

# SS2-WSD: A proposal for Evolutionary Standard Specifications for Web Site Design

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## **Abstract:**

In our earlier works [1], we described our standard specification for Web Site Design (WSD). However, in this paper, basic principles for Web Site design have been given. Then we proposed a second version of Standard Specification (SS2) for Web Sites design (called SS2-WSD).

The SS2-WSD is a set of guidelines for Web Developers, Authors, and Designers about how to design Web Sites under the stander specification.

## **Keywords:**

Web Site Design, Evolutional Criteria, Standard Specification, SS2-WSD.

## **1- Introduction:**

The Web Sites are increasing every minute of the day all over the world. The Web has not had a seized size. The Web pages number has jumped to 2.1 Millar pages in the latest of the Yahoo! Statistics [2]. In fact it is the Web that leads the Internet towards growth [3].

Millions of visitors (end-users) are waving the Web every day, and even more millions are using poor Web Browser equipments, or working under difficult user environments. If Web Site lacks features such as resizable fonts, images with proper text descriptions, and easy navigation, the visitors will be not able to access information correctly. However most of visitors that building Web pages are not professionals, since building and publishing Web Sites and pages are not their essential work, they save a fraction of experience in this field [3].

The Web Sites become so much as the published paper pages. The people began using the unsuitable programming tools and even continuing using these tools in spite of the accomplishing of fine and more suitable ones [3].

The main problem, when converting the Web Sites building, is the semi defect of understanding the difference between the process of Web Sites design and the process of graphic design [4]. The graphic design is not that of Web Sites design. The graphic design –that includes color theory, typography, art styles, visual styles, and others- is only a part of Web Sites design.

## **2- The Web Standards Organization:**

The advance nations continually seek creating tools and signals through which they measure the natural and humanitarian phenomenon, and not just depending upon personal beliefs and guessing. The marching depending on those measurements to plan their plans on objective bases which leads to forward successfulness of chances.

For Web, there are two main Web standard organizations: the W3C (World Wide Web Consortium), and the ECMA (European Computer Manufacturers Association), lead the Web standards.

### **2.1- W3C:**

The World Wide Web Consortium (W3C) was founded in October 1994 by Tim Berners-Lee (the inventor of the WWW). It is an international consortium dedicated to "lead the Web to its full potential" [5], which it does by developing specifications, guidelines, software, and tools.

The most important work done by the W3C is the development of Web specifications (called "Recommendations") that describe communication protocols (like HTML and XML) and other building blocks of the Web.

### **2.2- ECMA:**

The European Computer Manufacturers Association (ECMA), based in Switzerland, was founded in 1961 in order to meet the need for standardizing computer languages and input/output codes [6].

ECMA is not an official standardization institute, but an association of companies that collaborate with other official institutes like the International Organization for Standardization (ISO) and the European Telecommunications Standards Institute (ETSI).

To Web developers, the most important standard is ECMAScript, the standardization of JavaScript. ECMAScript is a standardized scripting language to manipulate Web page objects specified by the W3C Document Object Model (DOM). With ECMAScript, DOM objects can then be added, deleted, or changed. The ECMAScript standard is based on Netscape's JavaScript and Microsoft's JScript.

### **3- The Basic Principles for Web Site Design:**

The increasing popularity of the Web, the firms and institutions, made them start their own Web Sites. These Sites display their actual work. Anyhow, there are some main rules that preferred to be followed to design a Web Site, those are [1]:

1. The Web sites should be press clearly the purpose of making that site.
2. The user interface should add the necessary flexibility to make the Web navigation and getting the information would be easier.
3. The Site contents could be always improved with reasonable expenses.
4. Not only programmers, but also the directors, graphic designers have their artificial touches on the designing process.
5. More tools continually added to keep the site in security such as terms of security tools, recording some activities, statistical information and so on.

### **4- The Proposed Standard Evolutional Criteria of Web Sites Design:**

Though phenomenon of describing the Web Sites as being good or not has spread largely today, but yet their war not international standard evolutional criteria of Web Sits designing.

The Web Sites designing differ according to the purpose of setting the Web Site. Added to that, each international company it has own standards of by evaluating those Web Sites designing.

In our earlier works [1], we described our standard specifications for Web Site design. However, in this paper, we proposed a second version of standard specifications for Web Sites design (called SS2-WSD). The main SS2-WSD evolutional criteria are shown in figure (1).

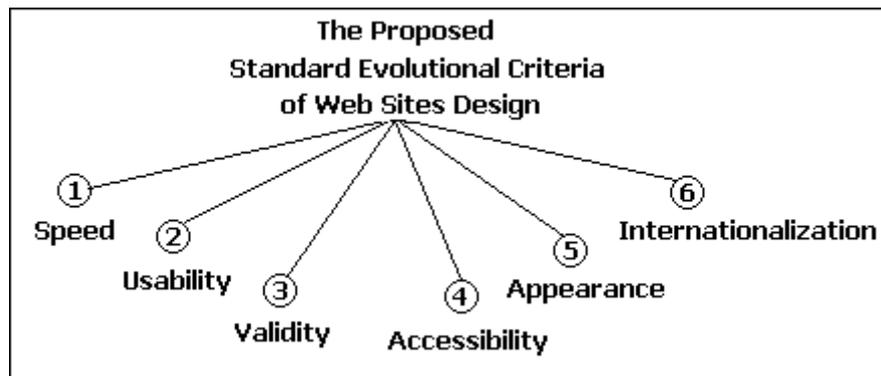


Figure (1): The proposed SS2-WSD evolutional criteria.

#### **4.1- The Speed:**

The speed of page's download time is the first developer concern for Web site developers because a page takes too long time to download. No one will wait for it to finish because large file size means long download time. This means that all of the time spent for developing will be wasted since no one will ever see your creation. The developer should address this concern by:

- Begin your page with text rather than images, so visitors know they have arrived at the right place.
- Avoid using large images, as they take very long to load, such as using bmp format files.
- Limit the number of images on the same page. The fewer the graphics the faster of download will be since each graphics will be time consuming.
- Reuse the images on several pages when appropriate, because the viewed images are usually kept in the memory cache of the browser, images will appear very quickly on subsequent page.
- Use thumbnail the images as link to larger images rather than put large images on the page immediately.
- Keep file sizes small. Each page can be presented using less than 50 KB, especially so home page because visitor expects fast access.
- Do not put too much text on one page; use a series of smaller pages if content can be divided into logical pieces. Smaller pages are easy to navigate through and allow users to print only the content that interests them.
- Use actual text that allow to copy, paste and search it, rather than use an image for text or use PDF files.
- Use Server-Side Programming Technologies rather than Client-Side Programming Technologies when we want to achieve some of secure programming activate.

#### **4.2- Usability:**

Web usability is the second concern for Web site developers because if a site is hard to navigate, visitors can not find the information they came for, or worse yet find themselves going in circles. If this happens they won't stay and won't come back. The developer should address this concern by:

- Arrange information in logical manner, and check with others –what may be logical for you may not be logical for them.
- Use standard footer with key links, Web master details modification date, and so on to easier navigation site accountability.
- Use "ALT" attributed to index an image. This allows users that do not wish to load images to identify the purpose of an image.
- Web page must be designed to display on an 800\*600 screen resolution. This format is actually most often used and is probably the one that is most easy to view with high resolution screens.

- Keep the navigation tools immediately visible. Do not make the user scrolling the page to find your navigation tools.
- Add Internal Search Engine box on homepage. The search function is more obvious.
- Add "META" tags to enable search engines for searching Web site.
- Users will have different sized monitors, deferent browsers and different platforms. Check your design on different setups to see what it will look like and how it will be displayed.
- Make the maintenance to update transient information because the old information is a good way to lose visitor.
- Use site map to provide easier visual navigation for first time and regular users.
- Also, A-Z index as an alternative navigation for first time and regular users.
- Use Menu-driven interface.
- Add Hit-Counter on the homepage to account the number of visitors.

#### 4.3- Validity:

A document that uses HTML coding according to the W3C specification is called "valid". Validity is important in Web pages, because it guarantees that your work will be rendered adequately by any HTML compliant Web browser. Pages that are invalid may be wrongly displayed or not display at all on various Web browsers. So the developer should address this concern by:

- Use only legally valid HTML entities for special characters. A side from the regular ASCII characters you get by using keyboard and it is shift key. There are many other characters available in the ISO latin1 repertoire that is commonly used on the Web. These include such items as accented letters (such as e, u and o), the copyright symbol © and the mid dot (.).
- Add <!DOCTYPE> declaration tag as the first line in HTML files, which tells the validator what version of HTML is used when examine a document.
- Do not apply text-level HTML elements to block-level HTML elements. The Web design group HTML reference shows you which HTML elements are block-level and which are text-level. A developer will get error messages from a validator. For example, if try to <b> outside <p>, or <font> outside <table> as following:

<b>Wring:</b>	<code>&lt;b&gt;&lt;p&gt;A Bold Paragraph&lt;/p&gt;&lt;/b&gt;</code>
<b>Right:</b>	<code>&lt;p&gt;&lt;b&gt;A Bold Paragraph&lt;/b&gt;&lt;/p&gt;</code>

And

<b>Wring:</b>	<code>&lt;font color="red"&gt;&lt;table&gt; &lt;tr&gt;&lt;td&gt;Any Text &lt;/td&gt;&lt;/tr&gt; &lt;/table&gt;&lt;/font&gt;</code>
<b>Right:</b>	<code>&lt;table&gt;&lt;font color="red"&gt; &lt;tr&gt;&lt;td&gt;Any Text &lt;/td&gt;&lt;/tr&gt; &lt;/font&gt;&lt;/table&gt;</code>

- Use ASCII character set to represent mathematical symbols. ASCII character set is available to all Web Browser, while the ISO-Latin is not conveying in HTML. For example:

Decimal Entity	Presented by Browser
<code>&amp;#162;</code>	¢ cent
<code>&amp;#163;</code>	£ pound
<code>&amp;#172;</code>	¬ not
<code>&amp;#177;</code>	± plusmn
<code>&amp;#185;</code>	<sup>1</sup> sup1
<code>&amp;#188;</code>	¼ frac14
<code>&amp;#190;</code>	¾ frac34

- Use ASCII character set to represent the mathematical equations rather than use images.

- Avoid specifying the widths of tables and table cells in absolute pixels; this prevents the table rows from shrinking or expanding to fit the visitor's window size. The result is that large tables can not be viewed on small windows without horizontal scrolling, and small tables seem orphaned in large windows.

#### **4.4- Accessibility:**

The HTML language that describes the structure of Web documents is portable. This means that it can be rendered on a wide variety of computer platforms and under a wide variety of conditions, but the limitations of HTML can be considered assets. The developer should address this concern by:

- Avoid elements that are not HTML standard tags.
- Distribute material in the format that makes most sense because HTML is not the best medium for some kinds of information. In many cases, PDF files, PS files or other kinds of formats are better. The visitor is not able to see them directly embedded in Web page.
- Avoid use much Java Applets, Java Scripts, and others subscribing programs in the same page, that cause failing to display Web page on the Web browser.
- Use alternative way to display information, that display by Java programs, because not all Web browser supporting Java.
- The Web site must offer several helper tools to help visitor for navigate Web site, such as use search engine or/and site map.
- The Web site must offer Database for archiving old published information.
- Use Server-Side Programming Technologies like ASP (Active Server Page) or PHP (Personal Home Page) to accessing database contents which stored on Server-Side.
- Use MS Access database for smaller file-oriented relational database, and SQL Server, Oracle, or Sybase for medium to large size relational database solutions.
- Use XML, and CSS (Cascading Style Sheets) to optimize access to the application for any device.
- Generate dynamic content based on information stored database.
- Use Cache Control code in the first place on the Web page, to turn off caching the dynamic content Web site. PC generally cache Web pages on the desk to reduce the time of a Web page reloading. However, for dynamic content this is not good feature, the user may be reading some stale information from the cache.

#### **4.5- Appearance:**

The last concern is extremely important on the Internet. It is important for developer to achieve a final "look" that will project the wanted image. A developer should address this concern by:

- Organization has to be more than just an impression. It has to be logical to the visitor.
- Too much clutter will give the impression that are cluttered or messy or/and that are disorganized.
- Avoid putting much empty space, because it will give the impression that has nothing this page to say.
- Site/information maintenance must be current and easy to update old information will give the impression that do not care.

As a Web site developer have a responsibility to the visitors. They are not just hits, they are user experiences. Every time visitors come to site they are experiencing the Internet through your design.

#### **4.6- Internationalization:**

With the Web follows absolute requirements to interchange data in a multiplicity of languages, which in turn utilize a bewildering number of characters.

- Label each Web document with the character set by using the following Meta Tag inside the HTML-HEAD Part:

`<Meta http-equiv="content-type" content="text/html; charset=X" />`

Where X is the character set used, like windows-1256 for Arabic-Windows, and windows-1256 for Western European-Windows.

All modern Web browsers are using the Unicode (ISO 10646) character set internally, while most documents transmitted over the Internet do not use the Unicode character set.

- Use an international standard format for dates as "yyyy-mm-dd". Don't use dates like "04-03-05" because this date could mean the fifth day of March in 2004. It could also mean the fourth day of March in 2005 or even the third day of April in 2005.
- Use bilingual Web site. This means using second language for Web site contents (as English or France Language behind Arabic Language).

#### **5- Conclusion:**

To make the Web a better place with its tremendous growth, for both Web developers and visitors, it is importance that the Web Site developers follow standards when developing new Web Sites.

However, "the future use of the Web will not be possible Web Site Design standards". The Web Site design needs standards to realize its full potential.

The proposed SS2-WSD evolutionary criteria for Web Site design will lead to:

1. Web design standards that ensure that everyone has access to the same information. Web developers should not have to struggle with several versions of code to accomplish the same result.
2. Web design standards make site development faster. Future Web sites will have to be coded according to standards to shorten both development and maintenance time.
3. When Web developers follow Web standards, Web development teamwork is simplified, since it is easier for the developers to understand each other's coding.
4. Standard Web files are easier for search engines to access and easier to index more accurately.
5. Standard Web files are easier to convert to other formats (i.e. from HTML into XML (Extensible Markup Language), or into WML (Wireless Mark-up Language).
6. Standard Web files are easier to access with program code (like JavaScript, and the DOM (ActiveX Data Objects)).

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