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From Cookies To Eye-Candy: An Anatomy Of Professional Web Site Design Methodology

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FROM COOKIES TO EYE-CANDY:
AN ANATOMY OF PROFESSIONAL WEB SITE DESIGN METHODOLOGY

BY

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Submitted in partial fulfillment of the requirements of the
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Seton Hall University

2000
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Chapter I

INTRODUCTION

Communication is an ever-changing phenomenon. Early humans used cave paintings as a means of depicting stories and events. The ancient Egyptians developed papyrus, a forerunner to paper, as a means of making written communication mobile. In the 1840s, Samuel Morse invented Morse Code; a simple way to represent the letters of the alphabet using patterns of long and short electrical pulses. These pulses were translated into electrical signals by an operator using a telegraph key, and the electrical signals were translated back into the alphabetic characters by an operator at the distant receiving instrument up to several hundred miles away. In 1865, it was the telegraph that was used to spread word of the assassination of President Abraham Lincoln across the United States. For years Morse telegraphy was the standard method of electrical communication in both the United States and Europe.

Radio, television, and the Internet, electronic mediums that developed in part, from the technological knowledge of the telegraph, presented even more opportunity for communication. Each has its own niche in modern society. The 20th century will undoubtedly be regarded by future generations as the dawn of modern communication.

In 1901, Gugliemo Marconi heralded instant mass-communication by receiving the first wireless, trans-Atlantic radio message. Unlike the telegraph, radio waves carried information-bearing signals through the atmosphere. Communication was no longer bound to land lines but instead traveled through the atmosphere, with information encoded on electrical waves sent by processes called amplitude modulation (AM) or frequency modulation (FM). On December 8, 1941, it was through the use of a radio broadcast that
President Franklin D. Roosevelt informed the nation that the United States had been, "...suddenly and deliberately attacked by naval and air forces of the empire of Japan."

Television's birth came in 1925 when the first actual television picture was displayed by John Logie Baird. In 1927, he successfully sent a moving image along telephone wires from London to Glasgow, and the following year he achieved the first trans-Atlantic television broadcast. In the decades that followed, television emerged as the premier medium for mass communication. From political elections to wars, and scandals to situation comedies, television reached out to all corners of the Earth. In 1963, it was television that broadcast the news of President John F. Kennedy's assassination to a shocked and horrified nation, but unlike the telegraph system of Lincoln's time, 98 years earlier, television brought the news directly into America's homes; live. Television was a costly medium, and like radio, the national networks sought corporate sponsors to pay for the broadcasts, by advertising their products on-air. These early advertisements were the forerunners of the 30 and 60 second TV commercials of today.

Television quickly became a popular medium for corporations wishing to advertise their products, political candidates' wishing to gain popularity while simultaneously "mudslinging" their opponents, and for live news, sports and weather. However, television had significant shortcomings for its sponsors: commercials and programming were at the mercy of the viewer and could be switched off at the viewer's discretion. Television was also a one-way medium; viewers could not interact with it, nor were sponsors able to identify the individuals whom they targeted. That changed with the advent of the Internet.

During the 1960s, in the midst of the United States' Cold War with the Soviet Union, the U.S. military sought innovative ways to interconnect the nation's intellectual resources
through a computer network. The primary interest was in creating a network that could route
computer communications around connections downed by nuclear weapons. By 1970, a
working model at UCLA brought the idea to fruition and in the years that followed the
Internet came into being. During its formative years, the Internet was able to network users
using text only. One of the most popular uses of the Internet was and continues to be what is
commonly known as electronic mail or "e-mail."

In the early 1990s, the World Wide Web emerged as a graphical interface for the
Internet that allowed the publishing and viewing of documents with a multimedia look and
feel. Web "browsers," the software that allows users to view the Web, were introduced and
took academia, the business world and the public by storm. The Web, along with user-
friendly personal computers, virtually eliminated the complexity of accessing the Internet.
Corporate America was quick to assess the inherent value of the Web, and web sites soon
followed.

The differences between the World Wide Web and all other previous forms of
communication were very appealing to businesses. The Web offered a medium that
permitted corporations to maintain a visual presence that was available to consumers 24
hours a day. It also featured multimedia capabilities including images, sound and video
playback, and enabled two-way communication between companies and their clients, the
combination of which were unprecedented. By the late 1990s, the Web had enabled
electronic commerce that made sales transactions possible electronically. Consumers now
had the means of shopping for virtually any product or service in the comfort of their own
homes, and at their leisure.
Statement of the Problem

The World Wide Web has glamour, appeal, and offers the possibility of turning fast profits. Learning to code HTML is not difficult to do. Today, one really only needs a computer, a photographic scanner, and an Internet connection, to be a "webmaster." Because of the Internet's lure, and its minimal learning curve, thousands of people have flocked to this emerging industry for a variety of reasons. There are many sites on the Web that suffer from poor planning. Good design, both in the layout and the content presented, should not be overlooked. This study examines the fundamental elements used to create today's Web sites. The knowledge base of this study is supported by an international survey of professional Web site designers, from 16 countries on four continents. The study is further supported through the author's own experience as a webmaster. As part of this research, the author developed a web site for a nonprofit organization that will be highlighted in this thesis.

Purpose of the Study

The World Wide Web has opened up an abundance of career opportunities for people desiring to work with this new medium. The rudimentary skills necessary to create web pages consist mainly of learning Hypertext Markup Language (HTML) or learning a Web creation program such as Microsoft Frontpage or Adobe Pagemill. Since it is fairly easy to learn how to create basic Web pages many organizations are quick to establish their own sites, unaware that the success of a site is largely determined by the amount of planning. A successful strategic plan in Web site development is vital to the site's value; both to the organization that is represented and the consumer. The purpose of this study is to identify specific characteristics and trends in the anatomy of professional Web sites, as determined by an international group of professional Web designers.
Objectives

This study examines the essential elements necessary for a successful Web site by reviewing the literature prepared by experts in the marketing and Internet fields, and surveying 82 professional Web designers world-wide. The central objective of this thesis project was to create an actual Web site.

Definition of Terms

**Browser.** A software program that allows a user to navigate and view files on the Internet’s World Wide Web.

**Dynamic HTML.** A technology for making interactive Web pages (See also HTML).

**HyperText Mark-up Language (HTML).** A defined set of special character strings embedded in documents for formatting Web pages. HTML documents consist of these characters plus content that is visible within a Web browser (See also Web).

**Home page.** A top-level, front-door document of a Web site (See also Web).

**Hyperlink.** Highlighted text or icon in a World Wide Web document that, by pointing and clicking on it, redirects the user’s Web browser to another file or action on the Internet. Sometimes called a link.

**Page.** A World Wide Web document or HTML file. This word is sometimes used as a unit of measure for Web site usage as opposed to a hit. A page may include links to a number of included images that must also be uploaded by a Web browser when viewing the HTML file.

**Modem.** MOdulator/DEModulator; Computer hardware that enables remote computers to communicate over regular phone lines or coaxial cable.
Web, World Wide Web or WWW; The worldwide, interconnected set of Internet documents and files exchanged through the use of the Hypertext Transfer Protocol (HTTP). The Web is currently the most user-friendly method of accessing the wide spectrum of information available on the Internet; often through the use of Web browsers (See also browser).

Please refer to Appendix A for a complete list of definitions.

Limitations

There are literally millions of Web sites accessible through the Internet, and thousands of professional Web site designers world-wide. This study surveys the opinions of only 82 of the thousands of professional web designers. The intent is to present a perspective based on expert opinion, not provide a definitive view on the subject.
Chapter II

REVIEW OF THE LITERATURE

Introduction

During the latter half of the 1990s the Internet has experienced incredible growth in the number of users and computers connected to it. "Depending upon whose data you use and how you interpret it, there are anywhere from 30 to 60 million people worldwide who have some kind of Internet connectivity" (Ellsworth & Ellsworth, 1997, p.5). According to Judson and Kelly (1999) "just as the telephone and the computer spawned entirely new business practices, the Internet is similarly transforming the way successful businesses must operate" (p. 21). To connect to the Internet a user needs a computer equipped with a modem and must have a Web browser and an Internet service provider. Every day thousands more people gain access to the Web and thousands more new Web sites appear. Ellsworth and Ellsworth (1997) ascertain that unlike conventional marketing, the Internet medium allows virtually anyone to be a publisher, at much lower costs than traditional media. The Internet allows people to visit Web sites 24 hours a day, seven days a week, and unlike conventional marketing tools, "traditional limitations of time and distance no longer apply" (Cronin, 1994, p. 2). According to Sterne (1997) the Web can "create awareness, make impressions, supply details, drive store traffic, and generate pre-sold products" (p. 4).

With the number of new web sites increasing on a daily basis it is impossible to calculate how many million sites are available on the Internet. The Internet is expanding rapidly worldwide, "but trying to find consensus about how many people are on the Internet is like trying to nail gelatin to the wall" (Sherwin & Avila, 1997, p. 15). One way to illustrate the rapid growth of the Internet is to compare it to the emergence and growth of other media. "It
took television thirteen years to reach 50 million domestic viewers, while it will take the Internet only four years to reach this number of people” (Judson & Kelly, 1999, p. 22).

**Background**

Virtually all U.S. corporations have a presence on the Web, so there is online competition as in any other medium, from businesses of all sizes. Because of this, the Internet has often been referred to as the “great equalizer.” Ellsworth and Kelly (1994) assert that the World Wide Web levels the competitive playing field. Small businesses have the same opportunities to market themselves on the Web as large companies, especially because the cost of producing a Web site is miniscule as compared to TV or radio advertising. Therefore, the race to identify potential customers has been a swift one. “As soon as businesses started realizing the power of communicating on the Internet, marketing researchers started trying to quantify how many people were on the Internet and who those people are” (Sherwin & Avila, 1997, p. 15). More important than simply being the first company of its kind to offer goods and services online, it is necessary to understand the needs and wants of those viewers likely to visit your site, and to understand the tools the Internet offers that are unique to the online medium versus traditional media such as television, print and radio. The Minolta USA corporation’s Web site (www.minoltausa.com), co-designed by the author, is geared specifically to its consumer and business products. The site provides information and specifications on its products and software updates for those products used in conjunction with personal computers. Another Minolta site (www.how2scan.com), designed by the author, is geared specifically toward Minolta’s film scanner products. The site provides information on what film scanners are designed to do, and how to use them. It even takes the site visitor on a step-by-step tour of
setting up a scanner with a personal computer and using the software. The benefits to the consumer are that a site visitor can view and receive information on all of Minolta’s products, without the need for paper brochures.

"The Internet can deliver your information instantly directly to your audience with no one filtering" (Sherwin & Avila, 1997, p. 31). The Internet is considered to be a “pull” medium that requires viewers to navigate to a company’s Web site. Unlike television or radio, "the Web cannot be used to propel messages out to the masses in hopes that somebody will catch a glimpse while spinning the dial" (Sterne, 1995, p. 45). And "with millions of Web sites available on the Internet, the audience has to seek the information much more actively" (Sherwin & Avila, 1997, p. 31).

"It is one of the supreme ironies of the Internet that the computer, so long derided as impersonal, is now being used to create highly personal experiences for Web site visitors" (Judson & Kelly, 1999, p. 115). Traditional media have generally been passive, one-way vehicles. If a viewer doesn’t want to watch a commercial that viewer has the option of changing the channel, muting the audio or turning the television off. The Internet allows companies to receive instant feedback from their audiences, usually in the form of electronic mail or electronic forms posted on a Web site. These types of feedback “can be very helpful for communicators who want to fine-tune messages so they have the best impact on key audiences” (Sherwin & Avila, 1997, p. 32). “With a Web site, the visitor has a new level of control over the manner in which information is delivered” (Silverstein, 1999, p. 114). Due to the interactive nature of most Web sites, a viewer is able to navigate a site at will. This freedom allows a visitor to, “leave a page or an entire site very quickly, go to other pages at numerous other sites, and return just as quickly” (Silverstein, 1999, p. 114). In psychological
terms, the prospect or customer becomes the enabler, and it becomes important that the marketer is aware of that individual's wants, needs, likes and dislikes. The Internet, unlike most other forms of public relations, promotes direct communication intimacy by encouraging correspondence between the customer and the company.

A typical Web visitor consists of an individual either at home or in the office who sought a Web site for specific information. "To attract new customers, companies can now establish Web sites that provide highly individualized recommendations based on information provided by the customer" (Judson & Kelly, 1999, p. 115). The key secret to success on the Internet and the World Wide Web, according to Sterne (1995), "is to provide value added marketing. Value added marketing is offering something of value for free. It is proving your worth as a vendor. It is delivering exceptional service and valuable products before making the sales" (p. 7).

Using a cookie, a small software file placed on a viewer's computer by a Web site, a company is able to keep track of a visitor's personal interests. Amazon.com uses cookies that store information about each viewer that includes information such as the viewer's reading preferences, favorite authors, and the volume of books that viewer typically reads. The first time a person buys a product from Amazon the Web site asks the viewer to complete an online survey form including the person's name, e-mail address and reading preferences. The next time that individual visits the Amazon Web site the person is greeted by name. The same person may also choose to allow Amazon to send promotional e-mail messages directly to his or her computer. This type of advertising is referred to as "push," where a company is able to target and communicate to the end-consumer directly. The marketing strategy behind this type of personalized Web experience is clear: "By
empowering the customer with information about how a specific offering meets his or her needs, the company positions itself as a knowledgeable place to buy and also demonstrates how its products are just right for that individual customer" (Judson & Kelly, 1999, p. 116).

The Internet also transcends time and space. According to Cronin (1994), "Internet communication provides other significant advantages for all types of business. No more missed phone calls, or second-guessing the best time to call another country" (p. 107).

There are Web sites that allow a user to buy almost anything online, from pharmaceutical products to groceries, and from automobiles to human eggs and sperm. Because there are so many Web sites offering many of the same products and services, and because it is so easy for Internet users to jump from site to site, it is important for Web sites not only to attract, but also keep users' attention. "For business, one of the problems inherent in the Web is the ease with which consumers and businesses can move from one company to another" (Judson & Kelly, 1999, p. 138). A Web site's content plays a crucial role in maintaining a viewer's interest. "Because of the expectation that sites will offer large quantities of information, paying attention to the site content is key" (Ellsworth & Ellsworth, 1997, p.22).

The Internet, once limited to text only, is now alive with several different types of media including images, audio, and video. While these media may add to the experience of a viewer visiting the site it is important to construct a sound marketing plan. Flashy media should be used only if they will complement a site, not just because it is available. Ellsworth and Ellsworth assert the bottom line is determining which of these tools the target audience will have and use, and how these tools can be used to communicate to marketing message.
The more non-text content on a page, the slower it will load in a viewer’s browser, and the more chance there is for viewers to become bored and move to a different web site.

The Internet has features that make it unique compared to other media, but a wise company or organization will see past the glamour and glitter to its value as an integrated tool in a public relations and advertising capacity. “Being a new medium, it’s very exciting and fashionable to promote your business or client with a very progressive and technologically savvy image” (Sherwin & Avila, 1997, p. 46). The Internet is a dynamic and exciting medium with virtually unlimited sales and advertising potential, but it would be foolish to assume that it will ever replace traditional media.

Knowing the Audience

Sherwin and Avila (1997) contend that it is important to understand the psychology of the average Web site visitor, rather than just throwing together Web pages as if they were just another business form letter. There are infinite possibilities when designing a Web site including the design, layout and content, and every person who visits a site will have different preferences from the next. “Research has shown that online reading habits typically take the newspaper layout example a step further” (Sherwin & Avila, 1997, p. 244). The psychology of how people read information from an online source is very different from the way people react to other media such as television or newspaper. Web site visitors tend to have very short attention spans and will become bored quickly if their interest is not piqued. According to Sherwin and Avila (1997), information should be readily accessible, easy to locate, and no longer than it has to be. If a company’s Web site is not designed with these considerations there is a very real possibility of losing the audience to another web site. If
the appearance of the site itself is not professional, there is a very real danger of losing credibility in the eyes of consumers.

What Makes a Successful Web site

Setting Web objectives is no different from setting objectives in other marketing campaigns. "When you decide to run a TV ad campaign, you need to decide whether the objective of the ads is to get people to pick up the phone and call you, or to simply to [sic] build awareness for your products" (Vassos, 1996, p.202). According to Bruner and USWeb (1998), when there are literally millions of interactive multimedia destinations to choose from, Web surfers won't bother much with second-rate sites. Sterne (1995) follows this line of thought by stating that a "Web site isn't something people read, it's something they do. Visiting your site is an activity. The tools for building a Web site allow it to interact with the viewer. Make use of these tools" (p.6).

Choosing a site layout is an important first step when considering the of a Web site's structure and there are several models to consider. These include sequential, grid, hierarchy, star and web. The sequential model is the simplest in terms of structure providing forward and backward sequencing, similar to a slide presentation, but according to Sherwin and Avila (1997), this method often fails for Web sites, because Web surfers rarely, if ever, read information in the order it is presented. A grid layout is configured and interlinked similarly to the cells in a tic-tac-toe board or a table in a word processing document and is probably the least-used structure for Web site structure. The content is set up two-dimensionally into rows and columns, in figurative terms. "If you can naturally and effectively present information or a single topic in the form of a table or spreadsheet, a grid layout may work" (Sherwin & Avila, 1997, p. 249). The most popular layout used throughout the World Wide Web is
hierarchical or non-linear. The site, tiered into different hierarchical levels according to relevance or interest, descends from a single “home” page. Sherwin and Avila (1997) believe that one reason for its popularity is that it presents a good design scheme with frequently accessed information on the top level in a Web site. The hierarchical layout allows web site visitors to identify general subject information at the top level and then progressively narrows the information to specific subjects of interest with each respective level. A simple way to illustrate hierarchical layout would be to imagine a triangle or pyramid. The top point is very narrow, but each descending layer is gradually wider down to the base. According to Silverstein (1999), “Web sites need to be nonlinear so that each visitor can have immediate access to the majority of the information on a site” (p. 113).

The star layout is a combination of grid and hierarchical layouts. In this layout, “the bulk of the navigation and content of a site with a star layout takes place all around the core page” (Sherwin & Avila, 1997, p. 251). Like a hierarchical layout, the star is tiered into layers of importance and subject matter, but like a grid, the content provides horizontal sequencing like a chart table, not just vertical.

The phrase “above the fold” is synonymous with the placement of high-profile news items on the top half fold of a newspaper, closest to the headline. This ideology is relevant to Web sites too. A good Web strategy will include the placement of the content or important links within the boundaries of the initial screen view. A person visiting a Web site should not have to scroll down the page to find important information. The information should be clearly visible as the browser loads the page.

Download speed, or the amount of time necessary for a Web browser to display a single page, is directly related to the amount of non-text content that should be placed on a
Web page. The more content on a page such as images, background music, or embedded video files, the longer it will take for the page to load. Sherwin and Avila (1997) believe that even if a Web site is even moderately slow to respond, a visitor may not wish to proceed further into the site. The faster a Web visitor becomes bored, the faster he or she may leave a Web site.

Designing Content for the Medium

Cronin (1994) points out that, “traditional forms of marketing and selling simply don’t translate all that successfully into a networked environment” (p. 115), so content should be placed thoughtfully into a Web page with consideration of the advantages the Internet offers. MSNBC.com provides news content that can be seen on the NBC nightly news program but takes advantage of the Internet by placing links to similar stories, archives and even streaming video clips available on demand. MSNBC also incorporates “push” marketing technology by allowing site visitors to download news alert software that when installed, signals the computer user when a news story is breaking by flashing a small icon on the screen. Once the flashing icon is clicked the news story appears in a small, on-screen box, accompanied by an advertisement. Another form of push marketing is e-mail and the e-mail newsletter. Ellsworth and Kelly (1994) point out that e-mail is the primary method of communication among people on the Internet, so therefore e-mail is a good way to exchange information with customers. “The e-mail newsletter is basically a long e-mail that is regularly and automatically sent to a customer or prospect—upon request” (Silverstein, 1999, pp. 145-146). According to Holtz (1998), “there are many online newsletters in existence already, and the number is growing steadily” (p. 13). E-mail newsletters not only have the capacity to reach millions of people instantaneously, but can do so at a fraction of the cost.
According to Bruner and USWeb (1998), "the Web can play an important and cost-effective role, alongside television, print, billboards, and other advertising media, in building consumer awareness of an offline brand" (p. 13). “Companies typically spend millions of dollars on traditional marketing activities such as ads, promotions, sponsorships, and merchandising to build brand awareness and loyalty" (Settles, 1995, p. 117).

A common formula known as AIDA has long been used in traditional direct marketing campaigns but can also be applied to the Internet. AIDA stands for awareness, interest, desire and action. According to Silverstein (1999) “generating awareness is the first step in the process of getting response” (p. 110). Advertising builds initial awareness but a marketing campaign must promote interest and desire enough to generate a call to action. Silverstein (1999) points out that, as with any marketing strategy, once the interest in a product or service develops, the consumer often develops a desire for more information or perhaps even to purchase it. Finally a prospect or customer takes action either by requesting more information or making a purchase. With e-mail newsletters, a Web viewer will agree to allow an organization to send e-mail newsletters by submitting his or her e-mail address. A company is then able to build its own database of interested recipients and target a particular audience. Updates are generally sent on a weekly or monthly basis, but may be sent sporadically, such as when a company has major news or a new product it wants to promote. This type of electronic communication is not only good public relations but smart business, and “smart marketers will exploit both direct and brand advertising possibilities online” (Bruner, R.E. & USWeb, 1998, p. 17). It serves to keep a company’s name, products and services fresh in the minds of consumers and also provides a low-cost solution to advertising. Some e-mail newsletters such as Apple Computer’s is text only, while Netscape’s newsletter
uses graphics to enhance its message. E-mail newsletters, compared to traditional printing, require less time and money to produce. And unlike print, electronic newsletters are able to take advantage of the inclusion of sound and video files. At all times, though, it is important for a company to know whom it is communicating with, and must be able to perceive its communications from the receiver's side. "Intrusive advertising is great on TV. It can even be considered part of the entertainment. But only certain portions of the Net are for entertainment and the rest receives intrusive advertising as intrusive" (Sterne, 1997, p. 7).

"Marketing on the Internet is not as simple nor as promising as many think, and certainly not as simple or surefire as many entrepreneurs who sell marketing services promise their prospects" (Holtz, 1998, p. 17). A key strategy in marketing a company's products, services or image can be summed up by the cliché, "less is more." A company's Web pages should be kept, "clear, short, and to the point, readable, free of jargon; there is a greater need for immediacy and brevity when people are paying for on-line time to look at your pages" (Norton & Smith, 1997, p.77). There are a growing number of new technologies available to be incorporated into Web sites. It is very easy when drafting the design of a site to be tempted into using "flashy" technologies or "eye candy" as the phrase is known in the world of Internet development. Quality of substance should never be substituted with visual gimmicks, even at the possibility of being plain. "There are too many Web sites with pretty pictures and dancing animation that tell the visitor absolutely nothing, instead offering painfully slow downloads" (Sherwin & Avila, 1997, p. 260). It is very important when designing a Web site to know who the audience is and the limitations of the hardware that audience is most likely to use. "Most sites, unless their audience is exceptional, should optimize performance for users of 28.8Kbps dial-up modems for the
foreseeable future” (Bruner & USWeb, 1998, p. 75). Therefore, a compromise between aesthetic beauty and functionality must be found, but generally form should always follow function. According to Norton and Smith (1997) “the best WWW sites are interesting, hold your attention, and have more to offer than marketing hype. They are updated to keep them fresh, alive, and therefore attractive for people to revisit” (p. 72).

Context is also an important factor in Internet communications. Although the Internet promotes one-to-one communication between a consumer and an organization, it is important to remember that it lacks the qualities of face-to-face contact, and communications must be written with care. “In face-to-face conversation, facial expression and gestures modify your words and help make your meaning and intention clear. Written words appearing on a screen stand entirely on their own and are usually taken quite literally” (Holtz, 1998, pp. 141-142).

Continuity is extremely important in designing a Web site and should be centered around a specific theme or message. Good continuity, especially within the site’s navigation, is important to its ease-of-use, and the easier a site is to use, the longer its visitors may remain with it online. According to Bruner and USWeb (1998) “every page should contain elements to orient the user as to where he is within the site’s architecture” (p. 83), and relative information should be linked logically. For example, “if the main objective of your site is to sell products, then all product content pages should eventually link to your product order form” (Vassos, 1996, p.218).

An important way to orient a new visitor to a Web site is to provide a site map. A site map is a representation of the site’s layout and may appear graphically in flow-chart form or may be limited to text, similar to the table of contents in a book. A site map is similar to a
map of a shopping mall. Once a visitor locates the “you are here” red dot, it becomes easier to orient one’s location and destination.

There are literally thousands of different fonts or typefaces for electronic use, but it is important for a Web designer to know which fonts should and should not be used. With all the font choices available, generally only three fonts are used; Courier, Arial, and Times New Roman. The reason for this is, in order for a font to appear in a site visitor’s browser, that font must already be installed on the computer. If a Web site is designed using a cursive font, and a visitor to that site does not have that particular font installed, an alternate font such as Courier will appear in its place. The Courier font resembles typewriter print, so while the text message still gets through to the viewer, the theme has been compromised.

Site Testing

One of the final steps in creating a Web site should be testing it using a variety of Web browsers and computer platforms. The two major players in the Web browser world are Microsoft’s Internet Explorer and Netscape’s Communicator. Both products are available on several different platforms including Windows, Macintosh and Unix, but one cannot assume that each product will run identically on all platforms. “What may look dynamite on a Windows 95 PC running Internet Explorer 4.0 might be illegible on Netscape 2.0 and crash a Macintosh on IE 3.0. You can’t know till you’ve looked at the site yourself on the various platforms” (Bruner & USWeb, 1998, p. 79). America Online, the gateway for millions of novice Internet users has often lagged behind in its browser services. Bruner and USWeb (1998) believe that by not testing to see how a site may appear to AOL subscribers, a company risks losing 30% of its potential visitors.
Marketing the Web Site

An important part of generating traffic to a company’s Web site involves an aggressive publicity plan. “It is important that you make the media aware of your site—that includes both the online Internet publications and the traditional media” (Vassos, 1996, p. 214). In addition, an organizational Web site should always include an area for news and press releases.

“Each establishment, be it corporate, not-for-profit, or entrepreneurial, must determine what it hopes to gain by implementing a global, electronic presence” (Sterne, 1995, p.46). A company’s corporate image and message has the potential to be viewed by millions of people on the Web, and special care and planning is required to create a Web site that will achieve the goals set forth by the company.

Once the Web site has been published to the Internet, it is important to register the site with various search engines. With several million Web sites to choose from, visitors and potential customers may have a difficult and unpleasant experience locating a specific site if they do not know the site’s URL. While results cannot be guaranteed, “registering directly with the search engines will give you greater control over how soon your site will show up” (Bruner & USWeb, 1998, p. 128). Some search engines use an automated system known as a “spider” to locate relevant materials. When a spider locates a Web page its primary objective is to interpret various elements of the page to determine its primary content. Page titles and keywords most often contribute to the ease that a site may be found. Keywords are often placed in meta tags embedded in a Web page but invisible to the site visitor. Occasionally, some search engines modify a site’s ranking depending on its popularity, or the number of visitors that index the site from within the search engine. However, this is not necessarily a
factor the Web designer can easily influence. There are dozens of search engines accessible through the Internet. "Finding and registering at all of these sites can be very time-consuming, especially because many of these sites may have unique registration requirements" (Vassos, 1996, p.210).
Chapter III

DESIGN OF THE STUDY

Population and Sample

Through this study, the author examines professional web designers' typical preferences in the construction, design and layout of web site pages. Data were collected via an online survey (see Appendix B) that was located on the author's web site. Invitations to participate in the survey were e-mailed to 300 professional web designers worldwide. The survey was completed by participants in the following countries: Australia, Canada, Denmark, England, France, Germany, Ireland, Italy, Lebanon, New Zealand, Norway, Scotland, South Africa, Sweden, USA, and Wales.

The web designers were selected by the author, who visited each of their companies' web sites via the Internet. The sites were located using Sherlock 2, an Internet search tool built into the Apple Macintosh OS9 operating system. From the web sites the author was able to collect e-mail addresses for the purpose of contact. Due to the international consistency of the survey invitees, the author translated the survey into French, German and Italian. The translations were made with the assistance of Babelfish, an online language translator, and then reviewed for accuracy by persons fluent in their respective languages.

Survey

The survey consisted of questions regarding preferences in design and layout of web pages. The invitations to participate in the survey were sent via e-mail over a 1-week period from March 1 through March 7, 2000. The response deadline was March 17, 2000. All targeted participants were assured complete confidentiality and were assured that their identities would be used only for the purpose of error correction, to ensure that the results of
each participant's survey was counted only once. The e-mail addresses were also important so that the author could contact the participant with questions or feedback as necessary. As a token of gratitude for participating in the survey, the author agreed to share the results of the completed study with the participants.

Data Collection

The survey was divided into three sections, containing 20 questions. These included Design & Layout Fundamentals, Content, and Evaluation. Questions were primarily in multiple-choice format. Those questions not specifically pertaining to web page elements were designed to elicit initial responses from the participants in opinion form.

Questions pertaining to "design and layout fundamentals" focused on fundamental elements of web page design; elements that many designers may take for granted, such as layout and font preferences, coding formats, and implementation of audio-visual plug-ins.

The "content" section focused on the specific role and involvement of the web designer in the development of projects. The "evaluation" section was aimed at eliciting the opinions of web designers in regard to the benefits and effects of utilizing multimedia effects within a web site.

The survey invitations and responses were distributed and received electronically, in a completely "paperless" manner. There were several benefits to utilizing a paperless system of data collection. First, the transmission of the survey invitations was instantaneous. Second, by using e-mail, the receipt of the message was virtually guaranteed. In the event that the addressee's e-mail address was no longer active, or had been typed incorrectly, the mail server in that person's company would reply with an error message of "undeliverable." Third, by using an online survey form, the participants were able to complete the form on
their computer monitors; no printing or mailing was necessary. Once the participant had answered the questions, he or she would click the "submit" button at the bottom of the survey. The result was instantly sent to two different locations; a database on the author's web site, and an e-mail to the author that included the person's responses. The database maintained a record of all the responses, while the e-mail permitted the author to know when each new survey was submitted. The e-mail reply was used as a backup system in case the database became somehow corrupted.

The database was tab-delimited, meaning the various data fields were separated by tab spacing. By using this format the database could be easily imported into a spreadsheet program such as Microsoft Excel.

Survey collection was terminated at 11:59pm on Friday, March 17, 2000. A total of 85 surveys were collected, representing four continents, 16 countries, a total of 94% of the countries invited to participate. Northern Ireland was the only country not represented from the 17 countries invited to participate. Three of the responses were partial duplicates, and were removed from the data collection. The remaining 82 responses, which equaled 27% of the total number invited to participate in the survey, were analyzed for this study.
Chapter IV

ANALYSIS OF THE DATA

Introduction

Based on the novelty of the World Wide Web, literature research and the author's professional experience, the author had some expectations as to what these data would reveal. The fact that this was an international study conducted in three different languages, among 16 different nations, lent credence to the possibility that there would be diversity and disparity among the responses. The author believed, however, due to the universal nature and reach of the World Wide Web, and the fact that it remains an emerging industry, that the responses would be fairly consistent among the participating countries. While personal tastes and styles in graphic design vary from one designer to the next, there remain fundamental elements and thoughts as to how the content and message of a Web site should be relayed.

Data Review

As expected, the responses were remarkably similar, and were unremarkable among the various countries. The results of the survey are as follow:

Table 1

| What Screen Resolution Do You Typically Design For? |
|-----------------------------------|----------------|----------------|
| Response                          | # of participants | % of participants |
| 640x480                           | 21              | 25%             |
| 800x600                           | 61              | 75%             |

The screen resolution is the measure, in units of pixels, of the width and height that a computer monitor displays. For many years, the de facto standard was 640x480 pixels. Recently, many companies have moved toward 800x600 as a new standard. The greater
resolution allows for an increase of approximately 156% in the viewable area of a monitor, without the need for horizontal or vertical scrolling, and also provides for a higher quality image.

Table 2

What Browsers and Versions Do You Test Your Sites In?

<table>
<thead>
<tr>
<th>Response</th>
<th># of participants</th>
<th>% of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>IE3 and below</td>
<td>7</td>
<td>8%</td>
</tr>
<tr>
<td>Navigator 3 and below</td>
<td>6</td>
<td>7%</td>
</tr>
<tr>
<td>IE4 and above</td>
<td>61</td>
<td>75%</td>
</tr>
<tr>
<td>Navigator 4 and above</td>
<td>67</td>
<td>82%</td>
</tr>
</tbody>
</table>

Note: One participant did not indicate any response to this question.

The two most popular browsers are Microsoft's Internet Explorer and Netscape Communication's Netscape Navigator. The latest version numbers as of this writing are 5.0 for Internet Explorer and 4.7 for Netscape Navigator.

Table 3

What Platforms Do You Test Your Sites In?

<table>
<thead>
<tr>
<th>Response</th>
<th># of participants</th>
<th>% of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows</td>
<td>80</td>
<td>97%</td>
</tr>
<tr>
<td>Macintosh</td>
<td>36</td>
<td>43%</td>
</tr>
<tr>
<td>Linux</td>
<td>6</td>
<td>7%</td>
</tr>
<tr>
<td>WebTV</td>
<td>1</td>
<td>&lt; 1%</td>
</tr>
</tbody>
</table>

Two of the more popular computer operating systems are Windows and Macintosh. Linux and Web TV are relatively new systems, and do not yet have the following that
Windows and Macintosh enjoy. America Online, though not included as an option in the survey, should also be considered for testing, even though it is available for Windows and Macintosh systems.

Table 4

What is the Maximum Download Time You Design Your Sites For?

<table>
<thead>
<tr>
<th>Response</th>
<th># of participants</th>
<th>% of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 seconds or less</td>
<td>16</td>
<td>21%</td>
</tr>
<tr>
<td>20 seconds or less</td>
<td>37</td>
<td>44%</td>
</tr>
<tr>
<td>30 seconds or less</td>
<td>18</td>
<td>22%</td>
</tr>
<tr>
<td>Doesn't matter</td>
<td>11</td>
<td>13%</td>
</tr>
</tbody>
</table>

Download time refers to the number of seconds required for a browser to fully display the text, images, and other content on a Web page. According to the survey, 20 seconds is the most popular choice.

Table 5

What Minimum Connection/Modem Speed Do You Design For?

<table>
<thead>
<tr>
<th>Results</th>
<th># of participants</th>
<th>% of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>28.8K</td>
<td>58</td>
<td>71%</td>
</tr>
<tr>
<td>56K</td>
<td>19</td>
<td>23%</td>
</tr>
<tr>
<td>ISDN or higher</td>
<td>3</td>
<td>4%</td>
</tr>
<tr>
<td>Doesn't matter</td>
<td>2</td>
<td>2%</td>
</tr>
</tbody>
</table>

Modem speed is an important factor when designing Web pages. It determines how much time is required for a page to load completely for each individual user. A 28.8 kilobyte modem is generally the slowest modem speed that an individual will use to access the Internet. A 56K modem is approximately twice as fast as its 28.8K counterpart. ISDN, T1
and cable modems are capable of downloading pages much faster. The transfer rate of a 28.8K modem is approximately 3K per second. If a Web designer intends for a page to load completely within 20 seconds on a 28.8K modem, the total contents of a page should not exceed 60K. Since there are many casual users who access the Internet with 28.8K modems, it is crucial that Web sites be designed to load quickly at this speed.

Table 6

Do You Prefer the Use of Frames in Your Web-Based Layouts?

<table>
<thead>
<tr>
<th>Response</th>
<th># of participants</th>
<th>% of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>20</td>
<td>24%</td>
</tr>
<tr>
<td>No</td>
<td>62</td>
<td>76%</td>
</tr>
</tbody>
</table>

Frames allow multiple Web pages to be loaded into a single page. They are often used to separate site navigation graphics from the main content of a Web page, allowing the content to scroll, while the navigation remains stationary. Frames are particularly useful in a Web site that can use a single navigation source. Since many Web sites use graphics for navigation and hyperlink purposes, frames require that the navigation graphic be loaded only once. When a user clicks on the hyperlink navigation, only the frame with the content changes; the menu remains in place, preventing the need for the user to have to wait for the navigation graphic to load on each page. Frames can be assigned individual specifications such as border thickness, but generally Web pages with invisible borders are the most appealing, because they give the appearance of a single, unbroken page.
Table 7

**What Format Do You Use to Author Your Sites?**

<table>
<thead>
<tr>
<th>Response</th>
<th># of participants</th>
<th>% participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTML</td>
<td>80</td>
<td>99%</td>
</tr>
<tr>
<td>DHTML</td>
<td>38</td>
<td>47%</td>
</tr>
<tr>
<td>Active Server Page</td>
<td>39</td>
<td>48%</td>
</tr>
<tr>
<td>Cold Fusion</td>
<td>7</td>
<td>9%</td>
</tr>
<tr>
<td>Flash</td>
<td>4</td>
<td>5%</td>
</tr>
</tbody>
</table>

Note: Two participants did not indicate any response to this question

Survey results show that HTML is the standard of choice for authoring Web sites. This is probably due to the fact many other formats such as DHTML, ASP, Cold Fusion, and Flash are designed to integrate with HTML. DHTML is a generic term that refers to the extended coding techniques available in modern HTML. Examples of DHTML include the use of Javascript within an HTML page to incorporate “mouseover” effects and animation. DHTML allows provisions for “layers” or “floating boxes,” that allow the author to animate text or objects on the page, across other layers.

Flash can be used to author a Web site in its entirety, or simply to enhance an existing HTML page. Regardless of how it is used, the Flash components are compiled outside of any HTML authoring program, and are then embedded into an HTML page as objects. DHTML and Flash are referred to as “client-side” authoring, meaning that the script or applet resides within the HTML page and is executed in the viewer’s Web browser. In contrast, Active Server Pages (ASP) and Cold Fusion allow for functions and scripts to be executed on the hosting server; the computer on which the Web site actually resides.
Cold Fusion and ASP are competing Web application development tools that enable the rapid creation of interactive, dynamic, and data-driven Web sites. Neither requires coding in traditional programming languages. Instead, they create applications by extending standard HTML files with high level formatting functions, conditional operators, and database commands. Both allow for the processing of Visual Basic, database, and other functions on the Web server itself, and only standard HTML is transferred to the client’s browser.

Table 8

<table>
<thead>
<tr>
<th>Response</th>
<th># of participants</th>
<th>% of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top</td>
<td>4</td>
<td>5%</td>
</tr>
<tr>
<td>Side</td>
<td>23</td>
<td>29%</td>
</tr>
<tr>
<td>Bottom</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Top and side</td>
<td>48</td>
<td>60%</td>
</tr>
<tr>
<td>Top, side, and bottom</td>
<td>3</td>
<td>4%</td>
</tr>
<tr>
<td>Side and bottom</td>
<td>1</td>
<td>1%</td>
</tr>
</tbody>
</table>

Note: Two participants did not indicate any response to this question.

Placement of navigation in a Web site is typically determined by two factors; the number of navigation layers required in a site and personal preference. According to the survey, the majority (60%) of the Web designers prefer using a combination of top and side navigation menus. Twenty-nine percent prefer side-only menus, and only 5% chose top navigation only. Navigation placement on the bottom of a page is often limited to text hyperlink representations of navigation already residing on the page, either in the side or top menu.
Table 9

**What is the Maximum Number of Navigation Layers You Prefer to Implement in a Web Site?**

<table>
<thead>
<tr>
<th>Results</th>
<th># of participants</th>
<th>% of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Levels</td>
<td>29</td>
<td>36%</td>
</tr>
<tr>
<td>3 Levels</td>
<td>46</td>
<td>56%</td>
</tr>
<tr>
<td>4 Levels or more</td>
<td>6</td>
<td>7%</td>
</tr>
</tbody>
</table>

Note: One participant did not indicate any response to this question.

The number of navigation layers refers to how many “clicks” of the user’s mouse are required to locate the information he or she seeks. All of a Web site’s information cannot reasonably be placed on the home page, and links are required to direct users to specific areas of interest. The home page of a Web site functions very much like the table of contents in a book. The majority of survey respondents prefer a maximum of three navigation levels. In three-tier navigation, the home page is considered “level one,” and the destination page is “level three,” with one intermediary page between them. Thirty-six percent surveyed prefer using two levels, where “level one” is the home page, and “level two” is the destination page. Only 7% said they prefer four or more levels.

Table 10

**What Font do You Use Most for the Copy in Your Sites?**

<table>
<thead>
<tr>
<th>Response</th>
<th># of participants</th>
<th>% of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arial</td>
<td>50</td>
<td>66%</td>
</tr>
<tr>
<td>Times New Roman</td>
<td>6</td>
<td>8%</td>
</tr>
<tr>
<td>Verdana</td>
<td>17</td>
<td>23%</td>
</tr>
<tr>
<td>Tahoma</td>
<td>2</td>
<td>3%</td>
</tr>
</tbody>
</table>
**Note:** Seven participants did not indicate any response to this question.

Any font (typeface) can be used in a web site but the number of fonts actually used is limited. The reason for this is that each font a designer specifies on a Web page must also be present on the user's computer. If the user's computer does not have the specified font installed, the browser will substitute another font in its place, which will alter the appearance of the site's pages. Arial, Verdana, and Times New Roman are the fonts used most, according to the survey. They are often pre-installed on personal computers at the factory, and are also available free from Microsoft's web site for both Windows and Macintosh operating systems. Their popularity on the Web is probably due to their widespread availability.

Table 11

**Do You Utilize Cascading Style Sheets?**

<table>
<thead>
<tr>
<th>Results</th>
<th># of participants</th>
<th>% of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>57</td>
<td>71%</td>
</tr>
<tr>
<td>No</td>
<td>23</td>
<td>29%</td>
</tr>
</tbody>
</table>

**Note:** Two participants did not indicate any response to this question.

Cascading style sheets (CSS) allow designers to define specifications of the fonts, alignment, colors, and other characteristics of the fonts that appear on each page of a Web site. Styles provide a fast way to apply a large amount of formatting quickly. If a style is changed within the style sheet, all elements affected by that style are updated automatically.

The three types of CSS are external, embedded, and inline. External style sheets are style sheets in separate files that can affect all pages in a Web site. Embedded style sheets
are embedded within a specific page and affects only text formatted on that page. Inline styles apply only to particular text elements on specific pages.

Table 12

<table>
<thead>
<tr>
<th>Results</th>
<th># of participants</th>
<th>% of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>61</td>
<td>74%</td>
</tr>
<tr>
<td>No</td>
<td>21</td>
<td>26%</td>
</tr>
</tbody>
</table>

HTML allows the use of text and image media within Web pages, much like a newspaper or magazine. HTML does support the use of sound, video, and other multimedia, but requires the use of a third-party “plugin.” A plugin is a small piece of software independent from the browser that instructs a user’s computer how to handle media embedded in a Web page. The most common types are for running Java applets, virtual reality image rendering, audio and audio/video movies. Plugins are written specifically for a single type of media, and so must be installed for each different type of media used within a Web site. Fortunately they must be installed only once, with the exception of updating to new versions, and will run the specified software any time it is required.

Internet Explorer downloads required plugins almost transparently, with little intervention from the user. Netscape Navigator requires that the user locate the required plugin. This can be very confusing, especially when the user is not sure what type of plugin is required.
Table 13

**What Types of Plugins do You Use?**

<table>
<thead>
<tr>
<th>Response</th>
<th># of participants</th>
<th>% of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quicktime</td>
<td>19</td>
<td>31%</td>
</tr>
<tr>
<td>Flash</td>
<td>50</td>
<td>82%</td>
</tr>
<tr>
<td>Acrobat</td>
<td>25</td>
<td>41%</td>
</tr>
<tr>
<td>Real Audio/Video</td>
<td>6</td>
<td>10%</td>
</tr>
<tr>
<td>Java applets</td>
<td>33</td>
<td>54%</td>
</tr>
</tbody>
</table>

Note: 100% of the participants, who answered “yes” to using plugins in question 12, participated in this question.

There are many types of plugins available for use on the Web. Those listed above are among the most popular. Due to their popularity and widespread distribution, some, like Flash, are now being incorporated into the latest browser versions, and do not require the end-user to download the plug-in before running the file.

Table 14

**What Role do You Play in the Overall Marketing Campaign of the Sites You Create?**

<table>
<thead>
<tr>
<th>Response</th>
<th># of participants</th>
<th>% of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphic design</td>
<td>59</td>
<td>76%</td>
</tr>
<tr>
<td>Coding</td>
<td>57</td>
<td>73%</td>
</tr>
<tr>
<td>Copywriting</td>
<td>25</td>
<td>32%</td>
</tr>
<tr>
<td>Marketing strategy</td>
<td>46</td>
<td>59%</td>
</tr>
</tbody>
</table>

Note: Four participants did not indicate any response to this question.
Not surprisingly, the survey found that graphic design and HTML coding are the primary responsibilities of a professional Web designer. In addition, 59% were involved in planning the Web sites' marketing strategies and 32% provided copy (text) content.

Table 15

<table>
<thead>
<tr>
<th>Response</th>
<th># of participants</th>
<th>% of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directly with the client</td>
<td>35</td>
<td>43%</td>
</tr>
<tr>
<td>Through a project leader</td>
<td>8</td>
<td>10%</td>
</tr>
<tr>
<td>Both</td>
<td>39</td>
<td>47%</td>
</tr>
</tbody>
</table>

One of the most difficult parts of designing a Web site is deciding what it should look like, and the extent of interaction between the site and the user. These factors constitute what is generically referred to as the GUI (graphical user interface), or interface. Many times the client, for whom the Web site is being designed, doesn’t have a clear idea of the interface and how it should look. It is often up to the designer to create the initial mockups or “comps” based on limited information. Once the client sees the designer’s interpretation and conceptualization of the proposed Web site, he or she can offer opinions as to whether the comps are “on target” or not.

Of the 82 designers surveyed, 43% have direct contact with the client, 47% have contact both directly with the client and through a project leader, and only 10% have no contact with the client.
Table 16

More Times Than Not, is the Copy Written Expressly for the Site or Adapted from Another Source?

<table>
<thead>
<tr>
<th>Response</th>
<th># of participants</th>
<th>% of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written for the site</td>
<td>40</td>
<td>49%</td>
</tr>
<tr>
<td>Adapted from another source</td>
<td>41</td>
<td>50%</td>
</tr>
<tr>
<td>Unsure</td>
<td>1</td>
<td>1%</td>
</tr>
</tbody>
</table>

Interestingly, the survey shows that approximately half the sites used content created expressly for the Web site and half used content from another source. When writing copy for a Web site, it is important to realize that it is different from writing for print. Most users do not visit Web sites for lengthy articles.

Table 17

Are the Web Sites You Design an Integral Part of Your Clients’ Marketing Strategy, or Simply an Online Presence?

<table>
<thead>
<tr>
<th>Response</th>
<th># of participants</th>
<th>% of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Included in marketing strategy</td>
<td>66</td>
<td>80%</td>
</tr>
<tr>
<td>Separate online presence</td>
<td>9</td>
<td>11%</td>
</tr>
<tr>
<td>Unsure</td>
<td>7</td>
<td>9%</td>
</tr>
</tbody>
</table>

The majority of those surveyed indicated that the Web sites they design are included in their clients’ marketing strategy.
Table 18

In Your Opinion, Does a Multimedia-Enhanced Web Site Communicate its Message More Clearly than a Static Page?

<table>
<thead>
<tr>
<th>Response</th>
<th># of participants</th>
<th>% of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>34</td>
<td>41%</td>
</tr>
<tr>
<td>No</td>
<td>48</td>
<td>59%</td>
</tr>
</tbody>
</table>

The majority of those surveyed indicated that multimedia enhanced Web sites do not necessarily communicate their message more clearly than those without.

Table 19

Do You Find that a Multimedia-Enhanced Site Retains Your Interest Longer than a Static Page, Thereby Making You Less Apt to Leave it to Surf to Another Site?

<table>
<thead>
<tr>
<th>Response</th>
<th># of participants</th>
<th>% of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>41</td>
<td>41%</td>
</tr>
<tr>
<td>No</td>
<td>50%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Interestingly, the survey responses were split right down the middle. Fifty percent believed that multimedia-enhanced pages kept their interest longer than static pages, while the other fifty percent believed they did not.
Table 20

Are You More Likely to Believe the Information Presented on a Site with High-Quality Graphics and Layout than a Site Without?

<table>
<thead>
<tr>
<th>Response</th>
<th># of participants</th>
<th>% of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>49</td>
<td>60%</td>
</tr>
<tr>
<td>No</td>
<td>32</td>
<td>40%</td>
</tr>
</tbody>
</table>

Note: One participant did not indicate any response to this question.
Chapter V

THE PROJECT

Background

As the central part of his thesis project, the author designed a web site for Catholic Charities, the social service agency of the Diocese of Paterson, New Jersey. Before meeting with representatives from Catholic Charities, the author researched the organization by visiting the national Catholic Charities web site and web sites of local chapters in the United States.

Following this research the author met with Rev. Edward G. Lambro, Ph.D., CCMHC, Director of Development and Public Relations for Catholic Charities of Paterson. Dr. Lambro wished to develop a web site that was not only visually appealing, but would also effectively communicate the purpose and needs of the six organizations that comprise the Catholic Charities of Paterson. These are: Catholic Family and Community Services, Department for Persons with Disabilities, Father English Multi-purpose Center, Hope House, Parish Social Ministry, and Straight & Narrow.

The primary audience would consist mostly of site visitors in the Diocese of Paterson seeking information on the various services provided by Catholic Charities and how to contribute to the organization. A large percentage of the target audience would likely be using dial-up modems, so the Catholic Charities web site was designed for modems as slow as 28.8K. Dr. Lambro did wish to take advantage of the features available in the latest versions of Internet Explorer and Netscape Navigator, that allow the use of Dynamic HTML.

Graphics used in a web site generally consisted of the navigation layout, corporate logos and photographic images. Catholic Charities did not have photographs available for
use in the site so the images used primarily consisted of original art for the layout and navigation and logos of the six organizations comprising Catholic Charities of Paterson. This required the author to design original art.

Project Design

The design process began by listing the hyperlinks that had to appear on the home page and determining the colors to be used in the layout. The author was given the Pantone color values of the Catholic Charities’ official colors, purple and gold. Although the Pantone Matching System was originally designed for exacting color values for print media, it is indispensable for matching Web colors to those used in print collateral. Though colors can appear slightly different from one computer monitor to another, the Pantone values provide a solid base to work with.

Since it would be implausible to list all of the site’s information on one page, the hyperlinks would provide access to the site’s ten subsections that included the six Catholic Charities organizations, a section for gifts and donations, the public relations office, events calendar, and a contact page. When designing a Web site, it is important to know all the hyperlinks that must be included on a page, because the layout of the navigation is often determined by the number of hyperlinks. With this Web site, the ten sections would require a menu bar that was visible at all times, regardless of what subsection the visitor was in. Thus, a hierarchical setup would be the most logical. Additionally, some of the subsections had their own hyperlinks. Since these links applied only to the specific subsection, they were only required when that section was visible. The author decided to place the 10 main hyperlinks on the left side of the screen, and the subsection links at the top of the respective pages. The author used DHTML in both the side and top menu navigation. The main menu,
on the left side of the screen, used Javascript for the three “states” of interaction. The first state was “off,” with the hyperlink text color gold. The second state was “over,” when the cursor moved on to the link. In this state the hyperlink text was gray. The third state was “down,” and occurred when the hyperlink was clicked. For this, the link text was purple. The down state of the link remained purple while its respective subsection was visible, and the rest of the links were gold. The links were color-coded this way, so that a site visitor would know at all times what section he or she was in.

The section hyperlinks were designed to resemble file-folder tabs. Like the main menu, Javascript was used to change their different states, and they were also color-coded using purple and gold, but in reverse. In the default state they were purple with gold text, and in the down state, they were gold with purple text. Additional Javascript was used to animate the tabs, so that when a visitor entered the subsection, the tabs would slide up into view. Javascript was also used in the page to instruct the browser to download all the images before the animation started, so that there was no chance of the tab bar having missing graphics when it moved into view. Arial font in 10-point type for body text (copy) was chosen as it is a typical font and size for Web pages. As discussed in Chapter IV, Arial is usually pre-installed on personal computers at the factory and is also available free from Microsoft's web site for both Windows and Macintosh operating systems.

The Catholic Charities web site was designed using three frames in two different framesets (see Figure 1). The frames are numbered 1 through 4 with black lines superimposed to show their boundaries. Frameset one contained frames one, two, and frameset two contained frames three and four. The author made the decision to use frames for this web site for two reasons; to prevent the side and top menus (areas 2 and 3 in Figure 1) from scrolling with the
copy (area 4). This effectively keeps the navigation in view at all times no matter how much scrolling is required by the visitor to reach the bottom of the page.

Figure 1. Depiction of frames used in the Web site layout.

When one of the main hyperlinks was clicked, the second frameset was called up on screen. This frameset contained both the subsection content and its menu bar. By using frames in this way, only one main menu was needed. When the subsection loaded, the browser would only have to load its content, not reload a new set of images that were already on the page. This reduced the amount of time required for the subsection to load. In contrast to a Web page with no frames, every image, including the “off,” “over,” and “down” states of the images, would have to load on every page.

The content provided by Catholic Charities was limited to brochures that provided most of the content copy and logos in electronic format. The author made minor alterations to the grammar, but it was nearly verbatim to the copy in the brochures. The images provided were high resolution and were probably meant for use in printed materials. Web
browsers require graphics resolutions a fraction of those required for print. Using Photoshop, a professional standard software package, the author reduced the graphics' resolution to 72dpi (dots per inch). Though higher resolution images can be used, they usually appear enormous in a browser, and require a much longer downloading time. Catholic Charities was unable to provide images for all its organizations, so the author designed art for those sections that did not have their own logo.

Dr. Lambro did not have a specific idea of how he wanted the site to look, and left the design creation to the author. Knowing the requirements for both side and top menu navigation, the author used these factors as the building blocks for the rest of the site layout. Since this was an official Web site for the Paterson diocese, the author decided to incorporate the diocese' colors of purple and gold. After creating various conceptual "rough" draft proposals of the site, the author made a final decision and began to create the site electronically. The layout was designed using Adobe Illustrator, a professional illustration program. One this was completed, the illustration was imported into Photoshop, where the illusion of depth could be added using special effects tools, to produce beveling and shadow. Since the menu items required various states, each state had to be created separately. When the artwork was completed, the layout was exported using GIF format in the three different states of the side menu. The three separate images were imported into Fireworks, a Web design software package from Macromedia. The images were placed into separate layers, one on top of the next, and carefully aligned with each other. The author then sliced the graphics into smaller pieces. Each hyperlink had to be sliced into its own image, while the rest of the layout was sliced accordingly, to accommodate their implementation into frames. Once all the slicing was completed, the author specified that the slices containing the
hyperlinks were to be exported into the three states. This way, the software would export the three different versions of the hyperlink images, while only exporting one version of the non-hyperlink images. Once the slices were exported, it was time to build the working Web site. The author selected Adobe’s Go Live HTML editing software to do this.

Prior to importing the graphics into Go Live, the author mapped a site layout and created separate folders for each of the subsections. By keeping the subsections in separate folders, the site’s organization was easily maintained.

The Catholic Charities Web site was created in Go Live with the subsections first, since the graphics and the copy were received prior the site layout being designed. The subsection text was typed directly into the HTML pages where they would reside, and formatted using invisible tables to specify the width of the paragraphs. Using tables to specify the column width is important, because of the variety of screen resolutions the audience may view a site in. Dr. Lambro wanted to design the site for 800x600 pixel resolution. However, if the site was viewed by someone with 1024x768 resolution, the text column would expand to fill the extra width of the screen. In Web sites where there is a lot of text, such as Catholic Charities’, it can be difficult to read. By using a fixed table width, the text column would appear as it was designed, regardless of the resolution of the screen displaying it.

The author, being cross-platform proficient in Macintosh and Windows operating systems, wanted to insure that the site would display equally well on both platforms. He created an external Cascading Style Sheet for use by all the pages that contained text. The text was specified to display at a specific pixel width, so regardless of what platform it was viewed using, the text was the same size. The CSS format selected utilized standard HTML
tags for text, rather than the author having to create specialized code. Any text specified as boldface would appear purple, while bulleted text would appear gold, by default. Regular body text was specified as black, and subheadings were 14 point size and purple. Each HTML page was created containing a special command to import the CSS information from the external style sheet. The reason the author used standard HTML was so that if the pages were viewed using a browser that did not support CSS, or one that had the CSS support disabled, the pages would still format normally, even if their specified colors did not display. By using an external style sheet, it was necessary to specify the CSS link information in only one place within the document. That way, any additions to the text would conform to the existing style sheet protocol, without any intervention by the person adding or modifying the text.

By the time the layout was sliced and imported into Go Live, the infrastructure of the site was already in place, and the subsections were complete. The remaining work was to arrange the image slices on the home page and implement the Javascript that would animate the hyperlinks. When this was done, the links were activated, and the site was nearly complete. As previously discussed, additional Javascript was utilized to instruct the browser to load all the hyperlink images before activating them, and a special script was used to compensate for a shortcoming in the Netscape Navigator browser that displays tables improperly.

Testing

The remaining work included testing the Web site in Internet Explorer and Netscape Navigator version 4.0 and above, on both Windows and Macintosh platforms. The site worked well in both browsers on the Windows platform, and Internet Explorer on the
Macintosh. Netscape Navigator for Macintosh, however, did not seem to understand the Javascript for the menu items, and displayed all the various states on the page at once, stacked on top of each other. After several hours of attempting to overcome this shortcoming, the author was unable to find an adequate solution. Since the site worked fine in three of the four browsers, and the site was designed to work only in browser versions 4.0 and above, only, the author made the decision to incorporate a "browser detect" function. A browser detect is a command that reads the type and version of browser a site visitor uses to view the site and redirects visitors to an alternate page if necessary. The author specified the browser detect command to redirect visitors using 3.0 browser versions and Netscape for Macintosh to an alternate page. This page would notify the user that their browser was not compatible with the code in the Web site, and provided links to the most recent releases of the browsers, which are available free from their respective companies. Though Netscape for Macintosh users might not wish to use Internet Explorer as their browser, thus preventing them from visiting the site, they were offered the alternative. It would be their decision whether to download IE or not.
Chapter VI

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

The World Wide Web Consortium is the official governing body for the progression of HTML code. It helps maintain standards for HTML use, but there no official standards for how Web pages should be designed.

At the onset of his research, the author sought to determine current trends in standards for Web site design. This study has discussed the opinions of Web marketing and design professionals, and surveyed an international group of professional Web designers from 16 countries.

The research indicates that there is an identifiable consistency in opinion among Web designers of how Web sites should be developed. These include the aesthetic design, layout, and use of plugins to enhance the Web experience. These trends are discussed below.

Screen resolution is an important factor when designing a Web site, as it determines how much of a site can be seen at one time, without the need for scrolling. While 640x480 resolution was the original standard for the Web, 800x600 has increasingly become more popular. The audience is a key factor in determining what resolution to design for. If the site is to be used solely within a corporation, such as an Intranet, and a company-wide adoption of a specific browser and screen resolution is in place, then the site should be built to those specifications. If the site is designed for a consumer audience, one must assume that a variety of browsers and screen resolutions will be used. Therefore, the site should be designed to work well at the lowest common denominator; 640x480.

Determining what browser versions to write for is also important because features available in the latest (4.x and higher) versions such as Dynamic Hypertext Markup
Language (DHTML) will not work in versions released prior to 4.0 and considerations must be made for site visitors who may be using an older version.

The reason Web sites should be tested in both browsers is because they display pages differently. In particular, Internet Explorer allows the page author to specify margin properties. If the author does not want a border around the page, he or she may specify the left and top margins as zero in the “body” tag, by using the following code: “<body topmargin="0" leftmargin="0">.” By inserting this code at the appropriate location within a Web page, the page will align flush to the left and top, with no extraneous border when viewed in Internet Explorer. Current versions of Netscape do not apply the same standards of HTML code that Explorer does, so Netscape will not apply the same margin properties. To achieve this same effect in Netscape, two additional properties, margin width and margin height must be added and specified as “0.”

If exact control of the margin properties is crucial to the design of a Web page, and the page must be viewable by audiences using both browsers, then other steps may be necessary to insure the page displays as the designer intended. As with screen resolution, the audience generally determines what browsers and versions a site should be tested in.

Just as Web sites should be tested in different browsers, it is also prudent for Web designers to understand the needs of the various audiences who may visit their site. Macintosh computers tend to display text smaller than their Windows counterparts. So much smaller, in fact, that if a font is specified as size “one,” that font will appear on a Windows computer at a size approximately equal to eight-point text, while on a Macintosh it may be so small as to be illegible. There are currently two ways to work around this problem. One way is to be sure that no text is assigned a value less than “two.” The text will appear small on a
Macintosh computer, but will be readable to most audiences. A second method to work around the problem would be by using Cascading style sheets. Style sheets allow a Web designer to specify several methods of font measurement, including point sizes, pixel height, and ruler measurements. The author prefers to use pixel size for fonts, thereby insuring that text will appear exactly the same on all operating system platforms.

Linux is a relatively new operating system that functions very similarly to Windows, from a graphical user interface (GUI) perspective, and should display Web pages similarly to Windows. WebTV, a product designed to allow people to access the Internet through a standard TV set, without the need for a personal computer, is another alternative. Less than one percent of those surveyed reported ever having tested a Web site for compatibility with WebTV.

America Online, the largest Internet Service Provider in the US, currently utilizes a specialized version of Internet Explorer as its Web browser. It is important for designers to realize that this version of IE has different specifications than the non-AOL browser. If a Web site is to be designed for a potential audience of AOL subscribers, it is recommended that the site be tested using AOL, as well as IE and Netscape.

The required download time is often a key factor in Web page design. Generally, the faster a page loads, the better. The best methodology is to know the audience for whom the site is being designed. If the site is targeted toward consumers, it is important to realize that they will usually access the Internet using a modem. While modem speeds vary, one does not want to bore the consumer by having him or her wait for long downloads. By increasing the download time to more than 20 seconds, one risks the consumer losing interest and
possibly moving on to another, possibly a competitor’s Web site. Download speed is directly related to the speed of the modem that an individual is connected to the Internet.

Modem speed is an important consideration when addressing the needs of casual Internet users and many consumers, but it is not always necessary to design for modem speeds. Again, it is important to know the audience who will be accessing the site. If a Web site is being targeted to businesses, a designer is not constrained to a maximum page volume of 60K. Most businesses have fast connections such as T1 lines and Local Area Networks (LAN), so a designer can increase the total content of a page, while still having a relatively fast download speed.

Text loads very quickly, while graphics require more time to load. Rasterized images, such as Graphic Interchange Format (GIF) and Joint Photographic Experts Group (JPG), are the most common type of image used on the Internet. Although images can be used to greatly enhance a Web page, they can also cause it to load very slowly. Vector images, such as those used by Flash, require much less time to load than raster images. Vector graphics use mathematical computations to allow unlimited scalability, while retaining a high quality image. The drawback of vector graphics is that unlike GIF and JPG images, Web browsers cannot readily display them. A separate software file, called a “plugin,” is usually required to be installed within a browser, to enable the browser to display the vector image. Some browsers, such as Internet Explorer 5.0, are capable of displaying vector products such as Flash animations. Others, such as Netscape, may require the user to download the Flash plugin from the Macromedia Web site. While the benefits of Flash are immeasurable compared to raster images, some designers do not want to take the chance of having the end-user forced to download a plugin just to view the site. As a compromise,
many sites that feature Flash graphics and animations also offer a “non-Flash” alternative site.

There are limited benefits to using frames, but they are more complicated to use than regular Web pages, and they require more planning in the site development. The majority of participants surveyed (76%) for this study indicated that they prefer not to use frames. The disadvantages of designing with frames are greater than the limited advantages of using them, especially in consumer sites. Frames do not print well, as browsers are often unable to determine which frame to print. Internet Explorer allows the visitor to select which frame to print, when there are several, but this can be confusing to an individual who is not familiar with frames. Frames can also be unattractive, by displaying borders on a page, much as a window has borders between the panes of glass. If the designer does not specify the borders to be zero, the lines will appear, each with its own scroll bars.

While Flash can extend the audio/visual capabilities of Web pages greatly, it requires much more time and planning than traditional HTML. It is probably better suited for enhancing HTML pages, rather than creating a completely Flash-driven Web site, because some visitors will not have the Flash plugin installed. Companies who do have Flash-only sites should offer a non-Flash site alternative, lest they risk losing potential clients who do not wish to install the plugin.

Menu navigation location is often determined by the screen resolution the site is being designed for. If it is being designed for 640x480, and space is at a premium, a designer may choose navigation on either the side or top of the page. A combination of top and side placement would require more menu space, and less space for page content. Sites that are
designed for 800x600 have more space for the designer to work with, and multiple menus are easier to place in the layout.

Screen resolution is just one factor taken into account regarding navigation placement. There is no rule as to where navigation menus should be placed, though they are typically toward the top or left side of the page. Menus placed at the bottoms of pages, or footers, are usually text-only links. Prior to the World Wide Web, the Internet was a text-only medium. There were no images or audio/visual files at all. Today, most people use browsers that can display images and multimedia, but there are still some who prefer text-only browsers, so the inclusion of text hyperlinks are crucial for navigation.

The majority of survey participants (92%) limit the number of navigation levels to three or less. The probable reason for this is because the more time that is required for a user to find the information he or she is looking for, the greater the chance that person may lose interest, and decide to search for the information on another Web site. Hierarchical formatted Web sites are ideal for keeping the number of navigation levels to a minimum. With this methodology, hyperlinks are usually placed on the home page that allow the visitor to click and be taken directly to that area of the Web site they desire, rather than having to sift through many layers to reach their destination.

Arial, a “san serif” font, was used most extensively according to those surveyed. San serif means “without feet.” Times New Roman, the same font that appears on this page, is a serif font. Note the tiny “feet” at the bottom of most of the letters. San serif fonts such as Arial display clearly on computer monitors, because they contain fewer curves that their serif counterparts, and are easy to read. Serif fonts are slightly more ornate and are probably better suited to printed text.
A single font-type does not have to be specified within a Web page. Some Web designers allow for the use of several fonts. For example, a designer may specify Arial and Helvetica, or Times New Roman and Times. If the first font specified is not present on a visitor's computer, the browser will search for the others.

Font size should be specified as 10-point, or size "two." This size is comparable to printed text and is easily readable. However, this can present a problem for Macintosh users. Macintosh versions of Internet Explorer and Netscape Navigator have traditionally displayed Web content at 72dpi (dots per inch) while Windows’ versions displayed 96dpi. This disparity causes Web page text to appear much smaller than it would on Windows browsers, even though the computer browser is displaying the same font sizes. In March, 2000, Microsoft released version five of Internet Explorer for Macintosh with the ability to allow the user to specify the resolution of either 96 or 72dpi. This feature allows Macintosh users to view Web pages the same way they appear on Windows computers. Prior to this release, the only way to specify uniform text display in Web pages across all operating system platforms, was to utilize cascading style sheets.

Cascading style sheets provide the Web designer with greater control over text elements, and allow for "global" changes within a Web site to be executed instantaneously. The drawback is that all browsers do not support CSS. It is important to test a site utilizing CSS in a variety of browsers before publishing it to the Web. The author recommends redefining standard HTML tags within an external style sheet, such as the paragraph (<p>) tag. By redefining the standard tags, there is less likelihood of formatting problems when new paragraphs are added, especially by someone not familiar with the CSS setup.
Quicktime, by Apple Computer, is one of the most popular plugins for audio/visual content. It provides high quality imaging and sound, and is used in two basic formats; streaming and non-streaming. Streaming is a concept that allows audio/visual data to be displayed as the user's browser receives it, rather than having to wait for the entire piece of software to download to the user's computer, as with non-streaming media. However, Quicktime non-streaming content is still better than many other types of audio/visual, as it is designed to begin displaying once approximately half the content is downloaded, rather than waiting until it is downloaded completely.

Quicktime is utilized by most major Hollywood motion picture studios including, Disney, Warner Brothers, Paramount, Universal, 20th Century Fox, Miramax, MGM, Newline, Dreamworks, and Touchstone for presenting trailers of upcoming theatrical releases. It is also used by ESPN, HBO, NPR, ABC News, Fox, Bloomberg, CNN and other Web sites to provide true streaming of live and recorded broadcast media.

Real Audio and Real Video, by Real Networks, are streaming-only content that use a plugin called Real Player. While Real media does offer high quality sound and imaging, it requires that Real Streaming Server software be installed on the server hosting the Web site. In contrast, Quicktime offers streaming and non-streaming alternatives.

Streaming media, such as Quicktime and RealMedia, are the best choices for displaying video and audio files on the Web. Due to their streaming nature, the files are received by a browser, and generally begin to play within seconds of being activated. Site visitors, especially those with slow connections, do not have to wait for the entire file to download before playing the files. Preventing long download time is key to retaining a visitor's interest. Many sites that feature audio/visual plugins often provide visitors with a
choice of streaming speed, to best suit their connection. While streaming files geared to
28.8K modems do not offer as good an image as those designed for fast connections, it is
important to provide the user with a choice. Image quality is compromised, but the message
is still communicated in a timely manner. Web designers should always keep the intended
audience in mind when offering audio/visual plugins, and provide the audience with a choice
of file qualities.

Flash is an excellent tool for audio/visual animation because it permits the use of
high-quality vector graphic animation. Web designers are able to use Flash content to
produce vector audio/visual media using files a fraction of the size of conventional Web
graphics such as animated GIFs. Since Flash files are relatively small, they require
considerably less time to download, even on slow connections such as 28.8K. The author
strongly recommends that for large Flash files, the file should be set to load completely
before playing. This will help insure that the animation does not begin before the browser is
able to play it, especially on slow connections.

Adobe Acrobat uses a format known as “portable document format” and allows a
Web designer to save virtually any type of document for display on the Web. The benefits of
using PDF files is that regardless of what software program was used to create a document,
anyone can view it, even without the software it was originally created with. For example, a
company can create a full-color, multi-page newsletter in Microsoft Word and save it as a
PDF file. The file can then be placed on the company’s Web site and viewed by anyone with
the Acrobat plugin installed, whether the user has Microsoft Word or not. Additional
benefits of using PDF files include the fact that the original page layout, fonts, and graphics
are all retained, even if the user does not have the same fonts on his or her computer. The
page will look exactly as its designer intended. Acrobat is useful for Web and print applications because it can be customized for either.

Java applets are mini software programs compiled using Java, not to be confused with Javascript. Java applets are most commonly used for page counters, stock market tickers, and animated navigation menus on Web pages. Applets provide useful information while retaining a relatively small file size.

Regardless of the plugin type a designer uses in a Web site, the plugin should be distributed free of charge. It is also strongly suggested that the designer place a hyperlink on the page that links directly to the location from which the plugin can be downloaded. The audience is inconvenienced enough, at having to download a plugin to run the file the site features; it should not have to go hunting for the plugin, too. It is in a company’s best interest to make a visit to its Web site as enjoyable and easy to the audience, as possible.

Whether a Web designer’s contribution to a site is limited to writing HTML code, or being involved with the overall marketing strategy, good communication is vital to a successful Web site. Many times a site’s marketing strategy and copy writing will be developed by a company’s marketing department. The people involved may not have a clear understanding of how to properly take a marketing campaign from print to Web. For this reason, it is important that the Web designer be included in the process. He or she may be able to provide valuable insight for a successful transition, from the planning stages of a campaign, to the final product. It is also beneficial for the designer to have a thorough knowledge of what the author terms, the “big picture.” By including the designer in the planning process, he or she should be very comfortable in translating the campaign to the Web.
The exchange of ideas, opinions, and feedback are also important for a designer to have direct contact with the client. In his own experience, the author has designed Web sites for several Fortune 1000 clients, though dialogs directly with the clients are rare. Most often, the project leader has acted as a filter between the client and the web designers. This is unfortunate, because often the project leader has filtered out important details from the client that the designer would have been able to use. In the end, it is the client who pays, either in not receiving as good a Web site as the designer could have produced, or having to pay more to get the site right.

A Web site is generally more for reference, where articles and other textual content should be kept brief and succinct. The main reason is the amount of text that can be displayed on a browser at one time is much less than that of a newspaper front page or magazine. The more content on a page, the more likely a visitor will have to scroll down. If too much scrolling is required, the visitor may lose interest and leave the site. If the content does require a large amount of text, the Web designer should provide a printable version of the page that allows the visitor to easily print the article for later viewing. This is especially crucial if the Web page is being displayed using frames. Another danger of adapting copy from another source, such as a company brochure, is that, over-editing may lose the intended message. By writing copy expressly for a Web site, the author can tailor the content to the Web medium, keeping in mind the space limitations.

Most businesses today want to have a Web site, if for no other reason, than to keep up with their competition. It is easy for a company to create a Web site, but unless the company uses its site as a marketing tool, it may simply end up lost among the millions of other Web sites that have no purpose.
A marketing campaign often consists of advertisements, press releases, and collateral such as brochures and token giveaways. The Web is a wonderful medium for extending a company's marketing campaign. It offers not only the ability to provide print, photographs, graphs, and audio/visual, but also a direct means of communicating with the company. One of its best features is that it is accessible 24 hours a day, 7 days a week.

The URL or Web site address should be placed on all media used in conjunction with the campaign, including press releases, brochures, and giveaways. The site itself should provide content that compliments, rather than duplicates, the material already dispersed in the brochures.

Many people believe that multimedia-enhanced Web sites are superior to static sites in that they offer greater levels of interaction and are likely to retain a visitor's interest longer. Simply because a Web site features multimedia enhancements, or "eye candy" as it's commonly known, does not mean that the visitor will have a clearer idea of the message communicated. On the contrary, there is a risk of multimedia actually causing a site's message to be diminished. If there are too many "bells and whistles," the visitor might lose sight of message. In addition, multimedia pages require longer download times, and if the visitor has a slow modem, he or she might become tired of waiting for the pages to download and move on to another site.

There is no sure way to determine if a multimedia-enhanced Web site is better at retaining its audience than a static page. The content of every site is subjective, and people visit different sites for different reasons. For example, a person wishing to purchase an automobile may do an online search and find all the necessary information he or she needs on a static Web page. However, if the automobile manufacturer wants to create a more enticing
way of displaying its cars on a Web site, it might also include a virtual reality glimpse of the interior of the automobile, the ability to rotate the car 360°, or view it in different colors. Implementing features such as these will surely encourage some consumers to spend additional time at that Web site. It is also possible that a multimedia site, such as the one described, may encourage repeat visits and word-of-mouth advertising.

There are millions of Web sites on the World Wide Web, with many competing for the same target audience. With this in mind, it is important that Web sites look their best. The majority of those surveyed believe that a well-designed Web site featuring high-quality graphics and layout is more credible than one without, regardless of whether it is multimedia enhanced. The theory that "presentation is everything" is true even for Web sites. This may be especially true on Web sites offering e-commerce. Since it is nearly impossible to guarantee secure transactions on the Web, site visitors might feel safer purchasing an item online from a Web site that appears to have been professionally designed, rather than one that looks as if it was created by a twelve-year old. Though this comparison may seem absurd, there are hundreds of Web sites selling merchandise online that are poorly designed in regard to layout and quality of images used. In contrast, it is important to remember that simply because a Web site looks nice, it is not necessarily trustworthy. Before making online purchases, the visitor should be aware if the site is "secure" or not. An easy way to identify a secure site is to look for an image of a padlock at the bottom of the browser. In some browser versions, the padlock appears to be unlocked when viewing a non-secure page, and locked when viewing a secure page. In other browsers, the lock may not appear at all unless a secure page is being viewed. Not every page of a Web site needs to be secure, but if the visitor is being asked to input credit card information, it is crucial that that section of the Web
site be safe to do so. Most ethical e-commerce sites provide information on their site security policies, that spell out the liability responsibilities of both parties. Before making any online purchase, the buyer should always understand his or her right to secure transactions. If a person has any doubt of a site’s e-commerce security, the company should be contacted. A responsible Web site should always display a customer service telephone number for questions, and many companies permit product ordering by telephone as an alternative to ordering online. The phrase, “let the buyer beware,” applies to Web sites as it does any other purchase venue.

Although there are no formal guidelines for Web design, this study has demonstrated that unwritten guidelines do exist among professional Web designers in screen resolution, browser testing, download time, authoring tools, navigation, use of plugins, and other factors in Web site development. The majority of those surveyed also felt that professionally-designed sites are more credible than amateur sites, but that audio-visual “eye-candy” did not communicate a site’s message any more clearly than one without.

Future Study

A future study might focus on the use of Active Server Pages (ASP), Cold Fusion and other data-base driven site development tools as alternatives to HTML.

In closing, it is the author’s expectation that if a follow-up survey was conducted in future years, the survey questions would be relevant to design methodology. The exceptions would be the question of “minimum connection speed.” In the future, the author predicts that dial-up connections over analog phone lines will be obsolete, and that one day all Internet users will be able to access the World Wide Web with high-speed digital and cable connections. The tools used to create Web sites will undoubtedly change in time, but there
will probably always be a number of different tools used. Factors such as the number of
navigation layers, and navigation layout, that orient site visitors to the information they seek,
will remain constant. A perfect example of this is newspaper. Headlines are always at the
top of the page, subheadings always precede articles, and articles are rarely split to more than
two separate pages.
References


Bibliography


APPENDIX A

Definition of Terms
Applet. A computer program written in Java designed to run from a Web page or independently over the Internet. See also Java.

Bandwidth. The capacity of a computer network or telecommunications line to transmit volumes of data.

Chunking. The process of successively breaking down potential Web site content into smaller, more discrete and related parts.

Click-through. The action of clicking on a Web site hyperlink to view the content connected to it. See also hyperlink.

Content analysis. A public relations practice of evaluating the quality, length, context and favorability of a story placed in the news media.

Cookie. This text file resides with a Web browser and can be altered by a Web server. Web sites sometimes use cookies to save session information about a user between visits. See also browser and server.

Domain. The base of a computer’s Internet address. For example, Seton Hall University’s domain name is shu.edu.

E-mail. Electronic Mail; the Internet equivalent of sending and receiving letters.

FAQ. Acronym for Frequently Asked Questions. A document designed to answer often-asked questions so that the information is readily available to users.

Form. A Web document that presents text fields or options to be set by the user. Information from the form can be passed to a Web server for specific processing, such as recording registration information or performing a search.
FTP: File Transfer Protocol; primitive Internet method for copying files between Internet-connected computers.

Java: A computer language developed by Sun Microsystems that can be used to run programs over the Internet, such as animation and other dynamic features. See also applet.

JavaScript: A simplified computer language embedded in Web pages for creating interactive features that run within a user's Web browser.

Link: See hyperlink.

Plug-in: A separate program added to a Web browser to support special content or features. These features, such as sound and video, extend the normal capabilities of a Web browser.

Press release: A dated, printed news announcement, usually distributed to the news media.

Pull: Internet content delivery mechanism where the recipient of information designates a provider and initiates a request. Contrast with push.

Push: Internet content delivery mechanism where the provider of information designates a recipient and delivers the information. An example is e-mail. Contrast with pull.

Server: A software program or host computer that handles requests from clients and provides files (stored in its computer memory) or performs actions in response.

Site: A computer located on the Internet that hosts information or provides a service or function.
Style sheets. Also called cascading style sheets, or CSS. Collections of special text-based commands used for consistent formatting of HTML documents. Style sheets can be used to affect placement, style, and color of Web page content. See also HTML.

URL. Universal Resource Locator; an identifying address that specifies the unique locations of an Internet resource. It may include a host name, domain name, a directory path name, and a file name (e.g., http://host.domain.com/path/file.html).

Web developer. Consultant or staff member proficient at building Web sites. See also site and Web.
Appendix B

Survey
DESIGN & LAYOUT FUNDAMENTALS

1. What screen resolution do you typically design for?
   a) 640x480
   b) 800x600

2. What browsers and versions do you test your sites in? You may select more than one of the following:
   a) Internet Explorer 3 and below
   b) Internet Explorer 4 and above
   c) Netscape Navigator 3 and below
   d) Netscape Navigator 4 and above

3. What platforms do you test your sites in? You may select more than one of the following:
   a) Windows
   b) Macintosh
   c) Other, please specify: ________________

4. What is the maximum download time you design your sites for?
   a) 10 seconds or less
   b) 20 seconds or less
   c) 30 seconds or less
   d) Doesn't matter

5. What minimum connection/modem speed do you design for?
   a) 28.8K
   b) 56K
   c) ISDN and higher
6. Do you prefer the use of frames in your web-based layouts?
   a) Yes
   b) No

7. What format do you use to author your sites? You may select more than one of the following:
   a) HTML
   b) DHTML
   c) ASP -- Active Server Pages
   Other, please specify: _________________

8. What navigation layout do you typically implement in the design of your sites? You may select more than one of the following:
   a) Top
   b) Side
   c) Other, please specify: _________________

9. What is the maximum number of navigation layers you prefer to implement in a web site?
   a) 2
   b) 3
   c) 4 or higher

10. What font do you use most for the copy (main text content) in your sites?
    a) Arial
    b) Times New Roman
    c) Other, please specify: _________________
11. Do you utilize Cascading style sheets?
   
a) Yes

b) No

12. Do you implement audio/visual plug-ins in your sites?
   
a) Yes

b) No

13. If “yes,” what types of plugins do you use? You may specify more than one of the following:
   
a) QuickTime

b) Flash

c) Acrobat

d) Java applets

e) Other, please specify: ____________________

14. What role do you play in the overall marketing campaign of the sites you create? You may specify more than one of the following:
   
a) Graphic design

b) Coding (HTML, DHTML, ASP)

c) Copywriting

d) Marketing strategy

15. Do you interact with your clients directly or through a project leader?
   
a) Directly with client

b) Through a project leader

c) Both
16. More times than not, is the copy (text content) written expressly for the site or is it adapted from a different source?

   a) Written for the site
   b) Adapted from another source

17. Are the web sites you design an integral part of the organization's marketing strategy or simply an online presence?

   a) Included in the marketing strategy
   b) A separate online presence
   c) Not sure

**EVALUATION**

18. In your opinion, does a multimedia enhanced web site communicate its message more clearly than a static page, even if the static page is aesthetically pleasing?

   a) Yes
   b) No

19. Do you find that a multimedia-enhanced site retains your interest longer than a static page, thereby making you less apt to leave it to surf to another site?

   a) Yes
   b) No

20. Are you more likely to believe the information presented on a site with high quality graphics and layout than one without?

   a) Yes
   b) No
Appendix C

Survey Cover Letter
March 7, 2000

Good day,

I would like to invite you to participate in a 5 to 10 minute, online questionnaire I have prepared as part of my Master's degree thesis.

My name is Roger Noel. I am a graduate student at Seton Hall University in New Jersey, U.S.A. The thesis examines those elements essential to a successfully marketed web site, from basic elements to marketing and customer service. The survey is regarding fundamental elements of Web page design. Some of the questions may seem rather elementary to those who have been designing Web sites for many years, but because "I" design in a certain way does not mean I can assume that other designers do too, especially for thesis purposes.

Over 300 professional Web designers from the following countries have been invited to participate: Australia, Canada, Denmark, England, France, Germany, Ireland, Northern Ireland, Italy, Lebanon, New Zealand, Norway, Scotland, South Africa, United States and Wales.

If you choose not to participate, you will not be contacted again. However, for those who do participate, I will make the survey results available to them when it is completed.

For your own piece of mind, I would like you to know that I did not "buy" your e-mail address from another source. I personally visited each of the 300 web sites of all the prospective survey invitees, which I found using ordinary search engines. I was able to copy your e-mail information from your site.

This survey is absolutely anonymous. Your e-mail address will be neither seen nor distributed to anyone but myself. Only the survey responses will be used for the thesis.

The deadline for completing the survey is Friday, March 17, 2000.

The survey is located on my own, private Web site, at the following URL:
http://www.rockhopper-design.com/thesis

I hope you will take the few minutes to complete the form. Thank you for your time.

Regards,

Roger W. Noel
Appendix D

International Survey Participants
Table 21

**Listing of Countries that Participated in the Survey.**

<table>
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