2006

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ABSTRACT

The rapid evolution of information technology over the past several decades has opened many new and unique modes of communication. Clearly, the web is one such technology. However, it is quite possible that a fascination with the technology per se can hinder participants from one of its main functions— effective communication. The following essay explores a return to the basics of designing an effective web-based communication strategy. The key components of this strategy are: 1) consistent look and feel, 2) conceptual consistency, and 3) positive attention.

UNDERSTANDING WEB PAGE ANATOMY

The evolution of information technology from its rudimentary beginnings in the latter part of the last century to its current state has clearly been an amazing series of technologically driven advancements. Nothing exemplifies this advancement more than the development of the Internet and web. It was not that long ago that the IBM typewriter, the Dictaphone, and conference calls were the state of the art technologies, and it is even more difficult to conceptualize what the future may hold. But for now, the present is the period of the web: news, shopping, information, databases, businesses, entertainment, chat rooms, voyeurism, whatever the interest, it will be available on the web.

Curiously, almost ironically, with all the advancements in personal computers and allied technologies the focus is not all that different from that which was confronting Gutenberg and the development of the printing press— communication. The central function of the web, and a point often lost in a sea of gadgets and gizmos, is effective communication. The projected purpose of the following analysis is to begin to develop a set of rules by which good user-based communication can take place in the web environment.

Providing a Consistent Look and Feel: Planning

Perhaps the most important and most over-looked aspect of web design is planning. Planning is the point at which you define the goals and strategies of your website. The result of this planning is a "site plan" document. Your site plan document should ideally be a short concise document stating your goals and strategies for the site. Everyone involved in the project can then reference this document to determine whether the project with respect to direction, design or implementation is on track. The document can also act as a judge to settle disputes concerning new ideas, designs or technology. The site plan should state the mission of the company or organization and how the web site will support it. The plan will state the three most important goals for the site. The plan will identify the primary audience for the site. The plan should also include a rubric to determine whether or not the site has been successful in achieving the three most important goals. Once this site plan is developed it can be used to ensure consistency in all aspects of the site.

Consistency of design refers to layouts, typestyle, and colors within a visual interface. In the past, dynamic web pages made consistency a challenge. Various end-user devices used to access the content altered the ultimate presentation. For example, different monitors, browsers, or web devices changed the manner in which the information was displayed. Elements such as text appeared in a different font, size, or color than the one set by the designer. One traditional rule of thumb "design your pages with flexibility in mind" has always caused the web designer fits because it causes conflict between two design goals. The first is to make your site user friendly. The second goal is to present the content in the most understandable form. Web Designers feel they understand the best

way to present content so that it is not only easily understandable but also presents the image the company or organization desires. Making a website friendly and flexible means you let the user view the material in a typeface and size they prefer. This conflicts directly with designing a site that promotes the "image of the company or organization. In this case the website designer is trying to control every aspect of the web page. One side would argue, "You can't change the format of a book or periodical, so why let the user change the look of the web page" The other would argue "the ability to change format is what makes the web great." Without taking sides in this argument we will simply say that the creator of the web page attempts to build consistency into the website and therefore the web page.

The principal goal is communication. You want to aim for a functional and visually appealing web page while resisting the urge to create so many restrictions those end-user's needs are forgotten.

Use of White Space

An often-overlooked factor in web page design is screen resolution. Many web pages appear to tolerate a range of screen resolutions fairly well, some become a mess if you look at them in any resolution other than the one the designer intended. Screen resolution refers to the dimensions, in pixels, of your screen's display. There are three fairly common standards, the earliest standard is VGA. VGA supports a screen resolution of 640 pixels by 480 pixels. The next standard was SVGA this supported a resolution of 800 x 600 pixels. The most common resolution on new computers is XGA. XGA format will support 1024 x 768, 1152 x 864 or 1600 x 1200. Many designers often use 800 x 600 as a common denominator. Designers would rather you have additional room on the side and bottom of your monitor than to make you scroll the window to see the whole page.

The standard resolution for images and pages on the web is 72 pixels per inch. Computer monitors have resolution measured in pitch an entry level monitor will have a pitch of about 0.28mm, higher resolution monitors have a pitch of about 0.22mm this translates to display resolution of between 90 and 115 pixels per inch. This has the effect of making images and type smaller looking than expected. The original computers spoke of WYSIWYG pronounced wizzy wig it was an acronym that meant "What You See Is What You Get." Higher resolution monitors have made WYSIWYG a thing of the past. Suffice to say if a web page designer develops a page based on an 800 x 600 format and you view that page with a XGA monitor you will have a considerable amount of space not used by the web page.

Effective Web designers typically go to great lengths to lie out everything precisely, but it is impossible to design a page for every conceivable resolution. One of the newer innovations in web page design is CSS (cascading style sheets)(CSS2, 1998). CSS allows what is called "float" Wikipedia describes floating as "the alignment of an element (such as an image or table) to the left or right while text wraps around it." When used with a background on a web page the content "container" appears to always center on the page. The margins on the left and right expand according to the size of the browser window. This is on of many ways that CSS allows designers to precisely control everything while allowing the user to control their own browser.

As many computer users have found, making a basic web page is not that difficult. Making a page that meets the criteria of functionality and aesthetic beauty, however, can pose a challenge. Web page layout programs have made great advances but they are always a little behind the curve, the web page designer that is always quick to adopt new technology is going to have to tweak their code by hand.

Typeface Choice

Before we begin the discussion of choosing a typeface we need to discuss what is a typeface and what is a font. Many people use these two terms interchangeably but they are not the same thing. "No two words are as commonly misused as font and typeface. A typeface is a collection of characters–letters, numbers, symbols, punctuation marks etc.–that are designed to work together like the parts of a coordinated outfit. A typeface is an alphabet with a certain design, A font, in contrast, is a physical thing, the description of a typeface–in computer code, photographic film, or metal–used to image the type. The font is the cookie cutter and the typeface is the cookie." (Felici, 2003) Typefaces will give a certain unique look and feel to a web site. For example Helvetica and Times new roman are common typefaces. For example, we will select one sentence and compare several fonts.

The quick red fox jumped over the lazy brown dog (using Impact)
The quick red fox jumped over **the lazy brown dog** (using Adobe Garamond)
The quick red fox jumped over the lazy brown dog (using Arial)
The quick red fox jumped over **the lazy brown dog** (using Andale Mono)
The quick red fox jumped over the lazy brown dog (using Snell Roundhand)

The main idea here is that typefaces will give different feelings. "No one would wear the same shoes to go dancing, run a mile, or climb the northface of the Eiger, and walk to the office…This also applies to type, Sometimes the letters have to work hard to get across straight facts or numbers, or they may need to dress up the words a little to make them seem more pleasant, more comfortable, or simply prettier. (Spiekermann & Ginger, 1993)

The height of the typeface is measured in points, each point being approximately 1/72 inch. The point size of a typeface is measured from the top of the tallest reaching letter to the bottom of the lowest reaching letter. Generally speaking no one letter can be measured to determine the typeface size however most capital letters represent about two-thirds of the typeface size.

It is important to be aware of one special kind of typeface known as "monospaced type". These typefaces got their start on typewriters where the mechanical nature of the machine did not allow for fonts of differing widths. Instead each character was afforded exactly the same width whether it was an "I" or an "M". This rather clumsy form of typesetting had one advantage; all letters in all lines set in this monospaced type would align vertically. Monospaced typefaces are still used today when that is an important feature. One place where this feature is most often seen is that of tables of numbers, such as financial reports. In this case all rows of numbers and decimals line up vertically making it easy to compare numbers from one row to the next.

Computers and devices use two methods to represent fonts: bitmapped and vector graphics. A bit-mapped font means that every character is represented by an arrangement of dots. To print a bit-mapped font, a printer simply locates the font bit-mapped representation stored in its memory and prints the corresponding dots. Each different font requires a different bitmap.

Postscript and True Type Fonts

The other font description method utilizes an object-oriented, vector graphics system to define fonts. Adobe Systems Inc. came up with this system and uses the trade name Postscript®. PostScript is primarily a language for printing documents on laser printers and electronic documents. PostScript is the defacto-standard for many desktop publishing applications because it is supported by imagesetters, the very high-resolution printers used by service bureaus to work for high-end printing.

TrueType is another object-oriented, vector graphics font technology developed jointly by Microsoft and Apple. Postscript and TrueType use mathematical descriptions of outline shape of the font this description includes short straight lines and curves called Bezier curves. However because TrueType support is built into all Windows and Macintosh operating systems, anyone using these operating systems can create documents using TrueType fonts.

With Postscript and TrueType the font can be displayed in any size, so a single font description really represents many fonts. For this reason, vector fonts are scalable; they can be sized up or down. This feature is also the aspect of vector type that makes typographers cringe. As the height of typeface is reduced, its stems and crossbars appear heavier, as typefaces are increased in size the reverse is true, the typeface does not have the weight.

Besides scalability the main advantage of vector fonts over bit-mapped fonts is that they make the most of high-resolution output devices. Bit-mapped fonts look almost the same whether printed on a 300-dpi printer or a 1,200-dpi printer because they are often static. Vector fonts are said to be "device independent" this means a vector graphics font will be printed at the maximum resolution of the device that is imaging the typeface. So with vectored graphics the higher the resolution, the better, they look.

Vector fonts do not typically look good on low-resolution output devices such as monitors and ink-jet printers. These devices typically lack postscript RIPs (Raster Image Processors). Many computer systems, therefore, use bit-mapped fonts for screen displays. The nature of vector typefaces is that every character must be generated, as it is needed. This is a computation-intensive process that requires a powerful microprocessor to make it acceptably fast.

With the vast variety of font-styles and types available today, the temptation is to use as many as possible. In the early days of desktop publishing and laser printing when fonts became very accessible, users were often tempted to include as many as possible into a document. Documents often looked like a ransom-note- too many type styles. As stated earlier, consistency is the key to a good communication strategy. A good rule of thumb is no more than two typefaces per document.

Color Choices

The Web has a huge palette of colors available for your pages. Color is a simple way of enhancing web pages appearance while not adding downloading time for end-users accessing your pages. To get colors to look good, however, can require some skill.

The trick is to avoid color dithering. Specifically, not all monitors can see all colors- some see millions, some see thousands. Worst of all, Windows, Mac and Linux machines don't even see the same sets of colors. Dithering occurs when you define a color that the client machine can't see, that machine tries to fudge the color by combining colored pixels that look similar to your color when viewed together. Unfortunately, the effort is not always successful, causing unattractive combinations. Dithering can be a big problem particularly for background colors as it creates dot patterns that may make text, laid over that background difficult to read.

Developed early on to prevent dithering, "the Netscape 216 palette" was developed to set web color standards. First implemented in Netscape Navigator, this palette is supported by all popular browsers, adding color consistency across machine platforms. The palette is also called 6x6x6 because it defines six values of red, green and blue making 216 possible colors. Learning the Netscape palette takes a little extra work, and your first obstacle could be your HTML editor. When you pick a color within an editor, you usually use the typical RGB color wheel (the RGB system indicates colors by giving values for red, green, and blue). The color wheel spans the RGB 24-bit color space, far beyond that of the Netscape palette. The HTML color space is defined by using select values within the 24bit color space. These values are defined using their hexadecimal value. Lack of attention to this detail can give rise to dithered colors.

Eye-catching vs. pleasing

Web sites are designed for different industries. For example a web site for www.mgm.com is designed to be very eye catching and exciting due to the fact that they are in the entertainment industry. A network company such as www.cisco.com is more corporate and less eye catching simply because they are in a different type of industry. The point here–different companies have different users and clients; those clients/customers have different needs and expectations, a site must be developed with those needs in mind.

Site Theme

The information presented on the web site is driven by the objectives developed during the planning stage of web site development. The Design theme will plot to a grid that sets the amount of time a user will have contact with your site against the detail and robustness of your information. This continuum, ranging from short to long on the contact side then simple to detailed on the information side. Because the developer has specified the audience they will set the proper mix of information and detail in the site. In the sites listed above, the needs of the audience determine that the MGM site would provide a good deal entertainment driving the contact time up, but level of detail in the information is relatively low. This is consistent with entertainment sites as a whole. The Cisco site on the other hand is designed to satisfy the networking professional. The site is designed to give detailed information to the user looking for a specific product or issue.

Conceptually Consistent

The web site designer needs to be consistent with the theme they choose throughout their web site. For example it would be inconsistent for Cisco to provide a game on their web site or information about the personal lives of its CEO. Whereas it would not be inconsistent for MGM to provide those things on their site. MGM would be inconsistent if it provided detailed information about the camera lenses it used for photographing a particular movie.

There are always cases where someone might find inconsistent information useful, but inconsistency is defined by the majority of the site users finding the information useless. Design consistency comes form establishing a layout and navigation scheme and sticking to it. Users benefit when the page design and site is predictable.

Web Page Navigation Aid

A site may look good and offer useful information but if it doesn't have a sensible navigation scheme, it will confuse end-users. A simple, understandable navigation scheme is a key factor in creating a useful website. It's a critical aspect of site design that has a direct effect on the bottom line success. Navigation is mostly a matter of common sense and although it varies for different types of sites, there are certain basic principles that apply to almost all sites. Here are the three basic principles of web site navigation:
1. Make sure users know where they are in your site and how to get to the Home page.
2. Inform end-users exactly what is available on your site.
3. Provide consistent navigational links of every page in the same place
4. Augment the browser "Back" and "Forward" buttons with "previous" and "next" buttons.

Positive Attention

Creating a successful Web site takes patience. You must wait for the visitor to come to you and engage your site's attractions. The better your site (useful, informative and fresh), the greater the likelihood of keeping the visitor. In fact, it is notoriously difficult to catch and keep users' attention on the Web, which offers so many interesting distractions.

The key is planning. Despite the Web's seemingly random and constantly evolving state, there's nothing haphazard or quick and dirty about a profitable Web site. It takes coherent design and carefully thought-out content; as the saying goes, you can catch more flies with honey than with vinegar. Once the site is up, you've got myriad ways to get the word out and leverage the site to fix your company in the minds of consumers. Some methods cost pennies, others cost thousands; the trick is figuring out which ones are worth the price.

How to Obtain the Wrong Kind of Attention

The wrong attention comes when the site designer has ignored or overlooked the needs of the intended user. Why would anyone go to a web site that fails to provide sought-after information? With the advent of blogs and user groups, word gets around quickly about new sites and whether they are good or bad. That said, here are some common beginner mistakes for webs sites.

Broken Pages

Admittedly this is an all encompassing title but there are only a few kinds of broken pages that will really annoy users. The first is a page that won't load. Different browsers have different requirements but it is the web page designer's responsibility to test their pages on all common browsers and platforms. You may think the majority of the world uses Explorer on a Windows platform, that may be true, but it would be a grave mistake to shut out potential site visitors because you required all users to embrace a particular browser/platform combination. Web sites are available that will take your site and display it on every conceivable browser/platform combination. Many will also report to you the line of code that causes an error on a particular browser/platform combination.

Slow Graphics

Although many graphic file formats will display on a web page, far and away the most common are GIF and JPEG. GIF files are generally a bit larger than JPEG files but do not require any post-processing by the computer, JPEG files are compressed files that are smaller in size but higher in resolution for similarly scaled images. JPEG files can be highly compressed but doing so causes visible artifacts that degrade the quality of the image. Other file format exist that all have certain advantages/disadvantages. One major disadvantage are graphic files that require the user to have a supplemental plug-in for their browser. Two such files formats are SWF and PDF. Both of these formats have great advantages to them but generally require the user to install a third-party plug-in. This is an issue if your audience is defined as users that are not well versed technologically.

Gratuitous Glitz

Web Designers like any other professional spend a lot of time reading journals and practicing new techniques for page construction. Occasionally the desire to demonstrate these skills clouds their judgment and they use a new and unnecessary page design. As is most often the case it is not the new technique is poor, rather it is just used in an inappropriate place. The Design team and/or Designer need to constantly assess whether or not a technique enhances the user experience or not. In every case of gratuitous glitz the designers either misread the users needs or ignored them.

How to Obtain Repeat Visitors

The goal of many sites is to increase user traffic on the site, this is measured in total hits and repeat visits to the site. Some simple rules will move your site in this direction. First rule update your site frequently. Make changes and features and make note on your site what your changes are and when they were implemented. Make your site a "clearinghouse" of information. Your web site about baseball may not provide the box scores from the 1938 season, but it does provide a link to a site that does. Users remember this and begin to count on your site to provide them with links to information about related topics. Incidentally, the sites that you provide links to will often link back to your site, this is a good way to drive up site traffic.

The second way is to concentrate on making your site user friendly. Most of us have been to site that provide important information but it is very difficult to get at. Users will quickly become frustrated with sites like these. Users will migrate to sites with easy navigation and consistent design.

People like to get freebies; they also like to show their expertise about their field of interest. This is a great way to get people to come back to you site. Giveaway inexpensive prizes for users reading a particular page or filling out a questionnaire, the user can get a prize and you can find out information about the people visiting your site. Your site can also include a question of the week; this question will typically directly affect your users. Winners of the correct answer or solver of the problem will be posted each week or day on the site. This sort of approach drives up traffic it also allows user interaction with the site providing an additional service to the users.·

CONCLUSION

The purpose of this paper has been to develop a fundamental and basic strategy for the design and development of an effective web communication strategy. Thus it is suggested that in order to be effective, web creation and construction should: 1) provide consistent look and feel, 2) be conceptually consistent, and 3) attract positive attention. In conclusion, technology should not overrun the real goal—effective communication.

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