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## Website quality evaluation methodology universal star: 2<sup>d</sup> point-“design”

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### **Abstract**

The finished design is the result of a lot of painstaking work on the visualization, display of the structure and basic functioning systems of the website. And the main task of website design is to present information on the website in such a way that it is well perceived by the visitor, as well as to ensure a high level of usability of the site. In this spirit, the site design should be attractive, but not distract with its appearance from the information contained on the resource. Thus, what is web design? How to know if website design is working? How to know what to look for? With these considerations in mind, the article has developed a clear metric for measuring the quality of website design.

**Keywords:** Aesthetics, advertisement, color, compatibility, performance, website design and WQEMUS

### **1. Introduction to the top quality criterion “Design”**

Scientists and professionals referred to this quality feature also as display or presentation of site content<sup>[1-10]</sup>. It is a way in which content becomes available and visible to online visitors<sup>[11, 12]</sup>. Web design is an art of integrating text, graphics, sound, video, animation and other multimedia components with an optimal balance between size, luxury and performance to construct successful websites in various domains and to meet developer and user needs and expectations. Ha and Im<sup>[13]</sup> pointed out that a good quality of Web design has a positive and direct impact on the perceived quality of content, pleasure, arousal and indirect impact on satisfaction. This measurement relates to visual features and the appearance of the site design<sup>[14, 15]</sup>.

Individuals who took part in the in-depth interviews and survey recognize that website design attracts target groups of users, increases more users' interest to view content and encourages users to stay longer, enjoy the site, use its services and come back again. Thus, it should be created attractively and innovatively, but not complicated to slow down processing speed and misguide users.

Similarly, the respondents of in-depth and qualitative interviews supported both sides of this issue. The first group claimed that poor design bores, confuses, tires and upsets visitors. Thereafter, they agreed with the opinions of scientists that the probability of viewing even the best content<sup>[5]</sup>, using good services or buying worthy products decreases. Besides, poor design turns website users away<sup>[16]</sup> and worsens the reputation of site owners<sup>[7, 17]</sup>. However, the second group of the respondents does not care how information is presented since they are just interested in content. Furthermore, the homepage was considered as the most important page on the website than the others<sup>[18]</sup>, because it gets more users' views than any other page types. Homepage is the place, from where the journey to the site will really begin. That is why, basically, homepage design defines whether users like the website and whether it is pleasant to stay on it.

### **2. Methodology**

The methodology of this study is explained in detail in the methods section of a research paper, which is called “Website Quality Evaluation Methodology Universal Star: 1<sup>st</sup> point-“Content” and introduced by the author.

### **3. Sub-criteria of the “Design” criterion of the Website Quality Evaluation Methodology Universal Star (WQEMUS)**

#### **3.1 Aesthetics**

Website design is supposed to be attractive and pleasant enough for users to cause beauty

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and emotional appeal [15, 19, 20] such as happiness, joyfulness, cheerfulness and satisfaction, which may appear at any time while using the website [4, 5, 19, 21–27]. Here, aesthetics means web pages are beautiful, interesting and fun to use; and help users to promote their excitement through design, graphics, content, navigation, logical structure as well as screensavers, games, cartoons, software, up-or downloads, Q&A and other services [12, 28, 29]. This sub-feature is considered to be innovative [20, 27] and has an aesthetic impact by involving various colors, texture, layouts, animations, labels, font types and design itself, which should be consistent throughout the site [4, 5, 7, 9, 19, 24, 25, 27, 30–34]. Aesthetic considerations are paramount for web design. It also means that the site must be attractive to magnetize more target users. Further, already within the first few seconds of acquaintance with the site, users decide to remain on it or not [35]. These impressions will be formed during 50ms and continue to remain stable with all the time of arrival [36].

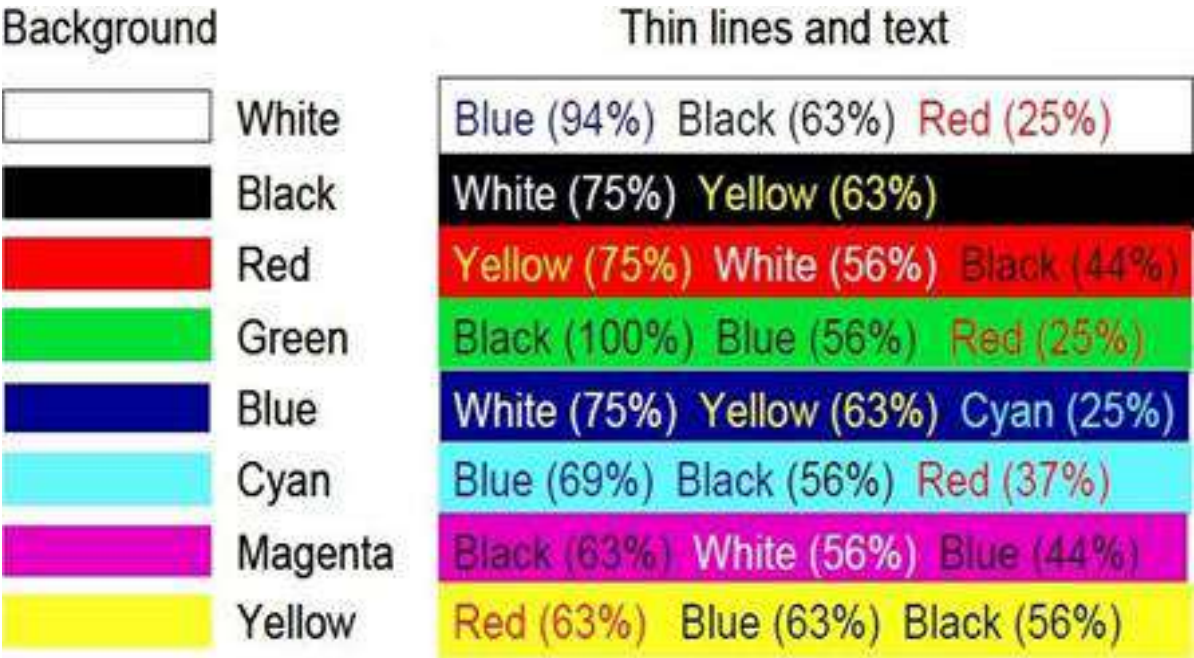
The present and numerous studies have confirmed that a very first impression on a website appears from beauty [37]. In addition, positive feelings, derived from a handsome website design, adjust users to execute complex operations easier [38, 39]. Moreover, the website cannot be made just black and white. Therefore, the respondents of our two interview studies prefer to have a friendly, attractive, beautiful and ease of use interface. Moreover, if a whole site’s design looks attractive, it means creators are professionals and more users desire to see this site. Finally,

each page of the website should have a similar design, color scheme, layouts and features.

**3.2 Color**

Text, images and other visual components of a website are formatted in an appropriate balance of color [2], size and spacing. Usually, the main attention is paid to the suitable and visible use of background and text colors [3, 7-9, 20, 24, 34, 40, 41]. Color usage should be easy on the eyes and serve functional purposes. Choosing a poor color scheme will distract visitors from content and make it hard-to-read. Thus, light and bold colors are preferable to use in the background and foreground of sites, respectively [32]. Two to maximum four colors and the same font on the site have to be used, as proved by [7, 42-44].

According to the current in-depth and qualitative interviews as well as user evaluation and judgement survey, an appealing color palette should be specifically opted based on the aims and objectives of the site in order to attract and focus visitors on content. If users get a “headache” after visiting websites within 10 consecutive minutes, a better color combination with high contrast options have to be selected (See Figure 1.1). Finally, using too many colors or bad color combinations irritate eyes and cause headaches, thus colors have to be appropriate, attractive and accessible for all types of users, including people affected by vision impairments. An outstanding choice of clearly visible color combinations can be made using the following Figure 1.1.



**Fig 1:** Harmonious and high contrast color combinations for Web design, site elements and content according to Murch [45]

**3.3 Performance**

This sub-item concerns the technical performance characteristics of a website and the amount of time that would be needed to perform certain tasks. Specifically, performance reflects website loading speed, search time, response times from commands, content access time and other kinds of operations on the website measured with time. All mentioned execution times should be short enough or within a reasonable limit [5, 7, 9, 30, 31, 46-51].

Next, web pages and forms should be opened within a few

clicks of the mouse or keyboard strokes [52, 53] and the screen size has to be determined explicitly [54, 55]. The site that has a slow loading time is less attractive than faster ones [56]. Apart from this, a significantly slow processing speed causes users to leave the site or abandon online transactions. 70% visitors expect from websites to be loaded within 12 seconds [57] or the page loading speed should not exceed 10 seconds of delay [18, 55, 58–60]. Actually, 64% of smartphone users left web pages when their response exceeded 8 seconds [61]. The average time of connection speed is

supposed to be 5 kilobytes per second <sup>[58]</sup> and thus, e.g. a web page of about 40kB size will be downloaded during 8 sec. Besides, the Nokia research center found that “a quick download time is more important than a visual look when it comes to subjective satisfaction of the users” <sup>[62]</sup>.

Our in-depth and qualitative interviews found out that not many people are patient. They have no time to wait and want to access a website and its components immediately. More than this, they hate to wait long. In this connection, the time of web page loads and task executions is a significant part of the customer/user experience and should be weighed equally with the aesthetics of sites otherwise, visitor frustration continues to grow up, which leads to potentially negative and unpredictable consequences.

### 3.4 Compatibility

Compatibility, expressed by a broad technical capability, professionalism and effectiveness of websites, should be accessed using a variety of multiple famous browsers <sup>[9, 40, 63]</sup> including Chrome, Internet Explorer, Firefox, Safari and Opera with the latest versions as well as operating systems, hardware platforms and devices. Websites have to be developed for browsers at least one version below <sup>[43]</sup> and of course for the latest versions since there are often significant visible differences in the ways that different browsers, even with different versions, handle technologies like HTML, XML CSS, and JavaScript. In addition, they should work properly using different screen settings and desirable mixes of monitor resolutions. Also, websites should not require the use of plug-ins and proprietary extensions to function properly. With these considerations in mind, browser compatibility <sup>[52, 64, 65]</sup> and device independence are considered within this sub-criterion.

Further, participants of our in-depth and qualitative interviews responded that they have to use different devices and browsers in most situations because almost everyone has a mobile phone with access to the Internet today. For example, they need to use different devices and browsers to look for more various information/data, search ticket/registration/parking details, ensure presentations or electronic tickets/files, check emails, and order via the Internet and etc., when they are at home or outside. Hence, accessibility for a large range of devices provides a huge

potential audience for the site and it is possible to maintain this range through compatibility or responsive design patterns that allow the site to perform well on all types of devices with different browsers.

### 3.5 Advertisement

The literature review and in-depth interviews gave an opportunity to find out this sub-criterion. We specify this sub-criterion with the words of MacKenzie and Lutz <sup>[66]</sup> as “a predisposition to respond in a favorable or unfavorable manner to a particular advertising stimulus during a particular exposure occasion”. Even a single web page, especially when it is the homepage that runs too many elements of ads becomes unfavorable and slows down the process of loading a whole site. On the other hand, findings from our both interview studies and user evaluation and judgement survey showed that the majority of respondents dislike unsolicited or too many contextual advertisements on sites, which is widely considered to be intrusive and irritating (especially, when ads look like a natural component of the site but then, suddenly redirect to an unnecessary place, page or digital channel after an impact). Moreover, respondents are concerned about stalker ads that if to shop a thing online, simply analyze or end up ordering, this thing is directly advertised everywhere of the site, uploaded in Facebook, popped up on Instagram, appeared on news sites and continues to harass the user everywhere. Ways to sidestep stalker ads are periodically clearing cookies, purging Google ad history, hiding or blocking the annoying ad, using a private browser and installing a tracker blocker. Consequently, the annoyed visitor is the lost visitor. Usually, advertising is everywhere because it generates income. Hence, if there are advertisements, they should be in a small amount and not distract or disturb site visitors from the content. We together with Achour and Bensedrine <sup>[33]</sup> and Olsina <sup>[67]</sup> advise that website pages should have only a few classified and properly placed ads in a reasonable place.

### 4. Measurable indicators for the sub-criteria of “Design”

There are five different sub-criteria for the design attribute that enhance the quality of website interfaces. Table 1.1 specifies these sub-criteria with relevant sets of quality indicators.

**Table 1:** Developed sub-criteria and their appropriate indicators for the “Design” criterion of WQEMUS

Sub- criteria	Measurable indicators
Aesthetics	Impressive overall look and feel of the website
	Third-generation design with adequate technology and innovative aesthetic effects
	Relevant, attractive and user-friendly website design
Perfor-mance	•Fast-loading website pages
	•Sequential appearance of text and then images/videos
	Short or reasonable response time from web page commands
Compatibi-lity	Short up- and download speeds
	Cross-platform and cross-browser compatibility
	Good view and website performance on PCs, laptops, smartphones, tablets and other devices
Color	Strong presence of the site in the search results of the most famous search engines
	Consistent and appropriate use of single colors
	Suitable light background colors and dark text colors or vice versa
	Beautiful, harmonious and clearly visible color combinations with a limited number of colors (Can be chosen from Figure 1.1 of Chapter 1)
Advertise-ment	Small number of color contrast errors
	Relevant and non-distracting ads.
	Distinctive ads from content
	Fewer ads



## 5. Conclusion and future work

Website design is the main component, how much the site will be pleasant and convenient for targeted visitors to perceive, the conversion and profitability of the business itself will ultimately depend on, and the site, as a tool, will sell more. In summary, the assessment of the design of the site can be carried out in the following important areas: expressive aesthetics, impressive performance, cross-platform and cross-browser compatibility, suitable and harmonious color, relevant, non-distracting and fewer ads. That is, the current paper is focused on the development of the second point of the holistic methodology called WQEMUS to measure the quality of all kinds of different websites irrespective of domain or services they provide, including Web 3.0 sites. As a future work, the third point of our methodology-WQEMUS will be developed.

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