A USABILITY ANALYSIS OF COMPANY WEBSITES

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ABSTRACT

Web usability advocates stress the importance of clarity, simplicity, and consistency in web design so that users can perform desired operations efficiently and effectively. If a website lacks these characteristics, users may become confused or frustrated and "take their business" to competing sites. Usability advocates have made anecdotal observations about the extent to which websites follow "good" design practices. However, there have been few attempts to address this issue from a research perspective. This study presents an analysis of INC. 500 company websites using eleven measures, grouped into three categories: avoidance of web design errors, adherence to web design conventions, and inclusion of features to promote usability. These measures were derived from usability guidelines proposed in the literature. The results revealed that while a few design guidelines are commonly followed, most showed a high degree of variation. The mean number of guidelines followed per website was 5.5 out of a possible 11. In particular, the results suggest that many websites can be improved with regard to link appearance, navigation, and the inclusion of more positive features such as breadcrumb trails and search boxes to improve usability. Thus, many organizations should consider reexamining their websites from a usability perspective.

Keywords: Web usability; Website design; Internet; Content analysis

INTRODUCTION

"Web usability" may be defined as "a quality attribute that assesses how easy user interfaces are to use" [12]. Among the important considerations of website's usability are its: learnability (how easy is it for users to accomplish basic tasks the first time they encounter the design?), efficiency (how quickly can users perform tasks?) and user satisfaction (how pleasant is it to use the design?) [12]. Thus, "web usability" is a broad concept that encompasses many aspects of design including a website's presentation, its navigational features, and its functionality or usefulness to visitors.

Since the publication of Jakob Nielsen's well-known book, *Designing Web Usability*, in 2000, Nielsen and a number of other prominent sources such as Krug, Johnson, Gold, and Flanders have emphasized the importance of simplicity, predictability, and ease of use in website design [3, 4, 5, 6, 7, 11, 13, 14]. The sources who stress this perspective are referred to in this paper as "usability proponents" or "usability advocates" and the guidelines derived from these sources form the central basis for this investigation. In making their case for the importance of usability, Nielsen and Loranger [13], for example, point out that with the increased use of search engines, competing sites that allow users to find the same or similar information are just a click or two away [13]. If a website is not usable — if its features or design irritates, confuses, or frustrates users in their quest to perform desired operations — many users will simply access another site that better meets their needs.

Usability advocates have proposed various "guidelines," i.e., recommended practices or "do's" and "don'ts" for web design. These guidelines are based on these sources' years of web design experience and research studies. For example, the Nielsen Norman Group has conducted numerous usability studies since the mid-1990s, and their findings serve as the basis for many of this group's recommendations [11, 13]. It should be stressed that these proposed practices are "guidelines" — they are not absolute rules for web design. That is, they apply to most but not necessarily all websites. For example, while Nielsen and Loranger [13] recommend that streaming videos offered at websites should generally be less than two minutes to keep viewer interest, they acknowledge that some sites with unique product offerings may have the ability to exceed this guideline; for example, Victoria Secrets has been successful in generating considerable traffic to its website with its one-hour video fashion shows [13].

Although web usability appears more important than ever, usability advocates stress that it is sometimes not given the attention it deserves. Among the general categories of problems that can be derived from the usability sources is that websites sometimes contain errors or bloopers, they do not consistently follow web conventions, and they do not contain positive features that could aid navigation and usability. In their writings, usability proponents present various examples of specific company websites that violate specific usability guidelines. However, it cannot be determined from these examples whether they represent the "exceptions" or the "rules" of company web design practices. There is a need to investigate this issue using a wider, systematic approach, which few studies have done based on our literature review. Accordingly, this study focuses on three research questions: (1) To what extent do company websites avoid selected web design errors? (2) To what extent do company websites follow selected web design conventions? (3) To what extent do company websites include selected design features to promote usability? As indicated earlier, there are many dimensions to web design. This study confines its focus to selected presentation and navigation issues – it does not address website functionality and it is not intended to be an overall assessment of website quality.

LITERATURE REVIEW

This investigation addresses eleven measures organized into three categories: web design errors, web design conventions, and design features to promote usability. According to usability proponents, the design "errors" are practices that should be avoided or eliminated, the conventions are practices that should be followed since they match the expectations of many users, and the design features should be included to enhance site usability.

The authors selected the eleven measures based on three criteria. First, they all involve presentation and/or navigation features that appear to have some impact on the user experience, i.e., the ability of users to perform desired operations quickly and easily. Second, they can be measured relatively objectively as being either present or absent, as opposed to other measures that would call for more interpretation or "judgment calls" on the part of the researchers. Third, the researchers were able to find corroboration from at least two published sources that these web design guidelines should be followed. A description of the eleven measures and the guidelines proposed by web usability sources about them is addressed in the next section. In addition, Table 1 presents some reasons why web designers may not follow these guidelines and the potential impact of these practices on users.

Web Design Errors:

Use of Splash Screen (Measure 1). A splash screen is an introductory screen, typically built using Macromedia Flash animation that some websites employ before displaying the home page. A splash screen usually consists of glitzy images designed to "jazz up" the entry to a site or it attempts to create a certain mood for users entering the site. While many splash pages have a "skip intro" button to escape, many website proponents claim they are unnecessary and get in the way of the user experience [3, 7, 11, 13, 21]. According to Flanders and Peters [3], splash pages often take a long time to download and for the most part are worthless. Nielsen says bluntly, "Splash screens must die" [11, p. 176]. He contends that splash screens are annoying and ineffective, and users click off them as fast as they can.

Horizontal Scrolling (Measure 2). Some web pages are so wide that they require users to scroll right to fully view their contents. When this occurs, many users will not make the additional effort required to scroll back and forth — especially horizontally — to see the rest of a page display. According to Johnson [5], although users apparently will tolerate a small to moderate amount of downward scrolling, they really dislike having to scroll sideways and often simply will not. Gold [4] also states that users should not be required to scroll right to find something at a site. It should be noted that whether or not scrolling is necessary depends on which screen resolution is used. More screen elements are visible at 1024 X 768, and scrolling is less likely to be required, than at a setting of 800 X 600. In this study, the researchers used a 1024 X 768 screen resolution since that is the most common setting in use today [1].

Self-Link on Home Page (Measure 3). Some home pages contain a self-link. That is, these pages have an active "home" page link that reloads the page when it is clicked or the home page contains a "home" link that appears to be active (not shaded out to indicate it is the current page). Several sources point out that this is an error to avoid in website design [3, 6, 14]. According to Johnson [6], this error wastes the user's time as a page reloads, and he also says it can be very disorienting, because users may not realize that the redisplayed page is the same as the one they were on — especially if the page contains rotating images. Johnson goes on to say that the main cause of this "blooper" is that the HTML codes for the navigation bar are copied onto every page of the site, making every bar link active on every page. He points out that it takes more work to alter the codes for each page so a page's own navigation bar item is not active [6], so this design issue results.

Web Design Conventions:

Link Appearance (Measure 4: Links are Underlined; Measure 5: Links are Blue; Measure 6: Link Appearance Changes After It Is Clicked). Many usability advocates have observed that users have come to expect hyperlinks to appear in a certain way. In specific terms, links should be some shade of blue, they should be underlined, and they should change color after being clicked, usually from blue to magenta [4, 17, 21]. According to Shelly et al. [17], following these standards contributes to a well-designed navigation system. Van Duyne et al. add, "You might think that blue links are ugly, are hard to read, and clutter the page, but . . . customers expect unvisited links to be blue and underlined" [21, p. 584].

Based on their usability studies, Nielsen and Loranger draw the following conclusion about the problem of unchanging link colors, "On any given page, users seem to understand the links just fine. . . . Observe carefully, though, and you'll notice that users are moving in circles. They'll visit the same page multiple times — not because they want to, but because they don't realize that they've already been there. Or they'll skip links to places they haven't been because they don't realize they haven't been there" [13, p. 62]. Johnson observes, "When links don't show whether a user has already visited the page they point to, the navigability of a site suffers" [6, p. 241].

Home Page Links (Measure 7: A Company Logo Appears as a "Home" Link on Internal Pages; Measure 8: A "Home" Text Link Appears on Internal Pages). Many sources point out the importance of having a link on internal pages back to the home page [4, 7, 17, 21]. This provides a feeling of comfort and safety to users [4] and flexible navigation. Two possible ways to provide a navigation link back to the home page are through a clickable company logo on internal pages and/or a "home" text link on internal pages. Where present, the company logo is usually placed at the top left of the screen and the "home" text link is shown as a main navigation option.

While the "home" text link is almost universally understood by web users, it is a bit more questionable whether some users, especially novice ones, realize that clicking the company logo will take them back to the home page. Johnson [5] observed in 2000 that in the usability tests he conducted, few users realized the company logo was a link, at least initially. Krug [7] stated that while the use of the logo as a home link is a useful idea, a surprising number of users are not aware of it so it is probably a good idea to also include a "home" text link along with the logo. More recently, in 2003, Van Duyne et al. [21] stated that most users expect to be able to return to the home page by clicking on the site logo in the upper-left hand portion of any page. Thus, the company logo convention appears to have become more understood over time, but not all users are still probably aware of it. For this reason, ideally internal pages will have both a "home" text link as well as a company logo "home" link.

Design Features to Promote Usability:

Breadcrumb Trail (Measure 9). A breadcrumb trail shows users the path from the current screen back to the home page. It is typically displayed on one line toward the top of the screen with separators between each point in the path. Several sources regard providing a breadcrumb trail as a good way to improve the usability of a site and allow users to navigate [4, 7, 21]. A breadcrumb trail can potentially help users who

Table 1. Website Design Problems, Potential Causes, and Impacts

Potential website design problems [sources]:	**Some common reason(s) of these problems:**	**Potential impact on users:** *How this may inhibit visitors from finding information or meeting their goals quickly and easily*
1. A splash screen is used [3, 7, 10, 11, 13, 21]	Designers want to add pizzazz to a site or create a mood for users entering a site	Lengthens the time it takes a user to get to the true content of the site; users may get bored, confused or frustrated
2. Horizontal scrolling is required to view the entire home page [4, 5]	Designers may design the site based on the resolution setting of their own monitors and not think about those at a different resolution	Many users will not make the effort to scroll back and forth; they may miss hidden information, get confused or frustrated
3. The home page contains a self-link [3, 6, 11, 14]	Designers copy the same navigation scheme to every page without adding code to take out the option or make the current page's option inactive (shaded out)	Site gives the appearance of a lack of professionalism; users may get confused or frustrated with this link that contains no real functionality
4. Text links are not underlined [4, 17, 21]	Designers may think this will produce less clutter and improve a page's appearance	Some users will not recognize these entries as links and miss important information
5. Text links are not blue [4, 17, 21]	Designers may think this will improve the site's appearance or better fit the site's color scheme	Some users will not recognize them as links and miss important information
6. Text link color does not change after it is clicked [6, 13, 21]	Designers disable the default color option, not allowing link color to change	Imposes a greater cognitive load on users; they may not remember which links they have and have not visited; they may visit the same link multiple times or not visit other links thinking they already have
7. The company logo (as a back link) is missing from internal pages [4, 7, 21]	Designers may discount the importance of this convention, or only use a "home" link	Some users look for this as a way to get back "home;" it may take extra time to find the "home" text link; user confusion, frustration
8. A "home" link is missing from internal pages [4, 17, 21]	Designers assume that all users know the company logo is a home link; or they forget to provide any link back to home page	Some users look for this text link as a familiar way to get back "home;" user confusion, frustration
9. A breadcrumb trail is not provided [4, 7, 21]	Designers do not make the effort to add this option or they deem it as unimportant or unnecessary	Some users may not know how to go back to previous pages, especially those who enter the "middle" of a site from a search engine; users may get lost, confused
10. A site search capability is not provided [3, 4, 6, 7, 10, 11]	Designers do not make the effort to add this option or they deem it as unimportant or unnecessary	Some users prefer search boxes over other navigation methods; they may feel confused or frustrated
11. A FAQ or Help option is not provided [10, 21]	Designers do not make the effort to add this option or they deem it as unimportant or unnecessary	Users are not given guidance on common operations or problems; getting assistance through other methods such as "help lines" may take longer

get lost [4, 21] and they provide a convenient way for users to perform common operations — such as going back a screen or going home [7]. A breadcrumb trail is particularly useful to users who enter the "middle" of a site based on a search from a search engine; this trail provides an orientation about the structure of a site.

Site Search Capability (Measure 10). Users differ in how they approach finding information on the web. According to Nielsen [11], "search-dominant users" (which he says constitute almost half of web users) will almost always look for a search box when they enter a site, whereas "link-dominant users" will browse first and search only when they've run out of likely links or when they have gotten frustrated. Other visitors use a combination of these approaches [11]. Thus, if a website does not provide a search box (or search link) on the home page, it risks alienating those users who prefer to find information in this mode and they may go to competitors' sites instead. A number of sources recommend that most sites would benefit by including a site search capability [3, 4, 6, 7, 10, 11]. According to Gold [4], websites should provide "different doors" to the same information and accommodate different user preferences. Nielsen [11] states that a search option should be easily available from every single page of a site. Finally, a site search capability should not be confused with a "web search" capability that some websites offer. That feature, according to some sources, is unnecessary. Nielsen and Tahir recommend not to provide a "search the web" option since users will

use their favorite search engine for that, and including this option makes search more complex and error-prone [14].

FAQ or Help Option (Measure 11). Because users sometimes get lost on the web and have trouble finding needed information and accomplishing their goals, a possible support mechanism is to provide a Frequently Asked Questions (FAQ) or Help option on the home page. Van Duyne et al. state, "Have multiple links to your FAQ page, including one from the navigation bar to the FAQ page, labeled FAQ or Help" [21, p. 495]. Lynch and Horton add that the inclusion of a FAQ option is "ideal for websites that are designed to provide support and information" [10, p. 50] and that, "a well-designed FAQ page can improve users' understanding of the information and services offered and reduce demands on your support staff." [10, p. 50].

METHODOLOGY

This study utilizes content analysis, which is "the systematic, objective, quantitative analysis of message characteristics" [15, p. 1]. This has been a commonly employed research method to assess organizations' use of the web. For example, using content analysis, Liu et al. [9] examined the content of company home pages; Liu and Arnett [8] and Ryker et al. [16] analyzed companies' web privacy policies; Young [23] assessed companies' disclosure of their supplier diversity initiatives; Tarafdar and Zhang [19, 20] reviewed successful websites to identify critical website characteristics affecting usability; Yeung and Lu [22] assessed the applicability of a proposed functionality grid to oil company websites; Singh et al. [18] compared the Chinese and U.S. versions of Fortune 500 company websites; Zhao and Zhao [24] examined the web technologies used by companies at their websites; and Campbell and Beck [2] assessed the website responses of companies to public allegations of ethical malpractice.

The authors conducted a content analysis of the websites of *INC. 500* companies using Internet Explorer over a two-week period in late summer 2005. The most recently available list of *INC. 500* companies was used at that time, based on company sales and growth data through 2004. The URLs for the company websites were obtained wherever possible from the *INC. 500* list. For those organizations that lacked a URL, the authors used the search engine Google to locate the company's website. Eight of the eleven measures that form the basis of this study were evaluated based on reviewing the company's home page. The other three measures, the two home link-related measures (measures 7 and 8) and the use of a breadcrumb trail (measure 9) were assessed by examining internal pages, i.e., pages other than the home page. As noted earlier, the researchers used a 1024 X 768 screen resolution for data collection.

Two rounds of pre-tests were conducted prior to the full-scale data collection by two researchers. An initial pre-test of 25 sites was conducted to assess the validity of the coding scheme. Based on this pre-test, some minor revisions were made to the instrument. A second pre-test of 50 sites was then performed to assess inter-coder reliability, the level of agreement between the coders. The reliability coefficient for all measures was calculated at .96, with the coefficient for individual measures ranging between .92 and 1.00. These practices are consistent with the content analysis guidelines set forth by Neuendorf [15] that reliability tests should be based on a sample of at least 50 elements and inter-coder reliability coefficients of .90 or greater are highly acceptable.

The results of this study are based on 478 websites out of the 500 companies on the *INC. 500* list. The remaining companies were not included for one of several reasons: (1) the company apparently did not have a website based on no URL entry in the *INC. 500* list and no site being found as a result of the Google search; (2) the website was found to be under construction or maintenance; or (3) the website was unable to be opened or was infected with a virus.

Table 2. Usability Measures and Coding Scheme

For each measure: 1 = Yes (desirable) 0 = No (undesirable)
1) A Splash page is not used (on the opening screen): 1 = Yes 0 = No
2) Horizontal scrolling is not required 1 = Yes 0 = No
3) Homepage does not contain a self-link 1 = Yes 0 = No
4) Text links are underlined: 1 = Yes 0 = No, or they appear only on a "mouse rollover"
5) Text links are blue (Some shade of blue, not necessarily the default shade): 1 = Yes 0 = No, or they appear only on a "mouse rollover"
6) Text link color changes after a link is clicked: 1 = Yes 0 = No
7) A company logo serves as a "Home" link on internal pages: 1 = Yes (a logo is present, active) 0 = No (no logo is present or if it is, it is not active)
8) A "Home" text link appears on internal pages (or a "Return" link): 1 = Yes 0 = No
9) A breadcrumb trail is provided 1 = Yes 0 = No
10) Site search capability is provided 1 = Yes 0 = No
11) A FAQ or Help option is provided 1 = Yes 0 = No

The measurement of each variable is summarized in Table 2. As indicated, each site was categorized as either following or not following each of the eleven design guidelines. For measures four and five, which involved whether links were underlined or blue, respectively, the appearance of links at some sites for these measures changed upon a "mouse rollover." For measurement purposes, these sites were considered as not following web conventions because they required users to take additional actions before they would change in appearance. According to Gold [4], "Why make users make the extra effort find out whether something is a link?" This measurement approach is also consistent with the web usability "mantra" of Krug that says, "Why make me think?" [7, p. 11]. In terms of the seventh measure, the authors observed that while many websites included a company logo on internal pages, they were not always "active" links back to the home page. Inactive company logos on internal pages were counted as not following web conventions, since it is likely that their lack of functionality would likely run contrary to the expectations of many

web users. The last measure in Table 2 was assessed according to whether the home page provided an "FAQ" or "Help" option as a main navigation choice. If this option could only be assessed by using a "pull down" menu or through additional clicks, it was counted as not following this design guideline, consistent with the recommendations of Van Duyne et al. [21] stated earlier.

ASSUMPTIONS AND LIMITATIONS

It should be emphasized that this study addresses selected measures of web usability based on the criteria identified above. It is not meant to be a comprehensive look at all usability variables or an overall assessment of website quality. This investigation focuses only on the frequency of which certain web design practices were followed or not followed in practice.

Second, while the authors collected the data at "one point" in time, i.e., within a two-week period, it should be recognized that websites are updated on an ongoing basis. Thus, follow-up studies of even the identical sites would likely find some differences. It should also be noted that the results are based on companies on the *INC. 500* list. These companies are small to medium sized, high growth businesses, and they may not be representative of organizations' websites in general. Thus, it would be useful for future research to replicate this study using the websites of either larger firms such as *Fortune 500* companies or smaller to medium sized companies that are more mature or which are experiencing lower rates of growth.

Third, what is presented in this paper as "desirable" web design practices are based on the guidelines set forth by at least two different sources. These usability proponents stress usability in web design, and designers who place a premium on other design aspects such as graphic appearance may disagree with some of the proposed guidelines. In addition, as noted earlier, even usability proponents acknowledge that there are times when designers may need to "break the rules" based on a site's unique purpose or characteristics. However, these cases are atypical and the usability guidelines are meant to apply to a clear majority of websites.

FINDINGS

The results of this study are shown in Table 3, organized by the three research questions presented earlier. For consistency of presentation, all measures in the table are shown so that a "yes" indicates a desirable aspect of web design according to the web usability sources cited in this paper. For this reason, it was neces-

Table 3. Usability Measures in Company Websites*

	Yes	No
Avoidance of Web Design Errors:		
1. A Splash page is not used	91.6%	8.4%
2. Horizontal scrolling is not required	99.2%	0.8%
3. Homepage does not contain a self-link	37.7%	62.3%
Use of Web Conventions:		
4. Text links are underlined	55.1%	44.9%
5. Text links are blue	44.9%	55.1%
6. Text link color changes after it is clicked	27.4%	72.6%
7. A company logo link appears on internal pages	61.1%	38.9%
8. A "home" text link appears on internal pages	73.2%	26.8%
Inclusion of Features to Promote Usability:		
9. A breadcrumb trail is provided	10.5%	89.5%
10. Site search capability is provided	23.2%	76.8%
11. A FAQ or Help option is provided	14.0%	86.0%

* *All measures are worded in the direction of what is recommended by usability advocates; a "yes" indicates a desirable aspect of design (a "do"), while a "no" indicates an undesirable aspect (a "don't").*

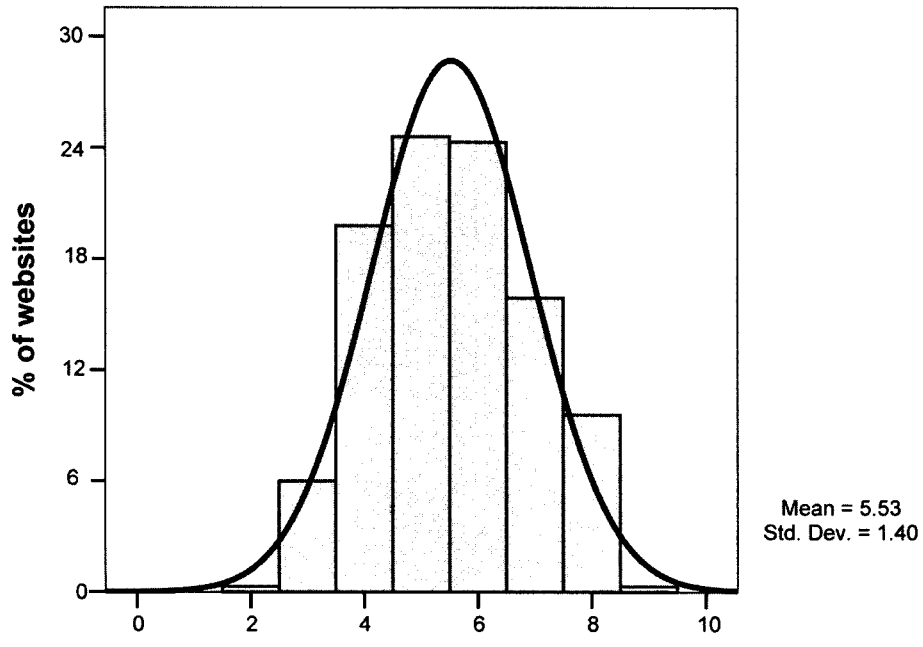

Figure 1: Number of Web Design Guidelines Followed by Websites

sary to word the first three measures of the table that involve the avoidance of web design errors in a negative direction.

An overwhelming majority of the sites avoided two of the three web design errors. Less than one percent of the sites required horizontal scrolling to view the home page at a 1024 X 768 screen resolution, and only 8% used splash pages. However, more than 60% of websites showed an "active" home link on their home page, a practice that is unnecessary, redundant, and against the design guidelines of web proponents cited in this paper.

The extent to which the sites followed web conventions was variable. At slightly more than half of the sites (55%) hyperlinks were underlined, while they were less frequently blue (45%). More strikingly, the text color of links changed after being clicked at only about one-fourth of the sites (27%). Most sites (73%) provided a clickable "home" text link on internal pages, while an "active" company logo as a home link was used less often (61%).

The rates at which the sites included features to promote usability were rather low. Only about 11% included a breadcrumb trail, just 23% contained a site search option, and only 14% had an FAQ or Help as a main navigation option on the home page.

Figure 1 presents a summated measure of the extent to which sites followed all eleven measures considered in this study. As indicated, the mean number of design guidelines followed per site was 5.5 (out of a possible 11). It is interesting to note that the distribution of company websites in terms of the number of guidelines followed roughly resembles a normal distribution.

DISCUSSION AND CONCLUSIONS

The results of this study appear to suggest three categories of outcomes: (1) usability guidelines that are frequently followed by companies and overall, do not appear to be a significant problem in web design; (2) guidelines where practices are highly variable but whose impact may not be as strong as some sources suggested a few years ago; and (3) guidelines that are not followed consistently and represent opportunities to improve web usability in a measurable way.

The most frequently followed guidelines by web designer were not to require horizontal scrolling and not to use splash pages. About 99% and 92% of sites, respectively, adhered to these practices. There may be greater consensus among designers to follow these guidelines today compared to earlier times. For example, Nielsen and Loranger [13] observe that when Flash technology emerged several years ago, a number of designers were quick to implement it in the form of splash pages thinking it was "cool." This study found only a small percentage of sites (8%) still uses them. While this outcome is low, it suggests that Nielsen and Loranger make an overstatement in their 2006 book that, "Flash intros are almost extinct" [13, p. 90].

The conventions to underline and use blue for hyperlinks were followed by 55% and 45% of the websites, respectively. Although this indicates substantial variation in practices, the impact of companies not following these conventions is probably mitigated by user experience. Nielsen and Loranger [13] contend that with more Web experience, many users have become accustomed to seeing links not underlined and/or not blue, and have become more adept at figuring out links. So, while design practices in this regard could be a lot more consistent, they are arguably not a significant problem. It should also be noted that sites that change the display of links from not underlined to underlined, or not blue to blue, upon a "mouse rollover" were counted in this study as not following these web conventions (for reasons explained earlier). Since the "mouse rollover" cue for links is provided on dozens of additional sites, it helps users identify links and it also serves as a "mitigating factor" in reducing the impact of the problem of links not being underlined and/or blue.

The results for the remaining seven measures considered in this study appear to offer more substantial opportunity to improve web usability. Strikingly, a color change for clicked links was found at only 27% of the websites. It is clear to imagine how this could be annoying to users as they try to figure out which links they have visited and which they have not, especially when presented with a long list of links. According to Nielsen and Loranger, this remains one of the most important, persistent problems to web usability. These authors conclude from their usability tests that while users do fairly well in remembering which links they have clicked at an individual screen, their recall is far worse as they navigate between different screens [13]. Thus, better usability could be achieved at many sites if designers would discontinue the practice of disabling link color changes when constructing web pages.

A second way many websites can be improved as suggested by the findings of this study is to include more features to promote usability. Only 11% of the sites had breadcrumb trails, just 23% had site search capabilities, and 14% had a FAQ or Help option. These are positive, "proactive" screen elements that can aid users in understanding and navigating a site, yet relatively few websites were found to include them.

Thirdly, the results suggest that websites could be a lot more consistent in their use of links back to the home page to avoid confusion and meet users' expectations. As noted earlier, while many users expect a company logo to be an active, home link, it was found at only a slight majority of sites (61%). About a third of the sites (34%) displayed an inactive logo and 5% of sites showed no logos. It is easy to imagine users getting frustrated as clicking the company logo at different sites results in different actions (if the logo is present at all). In contrast, websites more commonly displayed a "home" text link on internal pages (73% of sites did this). Additional data analysis on the two link measures considered together revealed that 40% of the sites had both a "home" link and an active, company logo link. About half (56%) had one of these two link types, and incredibly 5% of the sites had neither link type. Thus, websites can be considerably more consistent in their use of home links.

Finally, it is a bit puzzling why so many websites (62% of them) display a "home" link on the home page. Specifically, these links are active at 57% of the sites and present but inactive at 5% of sites. Less than half of the sites (38%) show no "home" link on the home page as good design practices would suggest. Displaying a "home" link on the home page is redundant and it serves no real purpose other than to reload the same page. It can be confusing and disorienting to users especially if the home page contains rotating images, and causes the user to question whether or not a page has been viewed. This problem can be eliminated if designers would simply alter the codes of their home pages to prevent it.

Thus, the results of this study suggest some specific ways the design of websites can be improved to promote better usability. Some of the measures considered in this analysis may appear rather minor to certain readers. However, in web design, as in all systems design, it is the details that matter. As in professional sports where the outcome of a game can rest on what happens on a single play, whether or not a user decides to remain at a compa-

ny's website can hinge on a few details of the user experience. In many cases, a single design "flaw" may not cause a user to abandon a website. However, the cumulative effect of multiple irritations or frustrations may be enough to "tip the balance" from the use of one website to another one. Usability studies demonstrate rather clearly that many users are impatient on the web – they want to find what they want quickly and easily. Websites should not present obstacles or leave users wondering about how to perform desired operations. Companies who do not make usability a priority in the design of their websites run the risk of losing site traffic and sales. The results of this study suggest that many companies should reexamine their websites through the "lens" of usability and take needed actions to improve it.

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