



Usability News is a free web newsletter that is produced by the Software Usability Research Laboratory (SURL) at Wichita State University. The SURL team specializes in software/website user interface design, usability testing, and research in human-computer interaction.

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Finding Information on the Web: Does the Amount of Whitespace Really Matter?

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It has been a long-held notion that the use of open space or "whitespace" adds not only to the attractiveness of the design of a written publication, but adds to the functionality as well. For example, it has been stated that whitespace plays the crucial role of "directing the viewer's attention to the regions where important information is provided and allowing the global structure of the composition to assume a meaningful configuration" (Mullet & Sano, 1995, p. 126). It is contended that Whitespace "gives the eye a place to rest...It can help to organize the material on the page. It can tie successive pages together by repetition of identifiable areas" (White, 1974, p. 48).

However, it has been asserted by Web usability researcher Jared Spool that these assumptions should not apply to Web design. That is, in his book, *Web Site Usability: A Designer's Guide* (Spool, et al. 1997), Spool stated that he and his associates found that websites with more whitespace "fared worse in terms of users' success in finding information" than more dense layouts (Spool, et al. 1998).

Specifically they found that users, while analyzing eight websites, perceive the websites with greater whitespace as having lower perceptions of:

finding things easily, ease of reading, ease of searching, overall appearance, ease of use, and productivity (Spool et al., 1997).

Spool and his associates state that the reason for this may be because users typically skim web pages for information, rather than read it and, thus, the more tightly packed the information is, the better (Spool et al., 1998).

However, it should be noted that the method used by Spool for analyzing whitespace preferences and search performance for websites has some limitations. First, their study compared 11 websites, each having different functions and goals, but the results are generalized to all websites. Second, to determine the amount of whitespace on each site homepage, they had people block out the text and graphics and rank the amount of whitespace by site. Success of finding information was compared across the ranked sites. No consideration was given, however, to the different purposes, sizes, layouts, or structures of the sites.

We were curious as to whether these limitations did impact preference and performance so we designed a study that analyzed three websites identical in content but different in the amount of whitespace displayed. One website (called Low, see Figure 1) had almost no whitespace [one character space (3mm) separated one column from another and no additional space was added between paragraphs]. Another website (called Medium, see Figure 2) had 4 character spaces (9 mm) between each column and blank line (9 mm) between each paragraph. The third website (called High, see Figure 3) had 11 character spaces (19 mm) between each column and 4 blank lines (19 mm) between each paragraph.

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Figure 1. Low amount of whitespace.



Figure 2. Medium amount of whitespace.





Figure 3. High amount of Whitespace.

In our study, sixteen participants were given 15 randomly assigned task questions (such as, "A friend of yours is interested in hiking the backwoods of Alaska or the jungles of the Amazon basin of South America. Find the site that mentions both of these areas") in which they were to try to find the link that would give them information on the questions they received. Five of these questions would refer to one of the three randomly assigned whitespace conditions (i.e., Low, Medium, High). The next five questions would go the next condition and the next five to the other. After finding the correct link for each task question, participants ranked the difficulty (1 = very easy to 5 = very difficult) in finding the information. Moreover, after all the task questions have been identified, participants ranked their preference for each condition and answered a usability satisfaction questionnaire.

Using a within-subject ANOVA we found no significant differences in the time taken to find the hyperlinks or the number of search errors between the whitespace conditions. There were, however, some differences in the participants' level of satisfaction with the amounts of whitespace. Participants were significantly more satisfied with the Medium (Mean = 4.63) amount of whitespace, when compared to the Low (Mean = 3.5) amount of whitespace [$F(2, 30) = 3.29, p = .051$]. (No significant differences were found between the Low - High or Med - High.) In addition, users significantly ranked their overall preference for the Medium level of whitespace.

From these results we conclude that medium levels of whitespace should produce higher levels of satisfaction and overall preference than very dense or very spread-out use of space. This was substantiated by statements made by some participants that the Low level of whitespace was too "cramped" to afford easy reading. The High amount of whitespace was described as being easier to read than the Low space, however the participants stated that they felt it was slower since they had to scroll more to see all of the text. In other words, users indicated that too little whitespace caused the layout to be too compact, and thus more difficult to read, whereas too much whitespace gave the layout an "empty" look and required extra scrolling.

This study demonstrated that some whitespace may be better (at least from a user's preference) than none or too much. Additional studies need to be done to determine how much whitespace is actually optimal and whether performance is impacted when a site with many pages is used. It is unlikely that a magic number can be attained since content, structure, and layout of a website may also contribute to search performance.

Note: A presentation based on this work was presented at the Usability Professional Association's 10th (2001) Annual Meeting in Las Vegas.

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