org/</a>	12.40	69.25
<a href="http://www.tajhotels.com/">http://www.tajhotels.com/</a>	7.04	60.76
<a href="http://www.theleela.com/">http://www.theleela.com/</a>	10.95	69.02
<a href="http://www.orchidhotel.com/">http://www.orchidhotel.com/</a>	5.74	60.42
<a href="http://www.allstays.com/">http://www.allstays.com/</a>	7.44	81.02
<a href="http://imovies4you.com/">http://imovies4you.com/</a>	25.32	68.44
<a href="http://www.imdb.com/">http://www.imdb.com/</a>	33.56	70.19
<a href="http://www.watchmoviesindia.com/">http://www.watchmoviesindia.com/</a>	11.29	72.18
<a href="http://www.indiansites.in/entertainment/movies/">http://www.indiansites.in/entertainment/movies/</a>	11.79	73.18
<a href="http://digg.com/">http://digg.com/</a>	15.84	70.11
<a href="http://www.stumbleupon.com/">http://www.stumbleupon.com/</a>	18.37	72.51

Web Site Name	Values	
	Load Time In sec (1.44Mbps)	Usability of website In %
<a href="http://www.del.icio.us.com/">http://www.del.icio.us.com/</a>	0.20	65.80
<a href="http://technorati.com/">http://technorati.com/</a>	16.20	85.00
<a href="http://www.metacafe.com/">http://www.metacafe.com/</a>	21.41	75.34
<a href="http://www.zapak.com/">http://www.zapak.com/</a>	1.48	68.28
<a href="http://downloadhindisongs.blogspot.com/">http://downloadhindisongs.blogspot.com/</a>	1.92	80.13
<a href="http://www.bharatmovies.com/">http://www.bharatmovies.com/</a>	12.40	69.87

Following Table shows the aggregate Values of the Usability in each category Using tool.

**Table 5. Usability in % Using Tool**

Categories of website	Usability In % Using Tool
Education Site	66
Shopping Site	70.07
Company Site	68
Portal Site	69
Hotel Site	67.80
Movie Site	70.99
Social Networking Site	73.35
Downloading Site	73.40

In this study, we used two approaches: the approach based on Manual Work and the Approach based on automated tools. The results obtained from both approaches showed that the usability of Indian websites in different categories, based on the measures of Approach used.

From analyzing Manual Work and Automated tool we conclude that Indian websites are poor in Usability. In those website category shopping sites are more Usable than others categories. websites design should go through several design guidelines to ensure that users are more satisfied with the services provided by these websites.

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