An Evaluation of ‘Senior-Friendly’ Web Guidelines

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1. Introduction

In 2003, a study recorded that those aged 55+ years, comprising 29% of the total population, accounted for 17.2% of the online users [1]. Although Internet usage is increasing overall, there remain millions of elderly that have yet to acknowledge the technology age is upon them. There may be a broad spectrum of reasons technology is not quickly adopted by older adults, such as computer anxiety [2], having little exposure or training to technology [3], or simply not understanding the possible benefits of use [4].

Regardless of age, however, users are rarely considered in website design. Thus, many groups and researchers have developed comprehensive sets of guidelines to improve accessibility such as the Web Content Accessibility Guidelines (W3/WAI) and the government instituted U.S. Section 508 Guidelines. The National Institute on Aging (NIA) and the National Library of Medicine (NLM) advanced the above guidelines one step further by developing “senior-friendly” guidelines that are even more specific to the older adult Internet user. In 2002, these two groups published Making Your Web Site Senior Friendly: A Checklist consisting of twenty-five empirically-based guidelines for those websites targeting users 60+ [5]. The authors suggest the “implementation of these guidelines in web site construction will result in greater accessibility to online information for the elderly” and influence future willingness to explore the Web and increase enthusiasm toward technology.

2. Experiment, Results, Discussion, and Significance

The purpose of Experiment One was to determine how current websites geared toward older adults adhere to the senior-friendly guidelines. Using heuristic evaluation techniques, expert raters identified whether a website conformed to the basic principles of usability following the NIA/NLM guidelines. Thirty-six websites were included in the analysis.

Each of the twenty-five checklist items were rated on a 4-point scale to determine if the “Senior-Friendly” guidelines were followed or used by the particular site; the scores from all four raters were combined to form a “Total Score” comprised of the number of guidelines rated as frequently or always present on the website. After the total points were calculated, the websites were classified into three groups; Most compliant (greater than 70% guideline adherence), Medium (between 51-69% adherence), and Least compliant to the guidelines (less than 50% adherence). The 36 websites’ total scores ranged from 13 to 23 points (M= 18.7, SD= 2.68); 22% of the websites had 13 -16 points (Least), 47% had 17 to 20 points (Medium), and 30.5% of the senior websites scored 21 to 24 points (Most).

Only seven of the proposed guidelines were scored as “frequently” or “always” present at 95% of the sites and another four guidelines were only followed by 25% or less of the websites. In general, the majority of the sites complied with the guidelines related to basic navigation, content phrasing, and style. Fewer adherences, however, were found for the guidelines specifying text size, text weight, line spacing, textual links with graphics, or site map availability. The lack of conformity with regard to the formatting of the textual content and formatting was surprising, given the fact that one of the most fundamental guidelines for developing reading materials for older adults is to provide enlarged and high contrast text [5, 6]. The other guidelines did not appear to be consistently present (were lacking) across the different website designs.

2.2 Experiment Two

From each of the compliance groups in Experiment One, one website was chosen for further usability testing by senior Internet users. The second study tested the level of adherence to the ‘senior-friendly’ guidelines influenced by perceived usability and preference of the sites by targeted users.
Twenty-one participants over the age of 50 were selected, mean age was 64.4 years old (SD=10.5, range 50 to 85). The group was comprised of fourteen women (66.7%) and seven men (33.3%) similar to the current US male/female ratio for older adults. Participants were tested during a one-hour session, in which they were presented each of the three websites in a counter-balanced order.

The tasks asked the participant to: (1) familiarize with homepage and content; (2) search the website for ‘Medicare’ related information; (3) find an email or contact number for the website’s administrator/webmaster; (4) search site and find specific articles and (5) navigate through the site to a specific point and return to the homepage. The latter four usability tasks were randomized and were developed to test different design elements and Internet strategies and were the same or similar to allow comparisons across websites. After all the tasks were attempted for each website condition, participants rated the difficulty of the task and filled out the System Usability Scale (SUS); adapted for web evaluation [7]. Following the completion of all three conditions, the participants were asked which of the three websites they preferred and which website they thought was the easiest to use. The participants’ performance was tracked using Ergobrowser® to collect data on search accuracy, task completion time, and search efficiency [8].

A repeated measures within-subjects design analysis of variance (ANOVA) was performed on the dependent measures of success or accuracy, efficiency, time to completion, as well as satisfaction measured by the SUS. Ratings for ‘preference’ and ‘easiest’ website were also examined. There was a significant main effect by website in order of guideline compliance $F(2, 36) = 4.123, p = 0.024, \text{partial } \eta^2 = 0.186$ for the number of tasks performed correctly, and a significant main effect by website (also in order of compliance) on the perceived usability scored on the System Usability Scale $F(2, 36) = 4.264, p = 0.022, \text{partial } \eta^2 = 0.192$. There was not a significant main effect found for any of the other dependent measures (efficiency, time or preference). Additionally, there was a significant correlation between sites rated by participants as the ‘easiest’ and the site ‘preferred most’ $r = .772, p < 0.001$.

3. Conclusions

Results from this study indicate that the website complaint with the most ‘senior-friendly’ guidelines did result in higher task success, but did not result in significantly lower time on tasks, fewer number of pages visited, or satisfaction.

These results seem to suggest that strict adherence to the senior-friendly guidelines does not always ensure high success performance and preference among older adult Internet users. Often guidelines are very general and do not exhaust all the heuristic principles of design. Perhaps identifying only the target audience for a website may not be a sufficient method for choosing which guidelines a website is designed from. Also, consideration should be given to the goals and tasks the user may have when selecting a particular site (success-driven versus browsing). As the older adult population continues to grow, usability and satisfaction of websites, especially those targeted toward seniors, will undoubtedly become more important. Future research in this area needs to address more effective guidelines, user-friendly websites, so that there are fewer frustrated Senior Internet users.

4. References