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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.
[Barbara S. Chaparro](#), Editor

Influence of Training and Exposure on the Usage of Breadcrumb Navigation

By [Spring S. Hull](#)

Summary: Recent studies have shown that while the use of breadcrumb trails to navigate a website can be helpful, few users choose to utilize this method of navigation. This study investigates the effects of "mere exposure" and training on breadcrumb usage. Findings indicate that brief training on the benefits of breadcrumb usage resulted in more efficient search behavior.

A *breadcrumb trail* is a textual representation of a site's structure, e.g., Home > Furniture > Chairs > Leather Chairs. This representation of information allows users to link to major categories of information along a continuum of sequential order. Research has reported that breadcrumb navigation improves site efficiency (Maldonado & Resnick, 2002; Bowler, Ng, & Schwartz, 2001). Results of previous studies exploring breadcrumb usage have shown that, when given a choice, users choose the Back button or navigation bar to navigate rather than the breadcrumb trail (Lida, Hull, & Pilcher, 2003). Shneiderman (1998) considers breadcrumb navigation to be a tool for frequent users. He states novice users who do not realize the advantage of the tools would simply ignore them. Lazar and Eisenbrey (2000) report that most people do not actually look at the breadcrumb trail.

A study by Lida-Rogers and Chaparro (2003) revealed that participants who did use the breadcrumb trail were found to use the Back button less often than users who did not use the breadcrumb; however, no differences were found in the efficiency measures of total pages visited, navigation bar clicks, embedded link clicks, or time to complete the search tasks. It was suggested that perhaps participants may not understand the function of the breadcrumb as a navigational tool and that possibly understanding the purpose of the breadcrumb trail or minimal training might impact usage and/or efficiency. According to Lazar and Eisenbrey (2000), the first step in making breadcrumb trails useful in practice is to teach users that they do exist and are a valuable resource.

In this study we considered the theory of mere exposure as a means of introducing participants to breadcrumb trails. According to Zajonc (1968), if the function of orienting behavior is eventually to change a novel stimulus into a familiar one, it is also its consequence to render the stimulus object eventually more attractive. Zajonc (1968) states that the mere repeated exposure of the individual to a stimulus object enhances his attitude toward it. We questioned if merely exposing participants to usage of breadcrumb trails was enough to enhance participants' frequency of breadcrumb usage.

METHOD

Participants

Thirty-nine college students (12 males and 27 females) with an average age of 23 (range 18 to 48) volunteered for this study. All participants reported being familiar with the Internet, with 59% of participants reporting they had used the Internet for at least the past five years and 82% estimating that they spend time on the Internet at least once a day.

Materials/Procedure

The Wal-Mart® website was chosen for examination as a breadcrumb trail is one method of navigation (Figure 1).



Figure 1. Breadcrumb trail used on Wal-Mart.com

Participants were randomly assigned to one of three conditions. Condition I participants were shown the use of the breadcrumb trail twice by the experimenter prior to testing. After this exposure, participants in this condition were then given an explanation of the breadcrumb trail by the experimenter and were requested to use this method of navigation “whenever it is possible and most efficient to do so.” Condition II participants served as the mere exposure group and were shown the same usage of the breadcrumb trail as participants in Condition I. However, this group was given no explanation or instruction to use the breadcrumb trail. Condition III participants received no exposure, explanation, or instruction on the breadcrumb trail.

Participants were provided with a scenario indicating that they would be going on a camping trip and needed to purchase some items from the Wal-Mart® website for the trip (e.g., tent, sleeping bag, fishing pole, camera).

RESULTS

Participants in Condition I (Exposure & Instruction) generally used the breadcrumb trail more, the Back button less, and traversed fewer pages to purchase the items than participants in the other two conditions. However, no significant difference was found between the Condition II (Mere Exposure) and III (No Exposure or Instruction) participants in terms of the number of breadcrumb clicks, Back clicks, or total pages traversed.

Table 1. Comparison of navigation data across conditions (n=13 per group)

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	Condition I Exposure & Instruction	Condition II Exposure	Condition III No Exposure or Instruction
Breadcrumb clicks	9.92(1.66)	6.07(4.56)	5.62(4.75)
Back clicks	.31(.631)	5.31(6.97)	5.38(6.55)
Total pages	58.62(3.99)	65.46 (5.97)	68.77(5.78)
Total Time (in sec.)	560.46(93.01)	724.08 (264.69)	832.54(170.37)

A significant difference was found for total time to complete search tasks. Post hoc analysis revealed that participants in Condition I completed all tasks in significantly less time than both Condition II and Condition III (see Figure 2, below). Total number of pages visited was also significantly different across groups. Participants in Condition I traversed fewer pages than participants in the other two conditions.

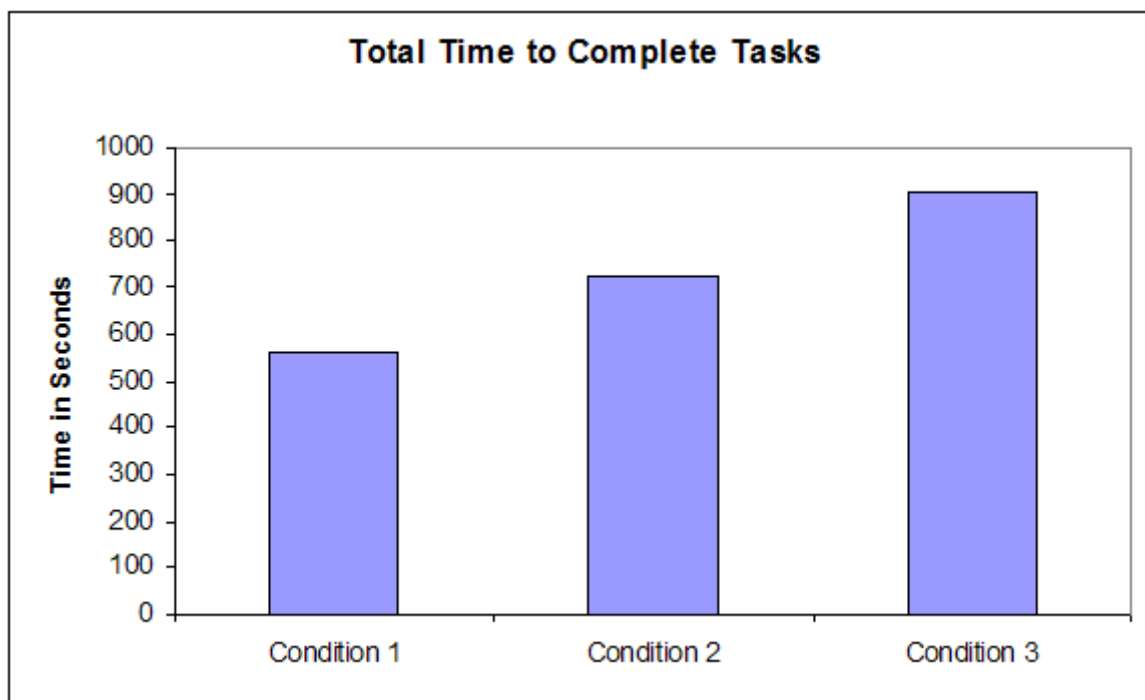


Figure 2. Total time for participants to complete all tasks for each condition

DISCUSSION

In this study, participants were tested in one of three conditions to determine the impact minimal training and exposure had on influencing usage of breadcrumb navigation. It was hypothesized that merely exposing participants to usage of breadcrumb trails would prompt participants to use the shortcut tool for navigation. We found that mere exposure alone was not enough to significantly influence their usage more than the participants receiving no exposure to the breadcrumb trail. However, we did find that minimal training did affect participants' usage of the breadcrumb trails and resulted in quicker completion times, visited fewer pages, and minimal use of the Back button.

On average, those participants who received both exposure and instruction completed all tasks

much faster than participants receiving only exposure (3 min) and those receiving no exposure or instruction (4 min). This time savings could result in increased productivity for users that search websites on a daily basis. Future research should investigate the development of navigational training, especially in corporate environments, where time savings could translate into significant corporate savings.

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