An Examination of Website Usability

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EVOLUTION

Strictly speaking, the term Usability has evolved from ease of use to also include design and presentation aspects. A large amount of research has been conducted using this wider definition. These studies include everything from model development (Cunliffe, 2000), to personal self image on Web sites (Dominick, 1999), to the purpose of a Web site (Falk, 2000; Neilsen, 1999, 2000), and to Web site effectiveness (Briggs & Hollis, 1997; Fichter, 2005). Ultimately, these topics are related to Usability and the success that a Web site enjoys. The construct of Usability covers a range of topics. This article specifically addresses Web Usability from the perspective of how easy a system is to learn, remember, and use (Rosen, Purinton, & Lloyd, 2004). The system features should emphasize subjective satisfaction (Cheung & Lee, 2005), low error rate, and high task performance (Calongne, 2001). In this regard, Usability is a combination of the underlying (hypermedia) system engine and the contents and structure of the document, and how these two elements fit together (Lu & Yeung, 1998).

USABILITY GOALS

At one time, Usability was an afterthought in the computer and information systems industry; the developers were rewarded for the features of an application, and not its Usability. Usability was a suppressed and barely-tolerated oddity (Nielsen, 2000). Typically, Web Usability is interpreted to mean how effective the Web site is at permitting access to its information. Site design should take into account the users characteristics, experience, and context (Badre, 2002; Chen & Sockel,

2001; Rau, Liang, & Max, 2003). People rely on their experience and use semantic models in an attempt to make sense out of the environment. What might seem an easy application for a design team can be awkward and difficult to the end user (Marinilli, 2002). Therefore, it warrants setting Usability goals and measuring them before a site goes into production. If the goal is set to be high task performance, a sensible measure might refer to the speed at which the Web pages load, given a particular hardware and software combination (Calongne, 2001). However, if the low error rate is the point of interest, then click-stream data and server logs might need to be analyzed to isolate patterns.

USABILITY ISSUES

Every Web page has an address on the Internet. The more recognizable the address, the easier it is for the user to become brand-aware and the more often they might return to the site. The address of the main Web page is typically called the domain name and appears on the URL address line of the browser. Typically, the Web is used as a marketing tool that allows millions of potential customers to visit a site each day (Hart, Doherty, & Ellis-Chadwick, 2000). However, before that can happen, a person needs to be able to find the appropriate Web page. In that regard, many individuals use and depend upon search engines to locate sites of interests. A serious problem is that a Web site's reference may be buried so deep in a search result that it will very likely go unnoticed, and hence will not be visited. The consequence is not only a Usability issue, it is also a visibility/profitability problem. To circumvent this issue, an organization should consider using meaningful Web addresses (URL), descriptive meta tags in

the DHTML, and XML code, key words in titles and paragraphs, and backward links (link referrals) to help enhance placement of a Web site in search results.

While search engines use Web-bots to find the pages on their own, it makes sense to register the site with the search engines so that search criteria can be tailored to the Web site. Studies show that the majority of all Web site traffic is generated through search engines and directories. The Web site's domain name becomes more meaningful to the user if it contains cognitive cues.

Design Issues

A goal of a Web page should be to quickly deliver quality content in a fashion that does not cause the person to become hopelessly frustrated. In this regard, "Time is a very big factor." A general rule of thumb is that a Web page should load in less than eight seconds; if it takes longer than that, users typically abort the request and go onto the next page of interest (Galletta, Henry, McCoy, & Polak, 2004). Based on an average basic bandwidth of the Internet providers, the eight-second rule translates to Web pages that are less than 50,000 bytes. The 50,000 bytes is the total size of the page, which includes icons, images, links, sound, and verbiage. Some users include too many images, which can cause three problems: cognitive disorientation, slow downloads, and excessive bandwidth use. Graphics should be used sparingly – only when they add and have a point (Nygaard, 2003).

The primary element in making a Web site usable is its design. Unfortunately, many people are anxious to skip steps and just go for a "product", without considering the "basics". As in the engineering field, the design has to be "defined" up front, along with the goals and objectives of the site. One cannot test quality into a product; it has to be designed in it. However, designing interfaces is a complex problem, quite different from typical engineering challenges, because it deals with users' behavioral aspects. Inadequate forethought, tight schedules, misconceptions, inappropriate attitudes and priorities, such as "Usability is a plus that we cannot afford now", and lack of professionalism are responsible for many of the poor sites (Marinilli, 2002).

Like in any other medium, the design should be aesthetically pleasing and balanced. To avoid optical confusion, the background needs to be just that, background. The site should use ample white spaces so that the site does not appear cluttered. A problem that developers face is that they do not know what size monitor the user has, what screen size the user is using, or the actual display size of the browser. The Usability issue includes the fact that each version of each browser type may interpret Web pages slightly different, with some browser releases not supporting many of the features. This is further complicated, in that there is a large mix of disparate technologies: different browsers, different versions of software, different machine-based applications. Further, there is a variety of different devices that are Web-enabled besides the standard desktop PC: TVs, cellular phones, watches, and PDAs. Each technology is associated with a different set of characteristics that limit its ability to be usable. Most Web sites were developed for viewing on "regular-sized" monitors; the trend now is that more users have small portable devices such as PDAs and cell phones. A great deal of developmental effort is needed for successful transitioning of traditional Web sites for adoption on the smaller-screen portable devices (Huang, 2003).

Hardware and Software Issues

Over time, the size and density of a view screen has changed; in the past, the standard screen mode size was first 480 x 600, and then 800 x 600 and larger. At one time, Web developers could pick one of the smaller sizes and be content that most users would be happy. This is no longer true; the devices that connect to the network can accept data faster, allowing for higher resolution images. They can process these images faster and crisper with lower energy costs. The number of devices set to higher resolutions are increasing. The resolution size of 1024 x 768 is rapidly becoming the new standard. Just as important as the change in the popularity of resolution size is the introduction of new devices; mobility has caught on and is a tremendous force. It is not uncommon to see laptop computers and other personal devices capable of wireless browsing of the Internet, tethered to an organizational wired LAN. Even though some of these devices are portable and could be mobile if needed, they are used in a stationary capacity behind organizational firewalls.

The newer equipment presents new concerns for the Web site developers; different screen sizes and modes present information differently. The smaller the screen mode, the larger items appear on the screen, leaving

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