

THE GOLDEN RULES OF INTERFACE DESIGN: IS ANYONE LISTENING?

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ABSTRACT

Since the Internet entered into our lives there has been much debate about what constitutes good web page design. Now an enormous amount of information on web design guidelines is available in journals, books, and on the Web (Ohnemus, 1997). The problem with such guidelines is that they often represent the authors' opinion and lack empirical validation. This study investigates whether top-rated websites as determined by the Webby Awards and Google search engine are violating design principles established by Jacob Neilson.

Keywords: interface design, web design, human-computer interface, e-commerce

INTRODUCTION

Since the Internet entered into our lives there has been much debate about different aspects of doing business online. For most small and medium size enterprises e-commerce can be an incredibly attractive because it helps to extend their customer base into a global market without substantial expense (Tetteh, Burn, 2001). Well-established traditional type companies expand their businesses over the WWW as well. Companies use the Internet for various purposes: marketing (Wilson, Abel, 2002), advertising (Singh, Dalal, 1999), communication (Deeter, Dawn, Kennedy, 2002), intercompany transactions (Lucking, Spulber, 2001), and many others.

Web designers face a great challenge of making their web page popular by attracting potential customers in any way possible (Dholakia, Rego, 1998). Growing business on the Internet has created extremely competitive environment compelling organizations to focus on developing long-term relationships with their customers. In e-commerce, trust becomes an essential requirement for building the customer-retailer relationships. (Papadopoulou, Andreou, Kanellis, Martakos, 2001). Studies show that interface design positively influences trust of potential customers (Fogg, Tseng, 1999; Shneiderman, 2000; Roy, Dewit, Aubert, 2001). Therefore, building a web page that establishes a strong connection between customers and retailers becomes a priority for designers.

Nielsen was named "the world's leading expert on Web usability" (US News & World Report, 2000). Most web design professionals refer to Nielsen in their studies. He describes the quality of a web page by its usability. The term usability refers to "the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in specified context of use" (ISO, 1998). The guidelines offered by Nielsen cover page, content, and the site design.

The purpose of this study is to determine if top-rated websites as determined by the Webby Awards and Google search engine are following the design principles established by Jacob Neilson.

REVIEW OF LITERATURE

Many web design professional offer guidelines on how to create a great and successful web page. (Nielsen, 1999; Ohnemus, 1997; Lynch, Horton, 1999; Geissler, 2001) A great number of articles and other types of literature is available about web interface design principles and guidelines in professional journals, textbooks and online (Sowards, 1997; Ivory, Sinha, Hearst, 2001). According to Nielsen, guidelines, standards and systematic usability engineering methodology can dramatically enhance a site's chance of success (Nielsen, 1999). These guidelines and rules cover all areas of web page design. At the same time books on web design usually contain only the author's opinion that is not supported by empirical data (Spool, Schroeder, Scanlon, Snyder, 1998; Shneiderman, 1998). Researchers continually attempt to evaluate web sites to support one guideline or the other. They analyze web sites based on different criteria such as: site structure (Nel, *et. al.*, 1999); content, daily hit-rate (Dholakia, Rego, 1998); and users' personal perception (Ivory, Sinha, Hearst, 2001).

Despite some similarities (Butler, 1997; Shneiderman & others, 1998) studies show that among traditional interface design guidelines only 20% are included in web-relevant rules (Ratner, Grose, Forsythe, 1996; Ohnemus, 1997). Nielsen discusses how designing for the web is different from traditional user interfaces. (Nielsen, 1997; Nielsen & others, 1998) Similarities and differences of traditional and web interface design are discussed among interface design professionals (Shneiderman, Nielsen, Butler, Levi, 1998) but they have not come to any definite conclusion. One reason this question has not been resolved is because there is not much empirical confirmation of whether web design follows the same guidelines as traditional user interface does. Ohnemus reasons that many web style guides do not reference to traditional style guides because the wide diversity of web developers. Web design rules mostly focus on visual content of a page. They deal with design characteristics like font size, word count, color combinations, navigation and search options, and others. Traditional interface design guidelines, on the other hand, address issues like dialog design, error handling, availability reverse actions, and other similar issues.

Nielsen argues that the main difference between traditional HCI and web page design is that a web designer has to give up full control of the user interface (Nielsen, 1998). This is because the interface can vary based on the browser the user has, monitor size and other factors. In traditional HCI design designers control every pixel of the screen that users view, and also they can control navigation by menu options (Nielsen, 1997). On the web users control their own navigation and

can jump from page to page in ways that were not intended in the design. They also can get to a site's internal pages without ever going to the home page using search engines. Scott Butler argues that principles of good interface design are relevant for traditional as well as web design. Computer product designers have the same problems and challenges as web designers do (Nielsen, 1997). They need to apply usability testing for diverse audiences and different purposes.

Most professionals tend to separate techniques and guidelines used for software design with those used to create web pages. Though according to the study only one fifth of traditional UI recommendations are found in web design rules (Ratner, Grose, Forsythe, 1996), it may not mean that following the rest of such recommendations does not bring a higher usability to a web site design.

In 1996 Jacob Nielsen identified top ten mistakes that are made by most web designers. They are:

1. using frames;
2. using special plug-ins and java-script errors;
3. inserting scrolling text and looping animation;
4. making complex URLs;
5. creating orphan pages;
6. creating long navigation pages;
7. lack of navigation support;
8. using non-standard link colors;
9. having outdated information;
10. slow download times.

This list is based on personal observations of J. Nielsen and is not supported with any empirical evidence. As we perceive, there is a great need to conduct a study that would support any set of guidelines to make them truly useful. According to Nielsen, his "Top Ten Mistakes" were viewed over 400,000 times between 1996 and 1999. Thousands of designers referred to this set of rules in building their web pages (Nielsen, 1999). In this study we attempt to determine if top-rated websites are following such well-respected guidelines.

Methods and Procedures

For the purpose of this study 30 websites were chosen from The Webby Awards nominees and winners for 2001 from different categories. The Webby Awards is the leading international honor for achievement in technology and creativity. "The Webby Award nominees and winners are selected by members of The International Academy of Digital Arts and Sciences (The Academy) from the best sites entered through the Call for Entries and sites encountered in the judges experiences. Evaluated against six criteria, sites undergo a rigorous six-month, three-tiered process to win the coveted Webby Award. All balloting is audited by PricewaterhouseCoopers. " The criteria which are used for evaluating of the websites are: content; structure and navigation; visual design; functionality; interactivity; and overall experience. All websites are divided into 30 categories. For the purpose of this study only 6

categories were chosen: Commerce, Education, Finance, Health, Sports, and Travel.

Also 30 web sites were chosen using Google search engine. Google search was done using keywords “commerce web sites”; “education web sites”, finance web sites”; “health web sites”; “sports web sites”; and “travel web sites”. The top 5 sites from each search were evaluated. Google rates web pages using PageRank™ software according to the number of links to each web site. The more links a web page has the higher its rank is. Therefore, it is reasonable to assume that the top sites from the search have high quality.

Data collection

Each of the web sites was reviewed on occurrence of each of the ten possible mistakes defined by Nielsen. On each of the 10 rules the websites were rated from 1 to 5, 1 being for no violation of the rule and 5 – a major violation. In this study, simple percentages were calculated to determine the percentage of websites that were avoiding Nielsen’s design top ten web design mistakes.

Findings

A summary of our samples’ violations of Nielsen’s ten rules are provided below:

Rule 1 violations - Only 3% of pages used frames. Those sites that use frames are more likely to have complex URLs, plug-in errors, and non-standard link colors.

Rule 2 violations - Java-script errors occur on 8% of examined sites.

Rule 3 violations - 50% of all analyzed sites had destructing animation for advertisements and implemented scrolling or pull-down menus.

Rule 4 violations - 43% of all sites had complex URLs, 31% used special symbols (&%?#, etc.), and 12% used special symbols and had length more than 70 letters/symbols.

Rule 5 violations - 26% of the pages had some type of navigation problem, such as homepage link is absent on internal pages, new browser windows open when a link is clicked, and no site map available. Additionally, 15% of all the sites did not have a page that would connect to the homepage, or the logo-link opens a page other than the site main page. Analysis showed that sites that had lack of navigation support are more likely to use destructing animation, have orphan pages, and use outdated information.

Rule 6 violations - 28% had the index page 2-3 Internet Explore maximized screens long and 33% had at least 3 screens long homepages and 6% of all sites had the homepage more than 5 screens long. Therefore, only 1/3 of all analyzed websites had the homepage 1-2 screens long.

Rule 7 violations - 20% of all sites had some variation from traditional format of navigation links.

Rule 8 violations – 25% of all sites incorporated link colors other than those prescribed by Neilson.

Rule 9 violations - 23% of the sites had outdated information.

Rule 10 violations – 33% of the sites produced slow download times. These sites took longer than 10 seconds to load on a 56K modem.

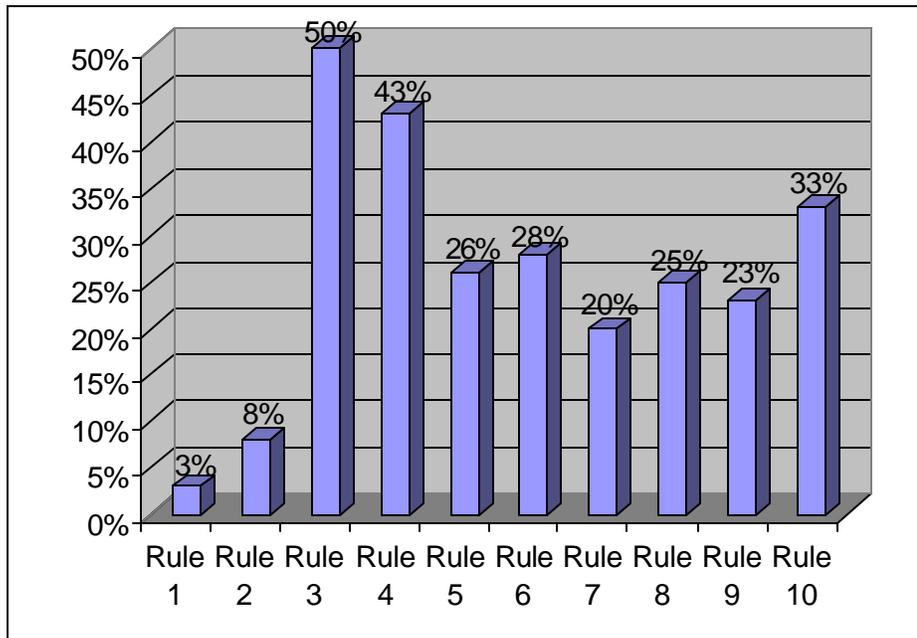


Figure 1. Web Violations Results.

CONCLUSIONS

This study suggests that many of the “top-rated” websites are not avoiding Nielsen’s top ten mistakes that are made by most web designers. We initially thought that top rated sites would be in strict compliance to avoid these design violations and greater concern would be placed on web usability.

We believe that the quality of a web page should, in part, be measured by its usability. While there is no generally agreed definition of the term usability, the International Standards Organization (ISO) offers the following definition as listed in Karvonen (2000): the usability is “the extend to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in specified context of use” (ISO, 1998). It can be argued that failing to avoid Nielsen’s top ten mistakes can reduce the usability of a website. However, it appears that following Nielsen’s sound principles may have very little to do with the success of a website.

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