Computing Quality of Navigation Designed into a WEB-Site

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ABSTRACT

People around the world are at web sites for want of information, doing shopping, conduct literature surveys, gain knowledge, post activities and actions, do chatting, develop communities, and organize events and many such purposes.

A vast number of websites are in use for information dissemination. It has become difficult to figure the web site where the information is available for which the user is looking. The search engine invented and implemented to help the user to locate the website where the information is available desired by the users. One of the most critical aspects of extensive usage of the web site is the navigation implemented within the development of web sites. People must be able to navigate across the web sites with ease and land up at the location where the information posted. Users get satisfied when the information that they are looking for is available with ease and within the negligible amount of time.

Many factors influence the quality of a web site out, which the factor "Navigation" is the key as it forms the backbone of any web site. If the web sites poorly designed, it leads to the implementation of poor navigation, and the user usually tends to ignore surfing such a website. Some contributions exist in the literature relating the definition and meaning of the factor "Navigation," but no formal methods, techniques, frameworks exist used for computing the quality of the website.

An approach / Model presented in this paper for computing quality of a web site considering "Navigation" of the website as the primary focus.

Key words: Structure of a web site, navigating a web site, assessing the quality of a web site.

1. INTRODUCTION

For the survival of WEB sites, customer satisfaction is the key. Customers will only get satisfied when web sites are high-quality sites. Therefore there is a needed to assess the quality of the web sites from multiple dimensions, find the weaknesses if any, and improve the quality. Multi-media objects have a significant effect on the quality of the WEB sites and therefore require considerable attention to enhance the quality of those objects.

The quality of a web site can be computed manually, using tools by using different kinds of assessment methods that are subjective, objective, mathematical, or statistical. Sometimes it is necessary to combine different ways. Cognitive models if used for evaluation of the quality of web sites, one can achieve accurate results reflecting the real condition of the web sites.

Many organizations are developing their content and also the way the content rendered. Most of the time, professional services are not availed, leading to poor quality web sites. The development of high-quality multimedia objects requires top skills and the use of advanced technology. It is difficult to get people having the expertise to develop high-quality Multimedia objects.

Different people think about websites in different ways. The way quality of a web site realized varies from person to person. Each person has their perception of the quality of the web site. A programmer looks at design, functionality, security, privacy, structure, and the like for assessing the quality of the web sites. Users look at look and feel, navigation, reliability, adequacy, consistency, usability, and the like. Designers' looks ate the issues like structure, depth of the web sites, response time. The lookout for quality varies from person to person.

The complexity of the web sites varies a lot from website to site. The web sites that deal with e-commerce, health services, animations, videos, audios, etc. are quite complicated. There is an interplay between the objects. Computing the quality of such kind of complex websites is quite complicated — different types of approaches and methodologies used for calculating a variety of such sites. Indeed, there is a need to invent a quality assessment framework that addresses the complexity, interplay, extensibility, and implements ability.

The starting point to assess the quality of a web site is to find the expectations of the end-users and in the next step, the quality parameters that match the expectations determined. The determined quality factors will form the base for computing the quality of the web sites. The next step is to find the metrics used for measuring the quality of the web sites. Finally, the techniques used for computing the variety of websites must be determined and use the same to compute quality in terms of the metrics that are selected.

May types of multimedia objects considered as part of the content posted on the websites. Different kinds of objects found for rendering content through web sites. The multimedia objects are interconnected. The display of one type of purpose has a bearing on objects. The content provided on the web sites is interleaved and sometimes interlinked as well. A composite model required for assessing the quality of web sites that have interconnected and interleaved objects. The composite model built using subjective, mathematical, and objective approaches. While some factors need the use of individual assessments like text assessment, some require the use of accurate methods such as in the case of fonts, and multimedia objects require the use of mathematical processes

Users have specific needs, WEB sites designed and implemented for implementing particular functionality. The gap between the user needs and the functionality supported must be determined and bridged

The quality issue considered varies a lot based on whether the web site is static or dynamic. The way quality computed plays a significant role. Quality, as such, is definable as there is no limit to describing what quality is. The quality requirements also keep changing from time to time. The methods presented in the literature classified into manual, objective-manual, mathematical, automatic, and semi-automatic. Subjective or objective assessments do reflect the real quality of the objects as there is an element of prejudice. In the case of objective evaluation, there is an issue of incompleteness. Especially these assessments will not yield proper quality assessment when it comes to multimedia objects.

The purpose of the web sites will be lost if the content posted on the web is erroneous, disconnected, and lack relevancy. Many factors considered that have a reflection on the quality of the web sites. There are as many as 42 factors, which include Navigability, structure, usability, maintainability, reliability, adequacy, look and feel, content, safety, multimedia, etc. The quality of the web sites needs to be assessed, considering each factor independently and also studying a whole lot of the factors. Each factor involves the consideration of many elements individually found and combines using different formations to evaluate the quality of the WEB sites.

Everybody in the world is experiencing the way information dissemination is taking place using a variety of data/information. Businesses are being conducted using web sites. E-commerce is in practice in a big way. The use of multimedia-based objects is taking place for conducting e-commerce. Multimedia objects that include graphics, videos, images, animations are being used for product display, marketing, comparing products, etc. so that the customers will have complete information before they select the products for purchase. Some of the practices that we do with help cannot be achieved in conventional doing shopping etc. While numerous advantages can be realized using the web sites, the challenge still lies in making an available quality web site. If the websites are poor quality sites, it will instead lead to a negative effect, and as such there can be information blockade

Thus there are several dimensions for evaluating the quality of a web site. Computing the quality of web sites considering the issue of navigation is more vital as it forms the backbone of a website structure. A framework that is extendable formulated on mathematical foundations is needed.

2. LITERATURE SURVEY

Naw Lay Wah et al. [1] have presented several metrics relating to computing the "usability" of the web site. The metrics considered by them include numbers of bytes of the content, number of words, number of pages, average link count, percentage of text in the content, etc. The metric most are useful to compute quality concerning the text posted on the web sites.

Analysis of contributions related to the assessment of the quality of the web sites reveals that many times, the authors focused on defining quality or elaborating on the nature of different factors, but no contribution witnessed relating to frameworks, metrics, and computational methods for computing the quality of the web sites.Social web sites are being extensively by many users for carrying extensive interactions among them. It has thus become essential that the quality of social websites computed. Long-Sheng Chen et al. [2] have attempted to figure out the quality factors that suit the computation of the quality of social sites. They have presented feature selection methods for selecting the features of the social sites that have to be measured to reflect the quality of social websites.

The quality of web sites, when computed mathematically, will represent the quality in a most meaningful manner. Kavindra Kumar Singh et al. [3] have used a tool for calculating the quality of a web site quantitatively. A method called WebQEM used for calculating the quality of the web site quantitatively. They have presented a strategy for evaluating the quality of the web site quantitatively. The model shown is quite sufficient and used for assessing attributes, sub-characteristics, and characteristics

Layla Hasan and Emad Abuelrub [4] have presented general criteria used for assessing the quality of a web site irrespective of the service it offers. They explained different dimensions considered for evaluating the quality of web sites. At the time of designing web sites, the designers must keep in view the dimensions, quality indicators, and checklists.

Content Presentation levels and playfulness built-in web site dictates the quality of a web site, as explained by Saleh Alwahaishi et al. [5]. They explained that few of the frameworks presented in the literature had not provided any metrics for measuring the quality nor computational methods for evaluating the quality of the web sites.

User-friendliness, content, design, and optimization processors used for building web sites must be considered for evaluating the quality as the web sites as presented by Filippo Ricca et al. [6]. They have explained that close attention made while organizing the web pages and the way the web pages are interlinked. The easiness with which the users can navigate is very much dependent on the organization of the web pages and the way the web pages are interlinked. They have also remarked that content presented in such a way that the website accessed in a user-friendly manner as per the preferences of the user.

The factors that include efficiency, maintainability, usability, functionality, and reliability are considered by Anusha et al. [7] for assessing the quality of the web sites. They have defined the factor "Reliability" as the factor related to the correctness, completeness, and dependable. They have also explained the factor "consistence" that is related to the ability built into the web site that yields the display of the same information precisely similar every time the user surfs the content, especially when it comes to the static pages. They have explained the quality of the functionality built into the web sites in terms of the extent to which the user requirements met.

They have elaborated on the issues of maintainability of a web site, which defined as the ability to make a change and carry testing of the web sites. Maintainability is the ability to make changes to the web site with ease. A change made in one place should not affect other web pages. The factor "Analyzability" is related to the ability to trace the navigational paths and also the ability to read the content with ease, and also, one should be able to interpret content so that complete understanding of the content gained.

The factor "Stability" is related to the ability that no concurrent running systems will be able to make changes to the web pages inadvertently. Testability is the factor relating to the ability to test the pages while the web site is in use.

Tanya Singh et al. [8] have used appearance, adequacy, security, privacy, and usability as the factors most important based on which the quality of the web sites computed. They have explained that the quality of a web site based on the element "Privacy," which is an issue related to making the content to those as defined by the owner of the original data. The information is made available to those users who are identified by the original data owners. The factor "Security" is related to preserving confidentially, the integrity of the data while the web content is on the move between the interacting customers and the web site providers. They have explained the issue of making complete fully connected and without loose ends within the content is related to the factor "Adequacy." They further explained that visibility, look, and feel are the factors related to the appearance of the web site.

The factor "Portability" is used by Andrina Graniü et al., [9] for presenting the quality of web sites. The issue of portability is related to the maintainability of the web site. The web pages developed on one machine when moved on to a different computer, and the code still works is an issue presented through the "portability" factor.

The factors Uniqueness, appearance, navigation, multimedia, content, design, and structure are used by Vassilis S. Moustakis et al. [10] for assessing the quality of the web sites. They have defined that the information provided on the web site is called the "content," and they expressed that the quality of a web site is related to the extent to which a web site is generalized, specialized, and reliable and completeness. They showed that the factor "content" alone is the deciding factor to assess the quality of the web site.

They have further deliberated on the issue of navigation, look, and feel. Navigation is an issue related to the way a user moves around different pages by clicking on the links provided in the web pages. The navigations system implemented for a web site reflects the quality of the web site. The navigation must be simple, and the links must be fully connected and functioning. The structure of a web site is the way the web pages are linked, which has an impact on the speed of navigating by the users across the pages. They have explained that the appearance of a web site is dependent on the way multimedia objects prorated on the web site. Look and feel will help to differentiate web site and make the website unique and distinct from others.

The factors that include flexibility, safety, and usability are used by Vijay Kumar Mantri et al. [11] for computing the quality of the WEB sites. They have expressed that the web site must be active from the point of Usability, which must be valid and efficient. They have explained the factor "Safety" as a non-exposition of the interaction of the user with the web site to the outside world. They have considered the factor "Flexibility" that relates to the ability to add, update, remove the functionality without the need to bring the web site down. They have developed a tool (PoDQA) and a quality model (SPDQM) for assessing the quality of web sites

Many users have used many factors for computing the quality of WEB sites. Miss. Kausar Fiaz Khawaja1 et al. [12] have used Information appearance, adequacy of information, security, privacy, and usability as the criteria for assessing the quality of the WEB sites. They have defined the factor "Usability" as the learning ability of the objects displayed as content by the users. In a way, this factor expresses the experience of the user in qualitative terms. They have also defined another factor, "Appearance," as the look and feel or the visibility shown as presentation or appealing.

Sastry et al., [13][14][15][16][17][18][19][20][21][22][23][24] have presented a number quality assessment frameworks that can be used for computing the quality of the content, usability, structure, look and feel, completeness. And they have also presented an overall framework used for calculating the quality of the web sites. They have given metrics for estimating the quality of web sites. Assessing the quality of a web site based on multimedia objects

3.   ASSESSING THE QUALITY OF NAVIGATION

Users move from page to page while looking for the data that they need. Generally, content to be hosted on the web site distributed into several pages, and hyperlinks used for moving from page to the other. Hyperlinks are URLs mapped to a menu item, objects, or traced within continuous data. Users' needs to navigate into greater depths if too much hierarchy followed for distribution of content among the pages. Too much time will be involved before the users reach content when the depth of navigation is high. Too less the depth will lead to hosting too much content on the same page, which also takes lots of time for the users to reach the point of desired content. Thus the design of the structure of a website keeping because of the depth of navigation is key, which determines the real quality of the WEB site. Sometimes users leave surfing when they have to travel across too much depth of the website. User satisfaction is directly proportional to the time spent by the users in navigating through the web site.

Many aspects need consideration when one needs to compute the quality of a web site based on the "Navigation" factor. The variety of navigating a web site depends on URL length or length of navigation, the number of inbuilt circular references, quick link existence, quality of image displayed to show the layout of the website, and placement of quick links at the most focused area of the web page — different methods required for computing quality of each of the sub-factor relating to "Navigation" factor. The methods are to be included in a model so that the overall quality of the element "Navigation" computed.

Assessing Quality based on Length of URL

A URL is a location where the intended WEB page located. It represents a kind of directory hierarchy. The string http://kluniversity.com/resreach/publications.html is a URL that implies that the web page publications.html found in the research directory, which a subdirectory to the "root directory" of the web site. The URLs are called hyperlinks. Users move around the web pages using URLs. Moving to a URL happens when the user clicks on any objects to which the URL is linked.

The length of a URL is the critical issue. The need to navigate to greater depths will arise when the length of the URL in terms of directories that exists in the path is long. The more the length of the URL, the more would be the complexity of surfing. The quality of surfing suffers to a great extent when the length of the URL is too large. Optimum satisfaction realized if the URL length is <= 3. Table 1 shows the relationship between the length of the URL and the quality of the website. These relationships can be built through expert recommendations or through development of a cognitive model generated when the user is interacting with the website.

Given the directory path of a web site, all the directories traced, and the related URLs generated, and the length of the URL computed based on the sub-directories discovered to reach the destination file in which the users expected content situated. While the web site navigated the same URL might hyperlink, which is nothing but the frequency of the URL is. The frequency of the URL is a kind of weight assigned to a specific URL. Table 2 shows the connection between the Length of the URL and the frequency of the URL Table 2 helps average computing length of the URL.

The Average length of URL = AURLL = URLF / URLw.

Using AURLLI (Average URL length), the QURL (Quality due to URL length) is computed using table 1. The frequency of occurrence of URLS calculated by subjecting the resource files to programs

Assessing the quality of Navigation through quick links

Quick links most frequently used hyperlinks. Users will quickly get through the content if the related hyperlinks are provided right on the top of the home page. The more the quick link, the faster the users receive the content. Too many quick connections, the home page will get clustered and becomes un-readable. If quick links added in which the users do not navigate regularly, the website will lose the essence. The quality of the WEB sites can be computed using the quick link factor. The number of quick links can be from the home page by looking for the links contained on the top of the page or bottom of the page. The effectiveness of the quick link computed by counting the frequency of clicking the link read through the web pages. The quick links graded as effective, good, Average, and Bad based on the frequency of usage of the links. The Grading of the quick link assessed by using table 3 generated by processing the WEB log file

There can be many quick links with different levels of grading. Table 4 shows the way to compute the quality of the web site considering the frequency and classification.

Quality of quick links computed as

QQL = WQL / QL

Assessing quality based on Circular referencing

Cross-referencing implies Page A navigates to Page B, and Page B navigates to Page. This kind of design affects the performance of the web sites as no-cache refreshing takes place. The more the cross-referencing, the poor is the quality of the web sites. Cross-referencing reflects weak navigational strength. Hierarchical navigation is useful as the user looks to navigate that way in the drill-down fashion — the number of circular references designed into the web sites computed by scanning through the resource files. Table 5 shows the way the quality of a web site calculated considering cross-referencing.

The quality considering circular references = QCQUE

Assessing the quality of WEB layouts

Some of the web developer when they enter into designing complex web site provides the layout of the web site as an image at some specific location. The image depicts the way the content distributed into various pages and the way the pages hyperlinked. But most of the time, the user is confused with this image either due to the wrongly laid image or the quality of the image itself is weak. Sometimes specific areas on the image are mapped to some URLs so that the user can navigate from the Layout diagram to a particular page. One of the concerns from the point of quality is the non-availability or the availability of a layout diagram on the web site, and the other concern is the quality of the layout diagram if made available as a part of the WEB site. Navigating to proper pages while clicking through some regions of the image is yet another concern. The following model will help to compute the quality of the web site considering the layout of the website

QAVLLAY = Quality - Availability of layout =

$$\{0 = non\ available | 1 = Available\}$$

QAVLCLICKS = Quality - Availability of hyperlinks on the Layout image

$$\{0 = non\ available | 1 = Available\} =$$

Table 6 can be generated based on the expertise of the domain experts or by seeking through ling the user perception

QLAYOUTIMG = Layout Image Quality

QLAYOUT = Quality of Layout = QAVLLAY * QAVLCLICKS * QLAYOUTIMG

Quality based on the Availability of quick links

Users look for availability of quick links either on the top of the page or bottom of the home page. Quick links must be links that are frequently used by the users — quick links never used affect the quality of the web site — the availability of quick links on top of the home page classified as high-quality pages. The following model is used for computing the quality of the web sites based on the positioning of the quick links on top of the home page.

QFREQUENT = Quality - frequently visited URLs =

Total quality of the website computed concerning navigation
$$\{0 = \boldsymbol{non\ available} | 1 = Available\} =$$

TQNavigation = QURLL * QQL * QCQUE * QLAYOUT * QFREQUENT

4. EXPERIMENTATION AND RESULTS

The quality assessment model applied to the existing website, the quality assessment for the WEBSite, is shown in Table 7.

The quality assessment **table 7** reveals that the URL length used and too many circular references are leading to poor quality and it also indicates the more flat structure is required to improve the quality of the WEB site

5. CONCLUSION

A designer of web sites starts with designing the structure and the way the user navigates for want of content across the structure. The ability to navigate across the WEB sites is the key. Structure and Navigation are the backbone elements of a web site. User satisfaction is dependent on the way they navigate across the website.

To judge how useful the website is, one has to compute quantitatively, the quality of the website, Subjective and objective way of computing quality, will not yield realistic estimates.

Several factors are in consideration for computing the quality of web sites. There are 42 factors to be taken into account for calculating the quality of the web sites. Navigation is the crucial element the quality of which assessed. Nor formal methods, techniques, framework exists in the literature for evaluating quality in respect to navigation designed by the WEB designers.

The model presented in this approach helps to compute the quality of the web site from the navigation perspective in terms of highly reliable estimates. The model reflects the weak areas of the design that needs to be improved.

REFERENCES

1. Naw Lay Wah, An Improved Approach for Web Page Quality Assessment, IEEE Student Conference on Research and Development, 2011. https://doi.org/10.1109/SCOReD.2011.6148757
2. Long-Sheng Chen1, and Pao-Chung Chang Identifying Crucial Website Quality Factors of Virtual Communities, Proceedings of the International Multi-Conference of Engineers and computer scientists, Vol 1, IMECS 2010
3. Kavindra Kumar Singh, Dr. Praveen Kumar, Jitendra Mathur, Implementation of a Model for Websites Quality Evaluation – DU Website, International Journal of Innovations & Advancement in Computer Science IJIACS ISSN 2347 – 8616 Volume 3, Issue 1 2014
4. Layla Hasan1 and Emad Abuelrub, Assessing the Quality of Web Sites, Applied Computing and Informatics, Volume 9, Issue 1, January 2011, Pages 11–29 https://doi.org/10.1016/j.aci.2009.03.001

5. Saleh Alwahaishi and Václav Snášel, Assessing the LCC Websites Quality, © Springer-Verlag Berlin Heidelberg 2010, pp. 556–565 https://doi.org/10.1007/978-3-642-14292-5_57

6. Filippo Ricca and Paolo Tonella, Analysis and Testing of Web Applications, Centro per la Ricerca Scientifica e Tecno- Logica, I-38050 Povo (Trento), Italy,

7. R.Anusha, A Study on Website Quality Models, Department of Information Systems Management, M.O.P Vaishnav College For Women(Autonomous), Chennai, Volume 4, Issue 12, December 2014, Pg:1-5

8. Tanya Singh, Sachin Malik, Darothi Sarkar, E-Commerce Website Quality Assessment based on Usability, Department of Computer Science & Engineering Amity University Uttar Pradesh Noida, India Pg101-105

9. Andrina Graniü, Ivica Mitroviü, and Nikola Maranguniü, Usability Evaluation of Web Portals, Proceedings of the ITI 2008 30th Int. Conf. on Information Technology Interfaces, June 23-26, 2008 https://doi.org/10.1109/ITI.2008.4588448

10. Vassilis S. Moustakis1,2, Charalambos Litos1, Andreas Dalivigas1, and Loukas Tsironis, Website quality assessment criteria, Proceedings of the Ninth International Conference on Information Quality, 2004

11. Vijaykumar Mantri, Dr. S. Kalaimagal, Dr. N.Srinivasu, An Introspection of Web Portals Quality Evaluation, Vol.5, No.9, DOI:10.15693/ijaist/2016.v5i9.33-38.

12. Miss. Kausar Fiaz Khawaja1, Dr. Rahat Hussain Bokhari2, Exploring the Factors Associated With Quality of Website Department of Technology Management, International Islamic University, Islamabad, Pakistan, Vol. 10, Issue 14 November 2010, Pg. 37-45.

13. Jammalamadaka, S.B. Duvvuri, B.K.K. Jammalamadaka, K.R.S. Priyanka, J.H., Automating WEB interface about user behavior, Advances in Intelligent Systems and Computing, 815, pp. 91-102, https://doi.org/10.1007/978-981-13-1580-0_9

14. Sastry, J.K.R. Chittibomma, C.S. Alla, T.M.R, Enhancing the performance of search engines based heap-based data file and hash-based indexing file, International Journal of Engineering and Technology(UAE), 7, pp. 372-375, 2018 https://doi.org/10.14419/ijet.v7i2.7.10722

15. Sastry, J.K.R. Sri Harsha Vamsi, M. Srinivas, R. Yeshwanth, G., Optimizing performance of search engines based on user behavior, International Journal of Engineering and Technology (UAE), 7, pp. 359-362, 2018 https://doi.org/10.14419/ijet.v7i2.7.10715

16. Sastry, J.K.R. Jyothsna Sai Sree, M. Mani Dedeepya, T. Kamesh, D.B.K., On selection of a user interface dynamically for displaying data mined results, ARPN Journal of Engineering and Applied Sciences, 12(11), pp. 3561-3572, 2017,

17. Kamesh D.B.K., Sasi Bhanu J., Sastry J.K.R, An architectural approach for assessing the quality of web sites, ARPN Journal of Engineering and Applied Sciences, 13(15), pp, 4503-451, 2018

18. Sastry, J.K.R. Sreenidhi, N. Sasidhar, K, Quantifying quality of WEB-site based on usability, International Journal of Engineering and Technology(UAE), 7, pp. 320-322, 2018 https://doi.org/10.14419/ijet.v7i2.7.10606

19. Venkata Raghavarao, Y. Sasidhar, K. Sastry, J.K.R., Chandra Prakash, V. Quantifying quality of WEB sites based on content, International Journal of Engineering and Technology(UAE), 7(2), pp. 138-141, 2018 https://doi.org/10.14419/ijet.v7i2.7.10280

20. Bhanu, J.S. Kamesh, D.B.K. Sastry, J.K.R., Assessing completeness of a WEB site from Quality Perspective, International Journal of Electrical and Computer Engineering, 9(6), pp. 5596-5603, 2019

21. B. Vishnu Priya, Dr. JKR Sastry, Computing Quality of Structure of a Web-Site, International Journal of Advanced Trends in Computer Science and Engineering, Volume 8, No.5, pp. 2142-2148, 2019 https://doi.org/10.30534/ijatcse/2019/44852019

22. B. Vishnu Priya, Dr. JKR Sastry, Assessment of Website Quality based on Appearance, International Journal of Emerging Trends in Engineering Research, Volume 7, issue 10, pp. 360 – 375, 2019 https://doi.org/10.30534/ijeter/2019/017102019

23. Sastry JKR, Talluri SL, A framework for assessing the quality of the web site, PONTE, 73(6),pp.20-34, 2017 https://doi.org/10.21506/j.ponte.2017.6.2

24. Sujatha, M.M., Prasada Rao, P.V.R.D.Sastry, J.K.R., Metrics for assessing the quality of WEB sites, International Journal of, Innovative Technology and Exploring Engineering 8(8), pp. 1710-1714, 2019

25. B. Vishnu Priya, Dr. JKR Sastry, Framework for Assessing the Quality of Multimedia objects hosted on a WEB site International Journal of Emerging Trends in Engineering Research, Volume 7, Issue 11.

Table 1: Quality assessment based on Length of URL

URL Length	Average Length of URL >= 6	Average Length of URL = 5	Average Length of URL = 4	Average length of URL = <=3
Quality Value	0.00	0.25	0.75	1.00

Table 2: Computation of weighted average length of URL

Serial Number	# of URL	Frequency of URL	Weighted URL length
1.	01	AA	1*AA
2.	02	BB	2*BB
3.	03	CC	3*CC
4.	04	DD	4*DD
5.	05	EE	5*EE
6.	06	FF	6*FF
	Total	AA+BB+CC+DD+EE+FF (URLF)	1*AA+2*BB+3*CC+4*DD+5*EE+6*FF (URLw)

Table 3: computing the weight of a quick link

Grade	Frequency	weight
Effective	Used every day	1.00
Good	Used once in a week	0.75
Average	Used Once in a Month	0.25
Bad	Never Used	0.00

Table 4: Quality Assessment of Quick Links

Serial number	Quick links Quality	Wt. of the quick link	#quick links	Weighted quick links
1	Effective	1.000	AA	AA * 1.009
2	Good	0.750	BB	BB * 0.759
3	Average	0.250	CC	CC * 0.259
4	Bad	0.000	DD	DD * 0.009
Total			A+B+C+D (QL)	AA * 1.0+ BB * 0.75 +C C * 0.25 + DD * 0.00 (WQL)

Table 5 : Quality Assessment based on circular references

Circular Ques	Cques >=3	Cques = 2	Cques = 1	Cques = 0
Quality factor	0.00	0.25	0.75	1.00

Table 6: Assessing quality WEB site Layout

Image resolution	600 * 600	800 & 600	1100 * 800	1100 * 1100
Quality factor	0.4	0.6	0.8	1.0

Table 7 : Assessment of quality navigation built into the design of a prototype website

Serial Number	Quality Factor	Quality Factor Code	Quality Value
1	Quality due to URL length	QURLL	0.75
2	Quality due to Quick Links	QQL	1.00
3	Quality of Circular references	QCQUE	0.75
4	Quality of site Layout	QLAYOUT	0.80
5	Quality of Frequent Links	QFREQUENT	1.00
	Total Quality related to Navigation		0.45